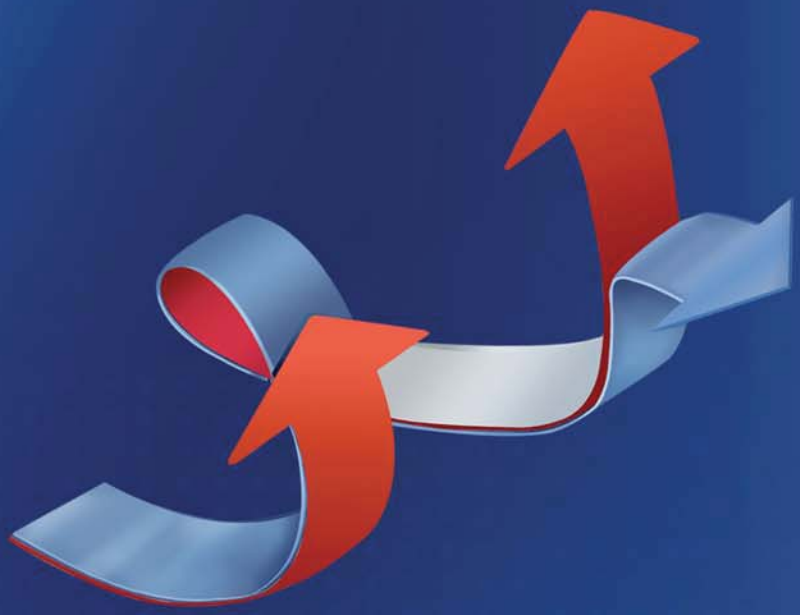
University of Split
Faculty of Economics

9th International Conference

Challenges of Europe: Growth and Competitiveness – Reversing the Trends

CONFERENCE PROCEEDINGS



Croatia, Split - Bol,
26th – 28th May, 2011

ISSN 1847-4497

International Conference

CHALLENGES OF EUROPE:

GROWTH AND COMPETITIVENESS - REVERSING THE TRENDS

9th

CONFERENCE

2 0 1 1

Publisher:
Faculty of Economics, University of Split
Matice hrvatske 31
21000 SPLIT, CROATIA
Phone: + 385 21 430 600
Fax: + 385 21 430 701

For the Publisher:
Branko Grčić, Dean

Managing Editors:
Zlatan Reić, Vladimir Šimić

Typesetting:
Vinko Muštra, Velimir Skroza

Cover Design:
Maja Ćukušić

CHALLENGES OF EUROPE: GROWTH AND COMPETITIVENESS - REVERSING THE TRENDS

Ninth International Conference

Challenges of Europe

Proceedings:

PDF on CD ROM with full papers

Edited by:

Faculty of Economics in Split

University of Split
Faculty of Economics
Split, Croatia

SPLIT - BOL, May 26-28, 2011

UDC 338.24(4)(063)

ISSN 1847-4497

Ninth International Conference on Challenges Of Europe

Under the patronage of:

His Excellency,
The President of the Republic of Croatia
Mr Ivo Josipović

Croatian Chamber of Commerce

Programme Committee:

Zlatan Reić, Chairperson (Croatia)

Nick Adnett (UK)
Will Bartlett (UK)
Milford Bateman (UK)
Giuseppe Canullo (Italy)
Božidar Cerović (Serbia)
Alberto Chilosi (Italy)
Muris Čičić (Bosnia-Herzegovina)
Petar Filipić (Croatia)
Vojmir Franičević (Croatia)
Jan Hanousek (Czech Republic)
Iraj Hashi (UK)
Ewa Helinska-Hughes (UK)
Michael Hughes (UK)
Tanja Kesić (Croatia)
Evan Kraft (USA)
Josef Langer (Austria)
Lubomír Lízal (Czech Republic)
Wim Meeusen (Belgium)
Katarina Ott (Croatia)
Janez Prašnikar (Slovenia)
Slavo Radošević (UK)
Gérard Roland (USA)
Jan Svejnar (USA)
Milica Uvalic (Italy)
Krešimir Žigić (Czech Republic)

CONTENTS

FOREWORD

The time that we prepared this Conference in is a time marked by very turbulent and complex processes that are in some places characterized by recovery and growth, and in others by continuation of crisis and stagnant tendencies. From the global point of view one cannot but notice that, regardless of the progress of material-technological presuppositions of the economic process, great majority of people living on this planet find themselves in a more difficult economic-social position. The same thesis can be applied to post-transition countries of South and Eastern Europe, including Croatia. Therefore, the Conference puts a special focus on „reversing the trends", on creative efforts that could bring us closer to answering the question why the development is so slow or non-existent at all. In these creative efforts we could restrict ourselves to well-known syntagm of Washington Consensus "privatize, liberalize, deregulate" that is still very present in heads of many economists and political decision-makers. Despite of empirical and historical evidence found in many relevant researches, in some of which our key-note speakers of this year took part, on overwhelming unsuccessfulness of these recipes when applied to non-existent or insufficient institutional and production basis, such comprehension of reaching satisfactory development still dominates.

Let me paraphrase professor Chang "… what really distinguishes the US or Germany, on one hand, and the Philippines or Nigeria, on the other hand, are their Boeings, Volkswagens, and not their economists or medical doctors." To reverse the trends, scientific and political public focus of interest has to be shifted from the market economy as a general, self-comprehensive and self-active place to economics of production, and primarily industrial production at that. It is impossible to evaluate the successfulness of functioning market economy, according to the perception that mainstream economists of today have about post-transition countries, without relating this economy to development of industry. Characteristic of a functioning market economy is that it is a situation in which economic relations are established by way of markets. This statement is not the answer to the questions how people live, whether people are employed, if their standard falls or grows. When shall we finally realize that the market economy is just means for realization of the end, and not master and means by itself?

Dominant neoliberal vision articulates the development as "… ersatz developmentalism - the belief that, if you educate them better, and make them healthier and give them security of property rights, rational self-seeking individuals will exercise their natural tendency to "truck and barter" and somehow create a prosperous economy. However, this vision is fundamentally at odds with the reality of development. In reality, development requires a lot of collective and systematic efforts at acquiring and accumulating better productive knowledge through the construction of better organizations, the cross-fertilization of ideas within it, and the channelling of individual entrepreneurial energy into collective entrepreneurship."

Domination of liberal recipes is visible in recommendations of the IMF and it can be read out in many countries of the world facing development, growth and competitiveness raising issues. Whether it is about Greece, Ireland, Spain, Portugal or Croatia, as a rule it comes down to the IMF requests towards economic policy creators related to reduction of salaries, cutting down of public administration and budget spending, reduction of public debt, speeding up the process of privatization and reducing expenses for health, pensions and social care. There are no recommendations orientated at development in the sense of increasing of national economies' production capacities that would be directed at initiatives for development of

progressive production capacities based on modern technologies. That would happen by itself, by work of the almighty market. Here it would be worth to mention that Friedrich List clearly pointed out a long time ago in 1840s "It is a very clever common device that when anyone has attained the summit of greatness, he kicks away the ladder by which he has climbed up, in order to deprive others of the means of climbing up after him. Any nation which by means of protective duties and restrictions has raised her manufacturing power to such a degree of development that no other nation can sustain free competition with her, can do nothing wiser than to throw away these ladders of her greatness, to preach to other nations the benefits of free trade, and to declare in penitent tones that she has hitherto wandered in the paths of error, and has now for the first time succeeded in discovering the truth".

I think that we, as economists, have a scientific obligation to contribute to the articulation of policies and politics run in our country and in a wider area. We have the obligation to warn the political elites that processes that go on in the field are not such as prescribed by economic models. This is our obligation primarily because of ethical reasons. Advancement of globalization processes and many integrations (such as the EU accession) particularly highlights the importance of negotiations. Negotiations are run between strong and weak actors. Objective and interest of one and the others are to reach agreement, consensus. „But to the extent that bargaining is steered by morality, the balance of advantage in the agreements depends on which of the two moralities prevails. One is the a-bit-better-than-the-jungle morality of "tit-for-tat", or reciprocity, which sanctions that the agreements reflect relative bargaining strengths; thus the strong do best. The second is the all-men-are-brothers morality, which says that the strong have a duty to restrain themselves to help the weaker. I suppose that we will all agree that the first type of morality prevails. So much more the reason for active and competent role of political factors in running of national politics that would create room for stronger presence of the other type of morality. Double morality is not witnessed only between the strong and weak actors on global stage. It is present in each individual country, even more so if the country is on a lower development level than anticipated by institutional and civilizational presuppositions of developed societies.

It is hoped that the participants of our Conference felt the strong urge to have a professional and ethical mission as professional economists and researchers, to have detected problems by analysis, to have pointed at them and to have articulated public and scientific say that will, in an easier or harder way, with complete misunderstanding or ideological criticism, acquire the right of public and thus contribute to reversing the trends.

In front of you are the Proceedings of the 9th International Conference “Challenges of Europe: Growth and Competitiveness – Reversing the Trends” organised by the Faculty of Economics, University of Split. I use this opportunity to kindly thank all the authors, the members of the Programme and Organising Committees as well as to the Management board and the staff at the Hotel “Elaphusa” in Bol for their valuable contributions to the Conference. A special thanks goes to the key-note speakers: Mr. Dani Rodrik, Mr. James Galbraith and Mr. Robert M. Grant. I also thank all the participants at the round table “Croatian Economy – Reversing the Trends” that was held during the Conference. Last but not least I particularly thank our sponsors and donors that recognised the importance of this Conference, especially given that they have also been burdened by the current economic and financial crisis.

Hoping that the papers that were reviewed, presented and discussed at the 9th International Conference “Challenges of Europe: Growth and Competitiveness – Reversing the Trends” which was held in Bol on the island of Brač in May 2011 will add to your knowledge and spur

interest on the considered issues I invite you to join our efforts with your contributions and active participation in investigating the current and up-to-date political-economic issues at the 10th International Conference which will be held in May 2013.

Split, October 2011

Programme Committee Chairperson
Professor Zlatan Reić

Sponsors of the Ninth International Conference

Challenges of Europe: Growth and Competitiveness – Reversing the Trends

INNOVATION CAPACITY AS A COMPETITIVE ADVANTAGE OF SMALL FIRMS IN CROATIA: An Empirical Analysis

Nikša Alfirević, Ph. D.
Faculty of Economics Split
Matice hrvatske 31, 21000 Split, Croatia
Phone ++385 21 430 657, fax. ++ 385 21 430 701
E-mail: niksa.alfirevic@efst.hr

Mira Krneta, Ph.D.
Croatian bank for reconstruction and development
Matice hrvatske 31, 21000 Split, Croatia
Phone ++385 21 430 732, fax. ++ 385 21 430 733
E-mail: mkrneta@hbor.hr

Jurica Pavičić, Ph.D.
Faculty of Economics and Business Zagreb
Trg J F Kennedy 6, 10000 Zagreb, Croatia
Phone ++385 1 238 3333, fax. ++385 1 233 5633
E-mail: jpavicic@efzg.hr

Key words: *innovation, entrepreneurship, competitiveness, SMEs*

ABSTRACT

The Small- and Medium-Enterprise (SME) sector represents a significant share of economic activity in Croatia, as well as contributes to the growth of employment, exports and the development of regions and industries affected by the economic crisis. In the economic environment, characterized by the global competition, innovation, i.e. its commercial application is considered to be an important factor for the survival of new SMEs (start-ups), as well as for strengthening their market position. This paper discusses the innovation capacity of SMEs on a sample of enterprises, which persist on developing their competitive advantage on the product (service) innovation, technological development, or the business model innovation. Authors emphasize identification of the ways in which knowledge and innovation are commercialized, including analysis of the major (both internal, and external) sources of innovation capacity, as well as support tools/policies (i.e. elements of the entrepreneurial infrastructure), that have been used for this purpose. It is believed that the research results will represent a useful basis for the conceptual definition of the innovative entrepreneurs, as well as for establishing indicators relevant for identification/assessment of SMEs' innovative capacity and networking. In a wider context, these results will open new venues in developing the entrepreneurial infrastructure that could support innovative entrepreneurs to establish new links with the academic sector, as to further develop their capacity for innovation.

1. INNOVATION IN BUSINESS CONTEXT

As conceptualized by Herzog (2011), innovation has many theoretical (and practical) dimensions, which can be included into a single definition only with quite a few difficulties. However, a new quality, created by products and/or processes, seems to be a good approach to defining innovation, (Hauschildt & Salomo[1], as cit. by Herzog, op. cit.). In addition, although it is often emphasized that the increased and globalized competition requires innovation as a prerequisite for business success, the (completely) new inventions are not (always) required, since it matters to commercialize a previously unused 'piece' of applicable knowledge (cf. Damanpour & Wischnevsky, 2006). This is especially important for small and medium enterprises (SMEs), whose innovative capacity may be the factor to 'make it or break' in the marketplace (cf. Hult, Hurley & Knight, 2004). Even for larger companies, new business development and its organizational 'nurturing' may become significant strategic competences (Vanhaverbeke & Peeters, 2005), which further leads into the discussion on intrapreneurship (being outside of the scope of this paper).

The object of innovation is usually perceived in terms of products/services and technological processes used, although the administrative processes and enterprise organization/management methods may be added to such a typology, as well (cf. Damanpour & Gopalakrishnan, 2001). One can also differentiate 'levels' of innovative behaviour, as theorized by commonly used concepts of incremental and radical innovation, which may be measured by the scale of change, generated by an innovation, which has been analysed in a classical paper by Venkatraman (1994), for the case of IT-induced organizational/inter-organizational/industry change. In addition, mode of innovation has been identified long before as a factor differentiating the relationship between strategy and structure (Ettlie, Bridges & O'Keefe, 1984).

Innovation can be also differentiated from the formalization viewpoint, by examining to what extent it follows the traditional patterns of a proprietary research & development process (for applied research), or the sequence of the typical process of scientific inquiry (for fundamental research). In both cases, the 'opening' of the innovation process seems to be a relevant approach for the globalized environment, with multiple arguments in favour of such a concept. For instance, Chesbrough (2003) points to the 'closed' innovation management process as the most important reason for the failure of the often analysed case of the Xerox PARC innovation centre. Namely, although this department of the Xerox Corporation has developed working prototypes of a pointing device (computer mouse) and a graphical user interface, it was Apple Computers and Microsoft, who capitalized these inventions. The further discussion, going beyond this well-publicized point, demonstrates that spin-offs, initially developed in the PARC centre, later outdid their former parent by market value (ibid).

The idea of 'open' innovation is based on the information-rich environment, which makes it extremely difficult to 'contain' scientific findings within the boundaries of an individual firm, in order to create economic advantage, based on such knowledge. According to Chesbrough (2006), both internal and external knowledge is used to create innovation and launch new products/services/processes, etc. Trigger for 'recombination' of different sources of knowledge can be found in any part of the organizational environment, with the innovation process also provided with multiple paths for commercialization of innovation output,

[1] Hauschildt, J.; Salomo, S. (2007): **Innovationsmanagement,** Vahlen, München.

including the selling, partnering, licensing and spin-off options (ibid). For small and medium enterprises (SMEs), especially start-ups, the notion of open innovation may provide innovation opportunities within networks, composed of SMEs and intermediaries, such as universities and research centres (Lee et al, 2010). This may account for some level of innovation capability outside of the research & development centres of larger enterprises.

At the other hand, Jensen et al (2007) introduce the 'Doing, Using and Interacting' mode of innovation, by opposing it to the more traditional 'Science, Technology and Innovation' concept, fuelled by the increased opportunities for IT-based communication and development of (often informal) communities of practice. In this context, the idea of open innovation can be also applied at the level of fundamental research and serve as a new perspective for the innovation policy.

2. ENTREPRENEURSHIP AND INNOVATION

As emphasized by Santarelli (2006), in his introduction to a volume on the relationship among entrepreneurship, innovation and economic growth, the Schumpeterian thought reveals the archetype of an entrepreneur as a person of high energy, not being afraid to part with the routine behaviour and introduce novelties into his or her activities, or environment. In this context, entrepreneurship seems to be inherently linked to innovative capacity and behaviour. This is becoming even more important, as development of information technology and global diffusion of knowledge create new entrepreneurial incentives (cf. Audretsch et al, 2001), with the entrepreneurship possessing capabilities to alleviate the problems of business cycles and economic crises (Koellinger & Thurik, 2009).

The high-tech sector is often perceived to be especially innovative and worthy of special forms of government support. Industries which tend to attract the public imagination, as a metaphor of innovation, seem to be the information technology (IT), biotechnology and similar sectors, regardless of the innovation's contribution to company performance, or intensity and success of innovation in other sectors. Such a finding has been confirmed for the case of UK in the 1990s by a literature review, performed by Hoffmann et al (1998). If the researchers seemed to accept such a 'distorted' view towards performance and public policies related to innovative entrepreneurship, even more challenging issues were to be found among the actors in public sector, in charge of developing entrepreneurial infrastructure.

Auerswald (2007) argues that the 'market failure' is usually cited as a rationale for public policy, due to the fact that commercial knowledge is non-excludable, i.e. it is easily copied and/or adopted, even to a degree, enabling potential competitors to circumvent patents and other forms of intellectual property protection. As a consequence, there is an imperfect appropriability for profits and other benefits, provided by one's invention, which provides a solid argument in favour of government support, even for 'market purists'. Nevertheless, the classical economic toolset does not provide adequate answers for the 21st century, since contemporary market conditions require a high level of technical sophistication, significant investments in technology and human resources, advanced networking, etc., in order to innovate successfully. Even in countries with a developed financial infrastructure, such as the U.S., it may be difficult to obtain direct support for inventions, or innovation in its early stage, since venture capitalists/business angels prefer to fund companies with actual products, or services in late stages of development (Auerswald, op. cit.).

Consequently, there is an ample space for developing entrepreneurial infrastructure, serving innovative start-ups. Dahlstrand & Stevenson (2010) review the European tradition of government support to innovation and identify several stages of its historic development: from the linear model (perceiving technology as a direct application of science and, thus, concentrated on assisting large universities, laboratories, institutes, etc., often belonging to the public sector), toward a more decentralized idea of a national innovation system (NIS). It involves the notion of a system/framework, consisting of actors and enablers of developing and implementing new products and technologies. Therefore, NIS also represents a policy concept for public support of innovation, as well as an academic model of knowledge production and application, initially described by Lundvall and Freeman[2], who used to it oppose the prevailing views of neoclassical economics and the linear science & technology model (Sharif, 2006). According to Chung (2002), NIS needs to coordinate three sets of actors (universities, public research institutions and commercial sector), in order to foster overall innovation capabilities in a national economy, which can be achieved by coordination regional innovation frameworks. NIS does not only chart the way for collaboration of different social sectors, but also provides a wider, socio-economic blueprint for constructing the environment supporting the economic growth and development (Švarc, 2005).

Building upon concepts emphasizing the geographical proximity as a factor of socio-economic development, such as M. E. Porter's (1998) cluster-based theory of regional competitiveness, the idea of a regional innovation system (RIS) has also been conceptualized. Based on multiple sources of innovation within a regional context (including culture and social relationships, geographical proximity, etc.), RIS can be analysed at a level of a city, district, NUTS region, or any other sub-national unit (Doloreux & Parto, 2005). In addition, relevance of the national innovation systems is challenged by alternative concepts, since globalization and increased concentration of innovative activities in trans-national corporations seem to change the 'rule of the game' (Freeman, 1995; Archibugi, Howels & Michie, 1999).

Based on the idea that commercialization of knowledge is becoming a major driver of economic growth and job creation, if a country does not wish to compete on low labour costs with the Asian economies, new public policies for supporting innovative entrepreneurship are being created. For instance, in Germany, during the 1990s, new regional policies have been introduced, focused on building regional clusters, as to create university start-up companies, as well as additional programs (so-called 'Unternehmenregions', i.e. 'enterprising regions') for funding regional cooperation in innovative entrepreneurship (cf. Audretsch, Beckamnn & Bonte, 2009).

This affirms the general position of Dahlstrand & Stevenson (2010), who argue that public policies for supporting entrepreneurship and innovation should be coordinated within a single framework, instead of 'patching' related fields of entrepreneurship and innovation by separate policy areas (traditionally addressed by the separate entrepreneurship/SME support policy and science & technology policy). They should also ensure the adequate performance of the innovation process, since, traditionally, large European investments into research & developments, in some sectors, have not been resulted in economic growth, workplace creation and other significant economic effects. Such a disproportion between the excellent scientific results, backed by public funds, and the lack of resulting technologies, products and

[2] Lundvall, B. (1985): **Product Innovation and User–producer Interaction,** Aalborg University Press, Aalborg; Freeman, C. (1987): **Technology, Policy, and Economic Performance: Lessons from Japan,** Pinter Publishers, London.

applicable innovation has been defined as the 'European Paradox' and addressed by the EU policy (European Commission, 1995).

3. CROATIA: TOWARD THE KNOWLEDGE-BASED ECONOMY?

Although the Republic of Croatia has pronounced development of the 'knowledge society' as one of its main national priorities (MZOS, 2006; 2007; 2008), several Croatian authors are questioning implementation of such a discourse in practice. Švarc (2006) argues that socio-economic factors and the overall course of the transition processes are the root causes of such a situation. Namely, adoption of isolated elements of market economy in the country, led by the *"de-industrializing elites"* (ibid., p. 157) of the 1990s, led to the development of a 're-traditionalized' social setting, incorporating characterized by the 'official' nostalgia toward the 'Gemeinschaft' (in terms of Toennies' (1887/1963/2002) 'Gemeinschaft' vs. 'Gesselschaft dichotomy). Therefore, even a contemporary structured innovation policy program (dubbed 'HITRA' – Program hrvatskog inovacijskog tehnologijskog razvitka, i.e. Program of Croatian innovation and technology development – see World Bank, 2004), could not create significant benefits, due to the social setting and culture, inappropriate to accept the principles, upon which the policy was supposed to be based. According to the same author (ibid.), this has created a fragmented and dysfunctional national system of innovation, which never progressed toward a 'full fledged' innovation policy.

Reform of the Croatian national innovation system and related policy/programs has been in progress since 2005, with the assistance of the World Bank. The supply side of this framework has been assessed as rather satisfactory, but its demand side and the actual application of innovation in the economy were quite disappointing (cf. Švarc & Bečić, 2007). Somewhat earlier, Aralica & Bačić (2005) have analysed the Croatian innovation system and capacity in the context of European integration and suggested that the most significant problems in this field are related to the utter neglect of the life-long learning and the low level of high-tech production sector in Croatia. Račić, Radas & Rajh (2005) have used the findings of the EU-wide Community Innovation Survey (conducted in 2004) and concluded that, at firm level, innovation seemed to be associated with the increased firm size, which used to practice the 'closed model' of innovation. In addition, most significant barriers to innovation were located within the companies themselves (including strategy and corporate culture), instead of being placed within the institution of the national innovation system (or ascribed to some other external reason).

However, it is difficult to attribute root causes of inadequate innovation capability of Croatian firms (which seems to be an accepted fact among Croatian authors in the field), to the organizational/managerial deficiencies only. Namely, Švarc (2005) believes that deficient innovation can be traced back to the overall processes of 'de-scientization', in addition to previously discussed 're-traditionalisation' and 'de-industrialization' (implemented by means of 'tycoon privatizations'). By the notion of 'de-scientization', she understands the social marginalization of the academic sector and science in general, due to the development of the 'anti-intellectual' climate.

Some other factors, contributing to the inadequate Croatian innovation performance, according to the same author, also include destruction of the technological infrastructure, which once included research institutes, located at the large companies that were privatized during the 1990s. Loss of such an infrastructure in often corrupted privatization processes, without a clear concept of how to replace the lost scientific potential, has been accompanied

by a 'research paradox' (similar to the European one) and weak cooperation between remaining (public) scientific institutions and industry (ibid). Therefore, the overall environment for fostering innovation became rather inappropriate, with policy measures fragmented and often incompatible.

In such a situation, *we believe that entrepreneurs needed to utilize their personal skills and knowledge, as well as their social capital, in order to successfully innovate.* Acceptance of such a hypothesis would require the *entrepreneurial characteristics (profiles) to be associated with (at least) some elements of their innovative behaviour,* which has been addressed by the empirical part of this study, performed on a sample of Croatian start-ups, supported by the *Croatian bank for reconstruction and development (HBOR).*

4. EMPIRICAL RESEARCH

4.1. Methodology of the empirical research

The empirical research of SME's innovative capacity has been conducted on a sample of 50 borrowers, which were randomly selected from the database of entrepreneurs using HBOR's program for start-up financial support in the 2005-2010 period[3]. *Definition of the start-up* adopted by HBOR relates to those individuals who haven't previously owned (or haven't been co-owners) of an independent business entity, but wish to start their own business, in order to secure permanent (self-) employment. Those entrepreneurs have a limited experience, both as owners, as well as managers, although they may have an extensive engineering, technological, or other form of experience, relevant for technological aspect(s) of innovation. The most important problem has been the low quality of the sampling reference that can be used to identify both start-ups and the population of entrepreneurs-beginners in Croatia. Based on the Global Entrepreneurship Monitor project results for the Republic of Croatia, in the 2002-2009 period, the average value of Total Entrepreneurship Activity (TEA) index has been 5.7[4]. This can be interpreted in terms of each 18th adult person (between the age of 18 and 64) having the intent to start their own business, or has already started their independent business activities within the previous 42 months. According to World Bank, there are 2.57 new entrepreneurs per 1000 active employees in Croatia, which is limited to the (new) owners of the public limited companies[5]. However, it is extremely difficult to obtain data on these individuals and their businesses, since a significant number of SMEs in Croatia exists only formally, without any employees, or significant business activities.

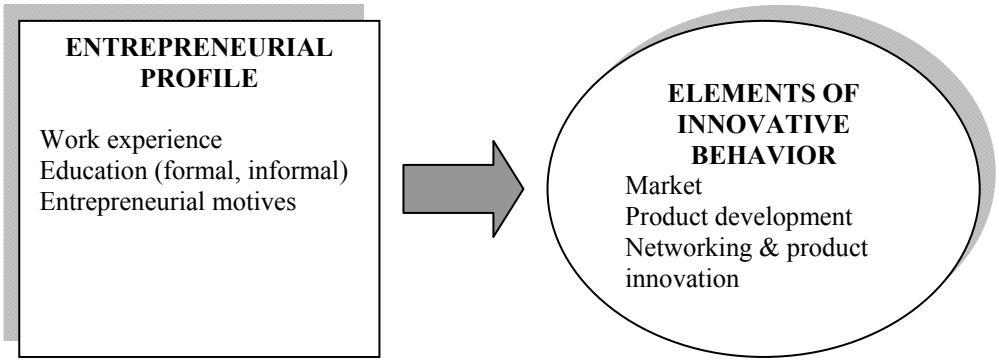
As to obtain more reliable data, even if only on an indicative sample, we chose to analyse the entrepreneurs who have successfully applied for the HBOR's financial assistance in 2010, which guarantees (at least) some level of administrative and entrepreneurial capacity, required to complete the required procedures and put the received funding into a productive use. Since there were only 50 successful applicants to this HBOR program in the Dalmatia office region, we emphasize the limitations of such a sample, which does not represent the overall reality of the Croatian SME sector. However, our respondents do represent a segment of Croatian start-up entrepreneurs with significant work experience and industry expertise (as demonstrated by analysis of entrepreneurial profiles, provided in Chapter 4.2), who, evidently, also have the minimum capacity required to handle complex administrative tasks, such as successfully applying for financial assistance from HBOR. In this context, they may be considered

[3] See details for this program at: http://www.hbor.hr/Default.aspx?sec=1323 [Accessed 1.3.2011]
[4] See the Global Entrepreneurship Monitor Web site: www.gemconsortium.com [Accessed 26.2.2011]
[5] See the Web site: http://rru.worldbank.org/businessplanet [Accessed 26.2.2011]

somewhat more advanced than the Croatian average, although the field is still 'under-researched' in Croatian business environment and open for further investigation.

We have designed the following analytical framework for the empirical research (see Figure 1), consisting of: (a) entrepreneurial profile (including formal education, previous experience with the industry) and (b) characteristics related to the innovation capability (including self-reported innovative activities and investment in innovation, as well as predisposition for cooperation and open innovation acceptance).

Figure 1. The analytical model of the empirical research



Source: Authors

We hypothesize the *existence of a relationship between the entrepreneurial and start-up profiles and innovative start-up behaviour.* Reasons for such a hypothesis have been already described, *since personal strengths of entrepreneurs are believed to compensate for the institutional deficiencies of the national innovation system.*

4.2. Profiles of entrepreneurs, start-ups and elements of their innovative behaviour

The surveyed start-up owners are mostly male (65%), highly educated (50%) and have more than ten years of practical work experience (76%). Majority of surveyed entrepreneurs are active in service industries (72%) and leverage their previous work experience, usually by continuing entrepreneurial activities in industries, in which they have already worked as employees (86%).

More than a half of surveyed start-ups are registered as public liability companies (52%), with majority of those being micro-enterprises, with only a handful of employees (59%). The preferred form of ownership is sole proprietorship (69%), which is expected for the case of start-ups. Most respondents are oriented toward the local (38%) and regional market (24%) and more than a half (55%) believe that their competition is quite harsh. However, only a little less than a half of surveyed start-ups (48%) have survived more than five years, with approximately one sixth (14%) demonstrating growth of revenue and created jobs.

Almost one fourth (24%) of respondents perceive their competitive position as being based on innovative technologies, while more than a half (60%) assess their capability in product (service) development either as very good, or excellent (measured on the Likert scale-type). Only a minority of approximately one third (36%) believes that the future might bring

problems with technology and its development. Majority of respondents (86%) are inclined to cooperating with other actors in pursuing different forms of innovation.

4.3. Relationship between entrepreneurial profiles and innovative behaviour

Entrepreneurs' innovative behaviour has been measured by several questionnaire items, including: (a) perception of the innovation level (measured by its impact to the strength of competition on the target market), (b) perception of company's competitive performance and innovative performance in product (service) innovation, (c) utilisation of business consulting/assistance in the fields of competitive analysis/optimization and product/service innovation and (d) involvement in business networking and affinity toward shared innovation activities.

In order to establish the existence of relationship between the entrepreneurial profile and the previously described elements of innovative behaviour, we have performed cross-tabulations of innovation indicators with respondents' education level, length of work experience, industry experience and international business (export) orientation. For each cross-tabulation[6], the value of chi-square statistic has been computed, in order to demonstrate the existence of hypothesized relationships. It should be noted that such a statistical procedure does not provide any additional information regarding the nature of the established (statistically significant) relationship, which required further detailed analysis of the groupings of cases in cross-tabulations.

Firstly, the self-reported level of innovative behaviour should be reported. As already noted, we decided to measure all forms of innovation (product/service, technological, organizational) by examining their perceived influence to the strength of competition.

Table 1. Level of innovative behaviour (measured in terms of entry barriers to competition)

		Frequency	**Percent**	**Valid percent**
Influence of innovation to the strength of competition…	No competition due to technological and product innovation barriers	12	24,0	24,5
	Strong competition due to the similar technological and product innovation	20	40,0	40,8
	Extremely strong competition due to complete lack of innovation	17	34,0	34,7
	Missing	1	2,0	
Total		**50**	**100,0**	

Source: research results (N = 49)

The obtained results indicate that the innovative behavior of responding start-ups either has a rather low intensity, or that is quite inefficient, since approximately two thirds of respondents from our sample perceive their competition either as strong, or extremely strong. Only one third of respondents enjoy some level of entry barriers in their market segments (or industries) due to innovation. Since we take the innovation (entrepreneurial) infrastructure as a given fact at this point of time, we proceeded with the evaluation of a potential relationship between innovative activities and the entrepreneurial profiles.

[6] Detailed cross-tabulations for all relationships are available from the authors.

As demonstrated by research results (see following table), only the industry experience seems to be associated with the perception of technological innovation, with the Chi-square test statistic being significant at the level of 1%. The following table provides a detailed cross-tabulation, which demonstrates that industry experience *is negatively related to the (perceived) innovative behaviour.* Other elements of the start-up entrepreneurial profile are not significantly associated with the perceived level of innovation.

Table 2. Chi-square statistic values for the relationship between the perceived innovation level and determinants of the entrepreneurial profile

Relationship between the perception of the innovation level and…	**Pearson Chi-Square Value**	**df**	**Pearson Chi-Square Asymp. Sig. (2-sided)**
N of Valid Cases = 49			
…education level	14,220	4	,007
…work experience	5,490	4	,241
…industry experience	16,742	2	**,000****
…international business (export) orientation	11,655	6	,070

Note: **Accepted at 1% significance level; * Accepted at 5% significance level.
Source: research results (N = 49).

There might be multiple explanations for such a finding, although the most relevant seems to be that previous industry experience (while being employed by another entrepreneur) seems to make the respondent susceptible to accepting the established industry practices. This finding might be further associated to utilization of innovation consulting (see Table 4).

Table 3.Perceived innovation level and industry experience cross-tabulation

		Industry experience		**Total**
		Existing	**Nonexistent**	
Perception of the innovation level (measured by the influence to competition)	No competition due to technological and product innovation barriers	6	6	12
	Strong competition due to the similar technological and product innovation	19	1	20
	Extremely strong competition due to complete lack of innovation	17	0	17
Total		**42**	**7**	**49**

Source: research results (N = 49)

Namely, the responding start-ups do not use the product/service innovation consulting and/or business assistance, while they seem a little bit more eager to use their (quite limited) resources in similar services in the field of competitive analysis and/or optimization. This might be a sign of their orientation toward optimizing their competitiveness within the existing industry structures/practices, instead of trying harder to innovate, although this needs to be confirmed by further research.

Table 4.Utilized business consulting/assistance services

Utilization of business consulting/assistance in…		**Frequency**	**Percent**	**Valid percent**
….product/ service innovation	None	25	50,0	78,1
	To some degree	2	4,0	6,3
	Often used	5	10,0	15,6
	Missing	18	36,0	
…competitive analysis/ optimization	None	13	26,0	41,9
	To some degree	8	16,0	25,8
	Often used	10	20,0	32,3
	Missing	19	38,0	
Total		**50**	**100,0**	

Source: research results (N = 32/31)

It is also interesting to analyze the relationship between utilization of business consulting/assistance services, especially in the field of innovation, and the profiles of the start-up entrepreneurs. Empirical results demonstrate (see following table) that the entrepreneurial profile seems to influence the innovation consulting much more than in the case of business assistance in the field of competitiveness. A small number of start-up entrepreneurs who do use the innovation consulting/assistance have a lower education level, but also less work and industry experience, which could be interpreted in the context of more experienced and 'industry insiders' relying more on their previous experience with routines learned while being employed. Furthermore, competitiveness consulting/assistance is significantly associated with the industry experience only, with 'industry insiders' willing to ask for such assistance quite often.

Table 5. Chi-square statistic values for the relationship between the utilization of business consulting/assistance services and determinants of the entrepreneurial profile

Relationship between the product/service innovation assistance and…	**Pearson Chi-Square Value**	**Df**	**Pearson Chi-Square Asymp. Sig. (2-sided)**
N of Valid Cases = 32			
…education level	6,000	2	**,050***
…work experience	9,739	4	**,045***
…industry experience	7,083	2	**,029***
…international business (export) orientation	5,826	6	,443
Relationship between the competitive analysis/optimization assistance and…	**Pearson Chi-Square Value**	**Df**	**Pearson Chi-Square Asymp. Sig. (2-sided)**
N of Valid Cases = 31			
…education level	,188	2	,910
…work experience	8,401	4	,078
…industry experience	6,147	2	**,046***
…international business (export) orientation	12,346	6	,055

Note: **Accepted at 1% significance level; * Accepted at 5% significance level.
Source: research results (N = 32/31)

We also analyzed the (perceived) levels of product/service innovation and competitive performance. Their ratings seem to be somewhat higher in the field of innovation (mean =

3.81; median = 4.00; st.dev = 0.938), than for the competitive performance (mean = 3.50; median = 3.50; st. dev = 1.006). This might be interpreted in the context of our respondents being somewhat more satisfied with the existing level and nature of product/service innovation, although its previous assessment – in terms of serving as a competitive barrier – should be viewed as quite unsatisfactory. To further explore this finding, we have performed cross-tabulations and computer chi-square statistic values for the relationship between the dimensions of perceived performance and characteristics of the entrepreneurial profile.

Table 6. Perceived product/service innovation and competitiveness performance

Perceived performance		**Frequency**	**Percent**	**Valid percent**
….product/ service innovation performance	Poor	0	0	0
	Adequate	4	8,0	8,3
	Good	14	28,0	29,2
	Very good	17	34,0	35,4
	Excellent	13	26,0	27,1
	Missing	2	4,0	
…competitive performance	Poor	1	2,0	2,2
	Adequate	6	12,0	13,0
	Good	16	32,0	34,8
	Very good	15	30,0	32,6
	Excellent	8	16,0	17,4
	Missing	4	8,0	
Total		**50**	**100,0**	

Source: research results (N = 48/46)

In both cases, education, work experience and export orientation are significantly associated with the performance evaluations, while industry experience does not seem to influence them.

Table 7. Chi-square statistic values for the relationship between the perceived performance dimensions and determinants of the entrepreneurial profile

Relationship between the perceived product/service performance and…	**Pearson Chi-Square Value**	**Df**	**Pearson Chi-Square Asymp. Sig. (2-sided)**
N of Valid Cases = 48			
…education level	24,417	6	**,000****
…work experience	14,950	6	**,021***
…industry experience	6,081	3	,108
…international business (export) orientation	39,584	9	**,000****
Relationship between the perceived competitive performance and…	**Pearson Chi-Square Value**	**Df**	**Pearson Chi-Square Asymp. Sig. (2-sided)**
N of Valid Cases = 46			
…education level	18,533	8	**,018***
…work experience	23,008	8	**,003****
…industry experience	6,922	4	,140
…international business (export) orientation	44,592	12	**,000****

Note: **Accepted at 1% significance level; * Accepted at 5% significance level.
Source: research results (N = 48/46)

Examination of cross-tabulations reveals some interesting trends[7]: high innovation performance scores are relatively clearly associated with higher (college-level) education, while easily identifiable trends can not be established for the work experience, or the export orientation. At the other hand, a clear grouping of analyzed respondents has been also identified for the case of a relationship between the high competitiveness scores and the higher education levels, while clear groupings for the work experience/export orientation are also quite difficult to identify.

Majority of respondents (based on N = 39 valid answers), i.e. 64% (i.e. 82,1% of valid answers) are inclined toward networking and open innovation. Unfortunately, it is not possible to explain such an inclination based on the start-up entrepreneurial profile (see following table for empirical results).

Table 8. Chi-square statistic values for the relationship between the inclination toward networking/open innovation and determinants of the entrepreneurial profile

Relationship between the inclination toward networking/open innovation and…	**Pearson Chi-Square Value**	**Df**	**Pearson Chi-Square Asymp. Sig. (2-sided)**
N of Valid Cases = 39			
…education level	3,486	1	,062 (Exact Sig. =,098)
…work experience	1,218	2	,544
…industry experience	1,866	1	,172 (Exact Sig. =,313)
…international business (export) orientation	5,890	3	,117

Note: **Accepted at 1% significance level; * Accepted at 5% significance level.
Source: research results (N = 39)

5. DISCUSSION OF RESULTS

Research results suggest that start-up entrepreneurs do not innovate efficiently, since the innovative activities do not create any protection from already significant competition in their market segments/industries. We suggest that, from the viewpoint of entrepreneurial profiles, the innovation problems might arise from the rather extensive industry experience, which makes the respondents susceptible to accepting already existing practices. Such a claim might be further substantiated by the utilization of different forms of business consulting/assistance.

It is not clear why predominantly higher education and rather extensive work experience are not significantly associated with the innovative behaviour, which should be the case from the theoretical viewpoint. This might lead to the conclusion that the existing innovation capacity has not been fully utilized in the existing start-ups, either due to the weaknesses of the innovation infrastructure, or the entrepreneurs' lack of motivation.

At the other hand, start-up entrepreneurs' perception of both their innovative and competitive performance is rather satisfactory, although innovation performance ratings are somewhat higher. We could not identify any clear statistical trends in this context, except for the higher education being a somewhat reliable predictor of higher perceived performance.

Majority of respondents also seem to be inclining toward business networking, which might be an appropriate indicator that the open innovation model has some potential for these start-

[7] Detailed cross-tabulations for all relationships are available from the authors.

ups. Nevertheless, we haven't been able to determine any potential relationship of such an inclination with the entrepreneurial profile.

These, rather disappointing results, should be analyzed in the context of the overall entrepreneurial profile of the national economy. According to the GEM project results (Singer, 2006), Croatian motivation index for entrepreneurship is somewhat higher than 1, which is interpreted in terms of a large amount of adult entrepreneurs due to necessity, instead of using the perceived business opportunities. In addition, the amount of entrepreneurs with their businesses surviving longer than 42 months is rather lower than for other comparable countries.

Therefore, we believe that, at the policy level, additional consideration should be dedicated both to development of analytical tools, as well as to improving the existing innovation infrastructure/policies. Namely, it is quite difficult to evaluate the results of the national innovation infrastructure, since a lack of nationally accepted definition of innovative entrepreneurship creates confusion as to what can be classified as an 'innovative' business, how these are comparable to the innovative SMEs in EU, as well as what is the dynamics of innovative entrepreneurship (according to industries, regions, entrepreneurial performance, etc). Reaching such a consensus is the least which can be done at the national level to support the innovative entrepreneurship. Namely, appropriate indicators (revenue generated by innovative products/services, their amount as a percentage of total revenue, research & development expenditures, their amount as a percentage of total costs) are rather simple and should be collected on regular basis, which is, currently, not the case in Croatian SME sector.

BIBLIOGRAPHY

Archibugi, D., Howells, J., Michie, J. (1999): **Innovation systems and policy in a global economy,** in: Archibugi, D., Howells, J., Michie, J., Eds: ***Innovation policy in a global economy,*** Cambridge University Press, Cambridge, pp. 1-18

Aralica, Z., Bečić, K. (2005): **Ocjena hrvatskoga inovacijskog potencijala,** in: Ott, K., Ed., ***Pridruživanje Hrvatske Europskoj uniji: Ususret izazovima pregovora,*** Institute of Public Finance & Friedrich Ebert Stiftung, Zagreb, pp. 127-156

Audretsch, D. B., Thurik, A. R., Verheul, I., Wennekers, S. (2001): **An eclectic theory of entrepreneurship: policies, institutions and culture,** EIM Business & Policy Research Working Paper/Research Report 0012/E, http://ideas.repec.org/p/eim/papers/h200012.html [Accessed 1.3.2011]

Audretsch, D. B., Beckamnn, I. A. B., Bonte, W. (2009): **Knowledge-Based Start-ups and Entrepreneurship Policy,** in: Leitao, J., Baptista, R., Eds.: ***Public Policies for Fostering Entrepreneurship: A European Perspective,*** Springer Science+Business Media, New York, pp. 3-14

Auerswald, P. E. (2007): **The simple economics of technology entrepreneurship: market failure reconsidered,** in: Audretsch, D. B., Grilo, I., Thurik, A. R., Eds.: ***Handbook of Research on Entrepreneurship Policy,*** Edward Elgar, Cheltenham, pp. 18-35

Chesbrough, H. W. (2003): **Open Innovation: The New Imperative for Creating and Profiting from Technology,** Harvard Business School Press, Boston

Chesbrough, H. W. (2006): **Open Innovation: A New Paradigm for Understanding Industrial Innovation,** in: Chesbrough, H. W., Vanharverbeke, W., West, J., Eds: ***Open Innovation: Researching a New Paradigm,*** Oxford University Press, Oxford, pp. 1-14

Chung, S. (2002): **Building a national innovation system through regional innovation systems, *Technovation,*** Vol. 22, pp. 485-491

Dahlstrand, A. L., Stevenson, L. (2010): **Innovative entrepreneurship policy: Linking innovation and entrepreneurship in a European context, *Annals of Innovation & Entrepreneurship,*** Vol. 1, DOI 10.3402/aie.v1i1.5602

Damanpour, F., Gopalakrishnan, S. (2001): **The dynamics of the adoption of product and process innovations in organizations, *Journal of Management Studies,*** Vol. 38, No. 1, pp. 45-65

Damanpour, F., Wischnevsky, D. J. (2006): **Research on innovation in organizations: Distinguishing innovation-generating from innovation-adopting organizations, *Journal of Engineering and Technology Management,*** Vol. 23, No. 4, pp. 269-291

Doloreux, D., Porto, S. (2005): **Regional innovation systems: Current discourse and unresolved issues**, ***Technology in Society,*** Vol. 27, pp. 133-153

Ettlie, J. E., Bridges, W. P., O'Keefe, R. D. (1984): **Organization Strategy and Structural Differences for Radical versus Incremental Innovation, *Management Science,*** Vol. 30, No. 6, pp. 682-695

European Commission (1995): **Green Paper on Innovation,** http://europa.eu/documents/comm/green_papers/pdf/com95_688_en.pdf [Accessed 11.3.2011]

Freeman, C. (1995): **The 'National Systems of Innovation' in historical perspective, *Cambridge Journal of Economics,*** Vol. 19, pp. 5-24

Herzog, P. (2011): **Open and Closed Innovation - Different Cultures for Different Strategies,** Gabler Verlag/Springer, Wiesbaden

Hoffman, K., Parejo, M., Bessant, J., Perren, L. (1998): **Small firms, R&D, technology and innovation in the UK: a literature review, *Technovation,*** Vol. 18, No. 1, pp. 39-55

Hult, G. T. M., Hurley, R. F., Knight, G. A. (2004): **Innovativeness: Its antecedents and impact on business performance, *Industrial Marketing Management,*** Vol. 33, No. 5, pp. 429-438

Jensen, M. B., Johnson, B., Lorenz, E., Lundvall, B. A. (2007): **Forms of knowledge and modes of innovation, *Research Policy,*** Vol. 36, No. 5, pp. 680-693

Koellinger, P. D., Thurik, A. R. (2009): **Entrepreneurship and the business cycle,** Tinbergen Institute, Discussion Paper, TI 2009-032/3, http://www.tinbergen.nl/discussionpapers/09032.pdf [Accessed 5.3.2011]

Lee, S., Park. G., Yoon, B., Park, J. (2010): **Open innovation in SMEs—An intermediated network model,** ***Research Policy,*** Vol. 39, pp. 290-300

Ministry of Science, Education and Sports (MZOS) (2006): **Science & Technology Policy of the Republic of Croatia 2006 – 2010,** http://public.mzos.hr/lgs.axd?t=16&id=14189 [Accessed 5.3.2011]

Ministry of Science, Education and Sports (MZOS) (2007): **Akcijski plan 2007. - 2010., Znanstvena i tehnologijska politika RH** (Action plan 2007-2010: Science & technology policy of the Republic of Croatia), http://public.mzos.hr/lgs.axd?t=16&id=12955 [Accessed 5.3.2011]

Ministry of Science, Education and Sports (MZOS) (2008): **Akcijski plan za poticanje ulaganja u znanost i istrazivanje** (Action plan for supporting investment in science and education), http://public.mzos.hr/fgs.axd?id=14917 [Accessed 5.3.2011]

Porter, M. E. (1998): **Clusters and the new economics of competition,** ***Harvard business review,*** Vol. 76, No. 6, pp. 77-90

Račić, D., Radas, S., Rajh, E. (2005): **Innovation in Croatian Enterprises: Preliminary Findings from Community Innovation Survey,** in: Lovrinčević, Ž., Mervar, A., Mihaljek, D., Nušinović, M., Radas, S., Starc, N., Švaljek, S., Teodorović, I., Eds.: ***Proceedings of the 65th Anniversary Conference of the Institute of Economics, Zagreb,*** http://www.eizg.hr/Download.ashx?FileID=617b2418-cf40-461b-9879-62059eecea89 [Accessed 9.3.2011]

Santarelli, E. (2006): **Introduction,** in: Santarelli, E., Ed.: ***Entrepreneurship, Growth and Innovation: The Dynamics of Firms and Industries,*** Springer Science+Business Media, New York

Sharif, N. (2006): **Emergence and development of the National Innovation Systems concept,** ***Research Policy,*** Vol. 35, pp. 745-766

Singer, S., Ed. (2006): **What makes Croatia an entrepreneurial country? Results of GEM Croatia research 2006,** http://www.cepor.hr/gem2006-brosura-eng.pdf [Accessed 14.3.2011]

Švarc, J. (2005): **Innovation Policy in Croatia: the First 10 Years,** Lovrinčević, Ž., Mervar, A., Mihaljek, D., Nušinović, M., Radas, S., Starc, N., Švaljek, S., Teodorović, I., Eds.: ***Proceedings of the 65th Anniversary Conference of the Institute of Economics, Zagreb,*** http://www.eizg.hr/Download.ashx?FileID=d9d8e010-7ad4-4caf-b013-61ceff3dc580 [Accessed 9.3.2011]

Švarc, J. (2006): **Socio-political factors and the failure of innovation policy in Croatia as a country in transition,** ***Research Policy,*** Vol. 35, pp. 144-159

Švarc, J., Bečić, E. (2007): **Croatian Innovation Policy Meets Reality,** in: Nechifor, I.. Radosevic, S., Eds.: ***Why Invest in Science in South Eastern Europe?: Proceedings of the International Conference and High Level Round Table,*** 28-29. September 2006, Ljubljana, UNESCO Regional Office for Science and Culture in Europe (UNESCO BRESCE), Venice

Toennies, F. (translated and edited by Loomis, C. P.) (1887/1963/2002): **Community and Society**, Harper and Row/Dover Publications, New York/Mineola

Vanhaverbeke, W.; Peeters, N. (2005): **Embracing Innovation as Strategy: Corporate Venturing, Competence Building and Corporate Strategy Making, Creativity and Innovation Management,** ***Creativity And Innovation Management,*** Vol. 14, No. 3, pp. 246-257

Venkatraman, N. (1994): **IT-Enabled Business Transformation: From Automation to Business Scope,** ***Sloan Management Review,*** Vol. 35, No. 2, pp. 73-87

World Bank (2004): **Croatia: Croatian Program for Innovative Technological Development (HITRA),** presentation at the 3rd Knowledge Economy Forum "Improving Competitiveness Through a Knowledge-Based Economy", 23-26 March, Budapest, http://go.worldbank.org/K74XC2X2Y0 [Accessed 9.3.2011]

The Use of Location Specific Advertisements on Facebook: Can they help entrepreneurs solve problems associated with banner advertisements?

Jovo Ateljević
University of Banja Luka, Faculty of Economics
Bosnia and Herzegovina
jovo.ateljevic@gmail.com

Frank Martin,
The Management School, University of Stirling
Stirling FK9 4LA, UK
frank.martin@stir.ac.uk

ABSTRACT

This study is set up to assess the relationship between advertising based on location and effectiveness of banner ads on social networking sites. The main research question is: *Is location specific advertising more likely to overcome the problems associated with banner advertisements than non-location specific advertising on the social networking site Facebook?* The research took an explanatory approach establishing casual links between the selected variables. An on-line attitudinal survey was issued to Facebook users and their responses were analysed through quantitative statistical techniques to test the hypotheses and observe significant correlations. The conclusions drawn from the results show that Facebook is a highly used medium mostly for social purposes. However the site users generally do not find advertisements placed on the site effective. The results also suggest that location specific advertisements could improve consumer perceptions of effectiveness through increased relevancy and could also help increase responsiveness but only at a basic level, which includes awareness and brand recall.

INTRODUCTION

Generally, the Internet and associated technologies is of great importance to entrepreneurs and international businesses. It is a low cost route to international markets (Jobber, 2004), which can bring down industry barriers for smaller firms (Doyle & Stern, 2006; Belch & Belch, 2004). The focus here is on the use of Internet advertising and in particular, banner advertisements, which are the simplest and most common form of on-line advertisement but their effectiveness is questionable (Belch & Belch, 2004; Chaffey, 2003). Online advertising is of particular relevance to international business because consumers can be easily made aware of products globally and buy directly online.

However, businesses also often face the dilemma of choosing the right solution and how globalised or localised their approach to advertising should be. International marketing on-line involves the problem that an increasing number of customers have access to the same information and it is harder to tailor it to local markets (Belch & Belch, 2004). Cullen & Parboteeah (2005) warn that firms operating internationally must still solve the global-local

dilemma. Additionally banner advertisements, often placed on social networking sites, are widely criticised for their lack of effectiveness with a click through rate as low as 0.5% but there is the possibility that this could be counteracted through an increasing relevancy to the consumer. A major problem with banner ads is that there are so many of them and the resulting clutter has a detrimental effect on effectiveness. Indeed, the popularity of social networking sites is one of the reasons Kennerdale (2001) identifies for the failure of banner ads is they are often untargeted despite the Internet offering opportunity for targeting a particular audience. E-Marketer (15/2/2009) predicts that usage of social network sites will continue to grow and that the involvement level of existing users is deepening. They also claim that the demographic range of social network users is expanding. Social networking sites are particularly helpful for online targeted marketing campaigns because they are full of personal data that people voluntarily or accidentally offer. One of the key strengths social network sites hold for advertisers is the large amount of time people are spending on these sites. Yet marketers are increasingly puzzled about their effectiveness mainly because of the social aspect of these sites where people 'come' to socialise but not to purchase (Economist, 27/11/2008).

This paper will look at the relationship between advertising based on location and effectiveness of banner ads on social networking sites. Location will be used due to the global-local dilemma businesses face. Specifically, the research question is as follows. Is location specific advertising more likely to overcome the problems associated with banner advertisements than non-location specific advertising on social networking sites such as Facebook?

The research took an explanatory approach establishing casual links between the selected variables. An on-line attitudinal survey was issued to Facebook users and their responses were analysed through quantitative statistical techniques to test the hypotheses and observe significant correlations. The study focused on only one social networking site, the Facebook, one of the most popular sites of this kind. In March 2009 Facebook overtook e-mail as the most popular communication tool (James, 2009). Facebook now claim that advertisers can reach an audience of over 200 million active users (Facebook.Com, 2009). Similar to the social networking industry as a whole, the demographic reach is increasing for Facebook. For instance, the audience is getting older with 46% of users being over 26 years of age (E-Marketer, 25/02/2009). For these reasons Facebook was chosen as the empirical research context for our study of the effectiveness of social network advertising.

LITERATURE REVIEW

There is a global on-line culture with everyone being able to access the same information and this makes it difficult to tailor messages to different local markets (Belch & Belch, 2004). To do this effectively companies must solve what is known as the global-local dilemma (Cullen & Parboteeah, 2005). On-line consumer marketing often presents companies with the problem of wanting to be a global organisation with shared values and modes of operation but they also need to be attentive the culture of local markets they are trying to target (Oz, 2002). Global approaches are more standardised and can offer standardised communications. Localised approaches are more attentive to cultural diversity and the differing needs of different populations. A localised approach will go beyond translation and adapt to cultural, technical and administrative differences (Tixier, 2005). The term “glocalisation” refers to the use of a combination of the two approaches (Oz, 2002). For example, the United Airlines site

for France has the same structure as the American site but offers services and content specific to the needs of the French consumer (Tixier, 2005). Advertisers may find their on-line campaigns more effective if they take this more localised approach.

ON-LINE ADVERTISING

On-line advertising expenditure has exploded and many leading brands have launched on-line campaigns (Krishnamurphy, 2000). This has accompanied changes to how consumers use different forms of media. Over 20% of consumers in the UK, Germany, the US and Japan and 33% of consumers in France and Italy say they watch less television now that they have Internet access.

Some of the factors making on-line advertising popular include the proportion of the target segment that can be reached compared to traditional media, the proportion researching offerings on-line and the proportion willing to make a purchase on-line (Chaffey, 2007). The ease of reaching huge numbers has also meant small companies can reach audiences they could never reach before on their limited marketing budgets (Belch & Belch, 2004).

The Internet offers many other features attractive to advertisers. In particular, there is the ability to target audiences specifically with a tailored message reducing wastage (Belch & Belch, 2004; Chaffey, 2007; Krishnamurphy, 2000). There are also instances where direct relationships are developing between consumer and producer (Sharma & Sheth, 2002). Interactivity can provide a greater chance of communicating a powerful message to the target group (Chaffey, 2003). However, some forms of on-line advertisements may not be effective at enabling these benefits for instance banner advertisements have to grab the users' attention before any kind of interactivity can take place.

Traditional media, such as television, offers the same message to different segments as it is often poorly targeted (although media fragmentation does allow for some targeting). Often consumers would not even watch the advertisements; instead they would find another way to fill the time, such as channel hopping. The Internet is a lean forward media, meaning it tends to have the users full attention, unlike television that could simply be on in the background (Chaffey, 2007). This would make it of interest to marketers to utilise the benefits of the Internet as an advertising medium. However, although the site being visited is likely to have a user's full attention, this does not guarantee that any advertisement will receive any of the users' attention.

SOCIAL NETWORKING SITES AND ON-LINE ADVERTISING

The demographic coverage of social networking sites makes them attractive to an international marketer. A growing number of people use social networking sites, including the hard to reach group of 18-26 year olds (Whiteside, 2008). These sites have seen a rapid increase in usage while traffic to other on-line media such as portals has decreased (James, 2009). Within Europe, 210 million people visit social networking sites in a month (E-Marketer, 19/03/2009).This usage is increasing. In the US alone it is predicted that the number of users will increase by 44.2% to 115 million (E-Marketer, 17/02/2009).

Social networking sites allow marketers to identify and target their audience more easily (Aitchison, 2006). Therefore, in theory, advertisers should be able to offer high impact

messages with minimal wastage through more effective targeting (Grande, 2009). Commonalities, on which targeting can be based, can include race, religion, sexuality, hobbies, interests, abilities, location and numerous other factors (Hawkes & Gibbon, 2008). To reach the target audience effectively advertisers need to identify the most relevant sites and who uses them. The target audience should be known and where their 'hot spots' are, as this is where they are likely to be more receptive to the brand message (Hawkes & Gibbon, 2008).

One of the strengths of social networking sites is the amount of time spent on them by users. According to Whiteside (2008), 87% of users visit at least once a week and 30% visit every day. This is important to the notion that social networking sites provide a useful tool for advertisers and leads to the first hypothesis:

Hypothesis 1: Facebook will be a highly used medium by respondents.

According to James (2009) "the opportunity is there and is bigger than the problem." Social networking sites present advertisers with many opportunities but if banner advertisements are the format of choice it may be possible, as there are many problems associated with on-line banner advertisements, that the problem is actually bigger than the opportunity.

ON-LINE BANNER ADVERTISEMENTS AND THEIR PROBLEMS

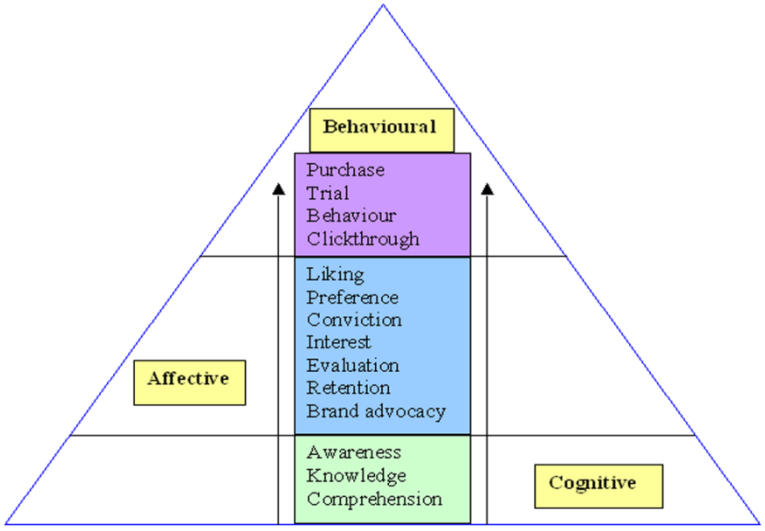
According to Chaffey (2003), the purpose of the banner advertisement is to direct traffic to the website where advertisers want the consumer to click on the link. A banner advertisement can therefore be considered an "ad for the ad" as it is an advertisement for the website, which is the actual advertisement for the offering (Choi & Rifon, 2002). They will also be hoping that an advertising message will be seen either consciously or subconsciously (Chaffey, 2003). If we agree with Chaffey's definition for the purpose of banner advertisements then it must be said that the effectiveness of banner advertisements has increasingly declined over the past decade. The click through rate started at 7% in 1996 but has declined to between only 0.2% and 0.3% only (Chaffey (2007).

Part of the reason why banner advertisements are losing effectiveness is due to clutter (Belch & Belch, 2004), they are everywhere and do not stand out (Kennerdale, 2001). Consumers often ignore anything that looks like an advertisement on a web page (Chaffey, 2007) as the purpose of their visit will not be to view a banner advertisement. Some researchers observed eye movements of consumers as they browsed web pages and found that they not only gave them little attention but actually actively avoided them (Krishnamurphy, 2000; Dreze & Hussher, 1999). On top of this, they can often be poorly targeted with no cultural, geographical or industrial relevance (Kennerdale, 2001).

These are the main problems associated with on-line banner advertisements but an important criticism has not been made of the literature so far. This is related to the use click through rates as a measure of effectiveness. If more traditional marketing tools are used, banner advertisements may not seem as ineffective. Choi & Riffon (2002) argue that they can have a positive effect on brand awareness, attitudes and purchase intention as well as web traffic. Some researchers believe that banner advertisements should be used at a more basic level by suggesting that advertising budgets are better spent on building awareness, not brand building. (Ilfeld & Winer, 2001).

The Hierarchy of Effects model is the best known and is commonly used to assess the effectiveness of marketing communications. It reflects the stages the consumer goes through to eventually make a purchase. There is also the Innovation Adoption model, which refers to the stages a consumer goes through when adopting a new product, and the Information Processing model, which unlike the other models includes retention (Belch & Belch, 2004). A combination of the models that could be used to assess effectiveness at different levels of response is shown as Figure 1.

Figure 1 On-line Consumer Response Hierarchy



Source: Belch & Belch, 2004: 147-148

BANNER ADVERTISEMENTS ON SOCIAL NETWORKING SITES

High status vehicles such as Facebook tend to be more effective at creating a positive advertising effect (Choi & Rifon). Despite this, there have been relatively few examples of successful social media marketing (Grande, 2009). Many advertisers consider it to be an unproven medium and think the semi-controlled environment poses a risk to the brand (James, 2009; Vogt & Knapman, 2008). It is also a fickle market with consumers always moving to the next 'hotspot' (Raskin, 2006).

To highlight the problem of advertising on a social space, Ted McConnell, General Manager of Interactive Marketing for Procter & Gamble was quoted as saying (Tamler, 2009) "What on earth made you think you could monetise the real estate in which somebody is breaking up with their girlfriend?"

Social networking sites such as Facebook fit into this category. On-line, the control lies with the consumer so it is more important than ever to understand things from their vantage point. For example, are they on-line to shop, socialise or for entertainment? The research will therefore test the following hypothesis:

Hypothesis 2(a): Respondents will use social networking sites mainly for social purposes

The purpose of social networking sites may make them ineffective hosts for banner advertisements. On-line, users will intentionally seek information relevant to their needs (Choi & Rifon, 2002). However, it is possible to switch motives, for example, if the user becomes bored with the original motive or something else grabs their attention (Rogers & Thorson, 2000). In order to do this, it is important for the advertising message to stand out. The problems associated with the environment and motives for visiting the site combined with the problems associated with on-line banner advertisements leads to the following hypothesis:

Hypothesis 2(b): Respondents will not find banner advertisements placed on social networking sites effective

A UK study by Jam/Myspace in early 2009 showed that 26% of social media users felt bombarded by too much clutter and advertising (James, 2009). They want to choose how and where they digest advertising messages (Hawkes & Gibbon, 2008). Clutter is a problem but there are still arguments that marketers can break through it with well targeted messages. It is therefore worthwhile investigating whether forms of targeted marketing can break through the clutter, as the literature does not provide a clear answer to this question.

Marketers have to find ways of overcoming these problems. One way is to make the advertising message as relevant as possible to the recipient. Segmentation and targeting will therefore prove to be important. One of the ways consumers can be segmented is be geographic location. The use of location specific advertising may be able to grab the attention of the target market through increased relevance to the consumer.

LOCALISATION OF ADVERTISEMENTS

In theory, users will be more responsive to advertisements that fit their profile (Kennerdale, 2001). Customers want to experience responsiveness to their needs and first impressions are important (Chaffey, 2007). Messages must be relevant to the target audience. An example of a poorly targeted banner advertisement on Facebook is that for the Give Blood campaign. The advertisement was posted on the profile pages of Scottish members and provided a link taking the respondent to a website where they could find out where to donate blood (Facebook.com). However, the website only provided locations within England and Wales, Give Blood in Scotland had an entirely different website. This was an example of poor geographical targeting because it meant the respondent had to take extra steps to find the information they needed, which reduces the chances of the respondent actually seeking the information.

Cultural differences that are often ignored in the context of social networking sites may significantly affect the effectiveness of this new advertising channel (Hawkes & Gibbon, 2008). For example, UK audiences are less tolerant to intrusive advertisements than US audiences, suggesting certain types of advertisements can be used in some countries but not in others (Kennerdale, 2001). It is therefore important that advertisers acknowledge the differences between countries. Ignorance of culture differences on social networking sites may create embarrassment and make communication ineffective. Tixier (2005) claims that localisation can lead to a 200% increase in e-sales for an organisation operating outside of its own language borders. This leads to the final hypothesis, which has been broken into two parts:

Hypothesis 3(a): Respondents will have a more positive attitude towards location specific advertisements on Facebook

Hypothesis 3(b): Respondents will be more responsive to location specific advertisements on the social networking site

Existing scholarly literature on the use of location specific advertisements on social networking sites is with isolated cases, scarce and not well empirically supported. Unni & Harmon (2007) have provided research on the use of location-based advertisements.[1] The benefits of using this form of advertising are being able to reach the consumer when they are ready to buy and to provide a message within an appropriate context. Promotions can be offered for preferred products or services relevant to the consumer's location (Unni & Harmon, 2007). Even so, Unni & Harmon's (2007) research shows that the perceived benefits of location based advertising to be low and it only seemed to be relevant to consumers when they actively requested the information.

It would seem, judging from the banner advertisements placed on Facebook pages, that location specific advertisements still have their place. It is common for international music acts to announce their tour in a particular country. For example, the American singer Taylor Swift posted banner advertisements on the Facebook profile pages of UK users that provided a link to a website with venues and dates, a video advertisement for the tour and the opportunity to buy tickets from the site.

RESEARCH METHOD

Measuring the Effectiveness of On-line Advertisements is one of the greatest challenges regarding banner advertisements and deters many advertisers from using the medium (Krishnamurphy, 2000). Social network sites are no exception. Attitudinal measures are important as research suggests exposure to banner advertisements can have effects such as increased awareness, recall and positive attitudes even when there has been no click through (Krishnamurphy, 2000; Rogers & Thorson, 2000; Dreze & Hussher, 1999). These issues have had an influence on the choice of the research method used. Our research takes an explanatory approach establishing casual links between selected variables: location specific content in the written text of banner advertisements (independent variable), consumer responsiveness to the advertisement and consumer attitudes to the brand (dependent variables), and extraneous variables related to, for example, emotional appeal. The extraneous variables make it difficult to measure by experiment as there are factors that could influence an individual's response. For this reason the opinion of the respondents is being asked directly, rather than observed. The dependent variables being researched are therefore opinion based.

The survey was conducted on-line in the first half of 2009. The questionnaire was constructed around the key research objectives with each section of the questionnaire geared at answering one of the research objectives. The questionnaire was made up of categorical options for the respondents to choose from. For the questions geared at obtaining the respondent's opinion a list of statements was presented using the Likert-style rating scale. Different forms and levels of responsiveness were identified using the On-line Consumer Response Hierarchy presented earlier as Figure 1.

[1] For example, Reebok offered a free pair of trainers to the first customer to get to the local store and show the message and within minutes more than fifty consumers arrived at the store displaying the message.

Points of contact on Facebook were used to distribute the questionnaire. The points of contact were about 1,000 international students on several University campuses across the UK, mainly from within the hard to reach age group of 18-26 years of age and with the additional aim of identifying possible cultural differences. We received 176 useable replies representing 17.6% of the sample.

Basic descriptive analysis of the data collected was carried out to see where the majority of the responses tended to be positioned. This was then teamed with statistical analysis using the Spearmans Rho test. As many of the variables used were ordinal (categorical variable with some form of intrinsic ranking) non-parametric measures were employed. The correlation coefficient was used to assess the strength of the linear association between pairs of ordinal variables, which included questions where respondents were asked to indicate strongly agree, agree, neutral, disagree or strongly disagree. The sample was quite varied in terms of nationality, 22 in total, however the majority were from the UK (52.99%) followed by China (7.46%), India (4.48%), Nigeria (4.48%), North America (4.25%), Germany (3.73%) as the main nationality groups. The age distribution was made of two dominant bracket groups, 20-26 (57.45%) and 27-34 (31.34%). The remaining were mature students, anything between 35 and 53 years of age.

RESULTS AND DISCUSSION

The results for each section, geared at testing each hypothesis, are now discussed in relation to the literature review. Although not every result can be covered in this section, the results most relevant to answering the research questions have been discussed.

Hypothesis 1: Facebook will be a highly used medium by respondents

The survey confirms that Facebook is the most (90.75%) used social network site. The majority of the respondents (59.54%) visit the site everyday and only 9.83% visit it less than once a week, 10.4% visit every other day, 15.03% couple of times per week, once a week 5.20%. The results show that 38.73% of the respondents tend to spend 10-19 minutes on the site per visit, 17.92% spend 20-29 minutes and 11.56% spend 30-39 minutes. This suggests that the most people do spend an amount of time looking at the site, although not a massive amount of time with only 1.16% spending 40-49 minutes on the site and 7.51% spending over an hour on the site. There are still a large percentage of respondents who do not spend much time on the site with 23.12% spending less than 10 minutes per visit.

Whiteside's (2008) claims that people are watching less television and moving onto the Internet. Internet users can visit many sites when on-line. Is Facebook a highly used site? The results say yes.

Facebook is a highly used medium by respondents as the large majority (91%) say it is the social networking site they visit most frequently and they tend to visit the site every day. The results showed respondents giving even higher percentages than that reported by Whiteside (2008). A high percentage (60%) of the respondents said they visited the site everyday, compared to the 30% reported by Whiteside (2008). This could be influenced by the differences between the samples. For example, the sample for this research, Facebook users only, will be relatively computer literate. However the majority of the respondents do not spend a great amount of time on the site per visit but most spend more than ten minutes on it per visit, only 23.12% spend less than ten minutes.

Hypothesis 2(a): Respondents will use social networking sites for social purposes

The results suggest that respondents will tend to use social networking sites mainly for social purposes. It seems that the most important reason why respondents use social networking sites is to talk to friends and family (77% agreeing or disagreeing they use it to talk to close family or friends and 82% using it to talk to family or friends they rarely see) or track down old friends or family (66%). This demonstrates the importance of Facebook as a communication tool. However, it is also used when no messages are sent, as many (52%) will just look at others pages without leaving a message. Advertisers will have to take into account, with caution, that most people are using the site to socialise. The results suggest that it is not being used by members to talk to people they do not know. This may have implications for certain types of advertisement for example, an advertisement for meeting single people on-line could be misplaced on Facebook as the users are not interested in interacting with people they do not know off-line.

Respondents also largely disagreed that they used the site to look at campaigns (61% agreeing or disagreeing). Advertisers trying to promote a campaign then face the challenge of grabbing the consumers' attention. Respondents may not use Facebook primarily to look at campaigns but this does not necessarily mean they will not switch motives, as Rogers & Thorson (2000) suggested, whilst visiting the site, perhaps if they are bored and allowing themselves to browse different things. In order to achieve this the advertisement must standout.

The Spearman's Rho correlations suggested that the sample can be divided into two groups: Group 1- those who use it to socialise with people they already know and Group 2 those who do not to socialise with people they already know. Group 1 consists of those using it talk to close friends or family, friends or family they rarely see and to track down people they have lost touch with. Group 2 consists of those who use it to talk to friends of friends, listen to music or find out about bands, talk to people they do not know and look at campaigns/petitions. However, it must be remembered that those in group two are the minority.

The use of social networking sites for social purposes is further supported by the reasons why respondents chose Facebook over other social networking sites. The most important reason was because more of their friends were members (83% agreeing or strongly agreeing). The Spearman's Rho correlations also showed that those who chose it because more of their friends were members also tended to visit the site more frequently. As people go on the site to socialise and they have little interest in talking to people they do not know, there would be little point in joining a social networking site where their friends were not members. This has another implication for advertisers. They must keep up with the trends and fads within social networking, as Hawkes & Gibbon (2008) suggested, because their target audience will simply follow where the majority of their friends appear to be.

Hypothesis 2(b): Respondents will not find banner advertisements placed on Facebook effective

Although the Internet was ranked the most frequently used medium, it is not ranked the most effective medium for advertising with only 32% of the respondents ranking it most effective, though this is not a completely negative figure. Television was ranked the most effective medium by 59% of the respondents. This contradicts Chaffey's (2007) claims that television advertising is a waste of time and the Internet is more effective because it is a lean forward medium. It is important to remember that there are many things a user can be looking at on

the site. This is where clutter and other distractions become a problem to the on-line advertiser.

The results suggest that respondents do not find banner advertisements on Facebook effective. The biggest problem seems to be that respondents feel distracted by other content on the page (68% agreeing or strongly agreeing) and there are also problems with people feeling too bombarded by advertising clutter on the site and finding advertisements on the site a nuisance (45%). The results showed an even higher percentage (46%)[2] of respondents saying they felt bombarded by too much clutter and advertising than that of the UK study conducted by Jam/Myspace in early 2009, which was 26%. This again may be due to sample differences by nationality. This supports the problem Dreze & Hussher (1999) identified with banner advertisements sharing bandwidth with other content. It also means the large amount of time the users spend on-line and on Facebook could be detrimental to the effectiveness of the banner advertisement.

The large majority claim they do not tend to pay any attention to them (with 76% disagreeing of strongly disagreeing) or click on the link provided (61% disagreeing or strongly disagreeing). This is a major problem for the advertiser because it will prove difficult to place an effective banner advertisement on Facebook if the target audience do not even pay them any attention. It is particularly a problem if we accept Chaffey's (2003) views that the purpose of a banner advertisement is to direct traffic to the website, as it would then seem banner advertisements are not serving their purpose.

A large number of the respondents (34%) felt that advertisements on social networking sites were less effective than on other sites. This supports the claims that social networking sites bring additional problems to advertisers. The proposed benefit of social networking advertisements being more relevant, does not appear to be present as not many of the respondents (16%) agreed that advertisements on their profile page tend to be more relevant to their needs. This supports Choi & Rifon's arguments that the content on social networking sites may be too general to be relevant enough to influence brand attitudes and purchase intent. However, a large percentage of the respondents (39%) still think Facebook is a useful advertising tool. This suggests that the opportunity for effective advertising may be there but advertisers are failing to utilise the proposed benefits of relevancy. This ties in with Kennerdale's (2001) accusation that banner advertisements tend to be poorly targeted with little relevance to the user.

This does not provide any strong support for the view that the social use of the site will make it less effective. The respondents were asked directly if they thought advertisements on Facebook were even less effective than on other sites and the large majority were either neutral (41%) or disagreed (25%), though a fair number of the respondents agreed (34%). This suggests the site being used for social purposes is therefore not the major problem it was made out to be in the literature, for example, by Tamler (2009) and James (2009).

Hypothesis 3(a): Respondents will have a more positive attitude towards location specific advertisements on Facebook

An important thing to note from the results is that the large majority (80%) of the respondents include their location in their profile information, allowing advertisers to search and target these users based on location. The results suggest that respondents do have a positive attitude

[2] 17.42% strongly agreeing and 29.03% agreeing

towards location specific advertisements on Facebook with the majority (64%) agreeing that they are more effective than non-location specific advertisements. In what way do they find it effective? The majority (54%) agree that location specific advertisements are more relevant to them. This contradicts Unni & Harmon's (2007) argument that the perceived benefits of location specific advertisements are low, although it should be noted that their research regarding location was based on advertisements through mobile phones.

The Spearman's Rho correlation test also showed that those with positive attitudes towards advertisements placed on Facebook were more likely to have a positive attitude towards location specific advertisements. Likewise, those with negative attitudes towards banner advertisements on Facebook were more likely to hold negative opinions of location specific advertisements. This makes it questionable whether location specific advertisements can counteract negative consumers attitudes, as those who already had a negative opinion of Facebook advertisements are likely to still have a negative opinion of a location specific advertisement. Unni & Harmon (2007) suggested that well tailored and targeted messages could counteract low perceptions of value. Perhaps being location specific is not enough. It should be teamed with other ways of tailoring the message to the target audience to be effective.

Hypothesis 3(b): Respondents will be more responsive to location specific advertisements on Facebook

The results suggest respondents are more responsive to location specific advertisements on Facebook but only at the lower levels of the On-line Consumer Response Hierarchy. It seems that location specific advertisements are more effective in terms of making users aware of the advertisement (41% agreeing or strongly agreeing), read the content (42% agreeing), remember seeing it (45% agreeing) and remembering the content (41%). The responses were fairly mixed with many remaining neutral with regards to being more likely to click on the link provided (39% neutral) and reading the information on the brands website (33% neutral). The results suggest that location specific advertisements are not more likely to increase purchase (with 50% disagreeing or strongly disagreeing).

An interesting result from the Spearman's Rho correlations, was between those who are more likely to click on a link provided by a location specific advertisement and those who think location specific advertisements stand out more. This was the only significant correlation found with those who are more likely to click on the link. This suggests that if the advertiser's aim is for users to click on the link, it is very important that they manage to make the advertisement standout.

CONCLUSIONS AND IMPLICATIONS

The Internet is a highly used medium and Facebook is a highly used site on this medium. This is why it would be a great benefit to advertisers if they could communicate to their target audience effectively on-line. They may also want to consider a social networking site, such as Facebook, to host the advertisement.

If an advertiser does choose to place an advertisement on a site such as Facebook, they should be aware that people will mostly use it for social purposes and this can have implications for their advertising campaign. In particular, those who only tend to use it to talk to people they already know off-line can have different perceptions than those who do not use it for this

purpose. This research suggests that the former will tend to have less favourable perceptions of advertisements on Facebook. Advertisers must also keep up with trends and fads in social networking. Users follow their friends meaning advertisers should find out where the 'hotspots' are for their target audience.

Advertisers should be aware that there are difficulties present making the Internet a less effective medium than one might hope for. This is a symptom of sharing bandwidth with other content. These problems are evident on Facebook. Users will often find banner advertisements placed on the site ineffective. They often feel distracted by other content on the page and by clutter. Advertisements on the site do not appear to stand out to users and the majority do not click on the links provided. Social networking offers the potential to send a more relevant tailored message to the target audience but this benefit is not being realised.

The research assessed whether a simple targeting base, geographical location, could make the advertisement standout more by increasing relevancy to the consumer. It seems that location specific advertisements do encourage more desirable attitudes. People think they are more effective and more relevant to them. However, they still do not seem to make the advertisement stand out more. Advertisers should be warned that those that already hold positive attitudes towards advertisements on Facebook are more likely to continue holding a positive attitude towards a location specific advertisement. Likewise, those that held a negative attitude towards advertisements on the site are more likely to continue holding negative attitudes if the advertisements are location specific. This does not mean all users holding negative perceptions of the advertisements will not recognise any value in location specific advertisements.

The increased perceptions of value created by making an advertisement location specific can make the users more responsive but only at certain levels of the on-line consumer response hierarchy. Advertisers may find location specific advertisements useful if their marketing objectives are based on increasing brand awareness and recall. The user is also more likely to read and remember the content of the advertisement, meaning very basic product/service information can be dispensed to users. However, location specific advertisements are not likely to be any more useful to advertisers if the objectives lie higher up the hierarchy. Also, if marketers rely on click through rates as a measurement of effectiveness, they are likely to achieve disappointing results.

LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

Limited time and resources have put limitations on the research. The sample size, 176 respondents, is not an ideal size. This is especially the case as the sample covered a wide range of demographic groups, meaning many of the groups were too small to carry out any statistical tests upon. All that can be said for the sample is that it includes respondents from a wide range of demographic backgrounds, but there are not enough respondents within each group to make any decent generalisations regarding the differences between the groups. These differences would be of great interest to an international marketer. Further research could involve a larger more representative sample allowing statistical tests, such as the Chi Square test of independence, to be carried out and assess the significance of demographic groups to the responses given.

The results are also limited in that they reflect the opinions of Facebook users only. The results cannot be applied to other social networking sites. Further research could investigate

other sites. On-line marketers can research sites that are 'hotspots' to their target audience at a given time. The results should be teamed with further research on the subjective features. The research did not take into account subconscious thought. This could limit the reliability of the results as it is very likely that the thought processes involved will involve some amount of subjective thought. Further research could involve laboratory experiments assessing eye movements in relation to different advertisements.

BIBLIOGRAPHY

Aitchison, J. (2006), World Advertising Research Centre, The Growth of Social Networking Websites, http://www.warc.com/ArticleCenter/Default.asp?CType=A&AID=82876&Tab=A Accessed 20/08/2009

BBC News, 15 reasons why Facebook may be worth more than $15bn, 25th October 2007, http://news.bbc.co.uk/1/hi/technology/7061398.stm Accessed 22/03/09

Belch, G. E. & Belch, M. A. (2004) Advertising and Promotion: An Integrated Marketing Communications Perspective 6th Ed., McGraw-Hill, New York

Chaffey, D. (2007) E-Business and E-Commerce Management 3rd Ed., Pearson Education Ltd, Essex

Chaffey, D., Meyer, K., Johnston, K. & Ellic-Chadwick, F. (2003) Internet Marketing, Strategy, Implementation and Practice 2nd Ed., Pearson Education Ltd, Essex

Choi, S. M. & Rifon, N. J. (2002), Journal of Interactive Advertising, Antecedents and Consequences of Web Advertising Credibility: A Study of Consumer Response to Banner Ads, 3 (1), pp. 1-18

Cullen, J. B. & Paraboteeah, K. P. (2005) Multinational Management: A Strategic Approach 3rd Ed., Thomson/South-Western, Ohio

Doyle, E, P. & Stern, P. (2006) Marketing Management and Strategy 4th Ed., Pearson Education Limited, Essex

Dreze, X. & Hussherr, F. (1999), Journal of Interactive Marketing, Internet Advertising: Is Anybody Watching? 17 (4), pp. 8-53.

Economist.Com, Not Ye Olde Banners, 27th November 2008 http://www.economist.com/business/displaystory.cfm?story_id=12684861 Accessed 22/03/09

E-Marketer, Everybody Loves Social Networking, Except Some Advertisers, 19th March 2009 http://www.emarketer.com/Article.aspx?id=1006974 Accessed 22/03/09

E-Marketer, Facebook Audience Matures, 25th February 2009, http://www.emarketer.com/Article.aspx?R=1006930 Accessed 01/08/2009

E-Marketer, Social Network Marketing Must Evolve, 17th February 2009 http://www.emarketer.com/Article.aspx?id=1006927 Accessed 22/03/09

Facebook, www.facebook.com Accessed 20/08/2009

Facebook, Facebook Ads, http://www.facebook.com/FacebookAds?v=app_7146470109&viewas=791703019&ref=ts Accessed 20/08/2009

Facebook, Facebook Advertising, http://www.facebook.com/FacebookAds?v=app_7146470109&viewas=791703019&ref=ts#/advertising/?src=pf . Accessed 20/08/2009.

Hawkins, R. & Gibbon, T. (2008) World Advertising Research Centre, Social Media Explained, http://www.warc.com/ArticleCenter/Default.asp?CType=A&AID=WORDSEARCH87645&Tab=A Accessed 20/08/2009

Ilfeld, J. S. & Winer, R.S (2001) Journal of Advertising Research, Generating Web Site Traffic: An Empirical Analysis of Web Site Visitation, 42 (5), pp. 49-82

Interactive Advertising Bureau, Consumers Flood Social Networking Sites, Ad Support Struggles to Keep Pace, January 2009,

http://www.iab.net/insights_research/530422/1675/627752 . Accessed 01/08/09

Interactive Advertising Bureau, Social Network Marketing, February 2007 http://www.iab.net/insights_research/530422/1675/627258/113392. Accessed 01/08/09.

Interactive Advertising Bureau, January 2009: Social Networking Update, http://www.iab.net/insights_research/530422/1675/627752 Accessed 01/08/09

James, L. (2009) World Advertising Research Centre, Should you Advertise on Social Networking Websites?

http://www.warc.com/ArticleCenter/Default.asp?CType=A&AID=WORDSEARCH88555&Tab=A. Accessed 20/08/2009.

Jobber, D. (2004) Principles and Practices of Marketing 4th Ed., McGraw-Hill, Berkshire.

Kennerdale, C. (2001) E-Content, Banner advertising: still alive, but fundamentally flawed? 24(2), April, p.p56-57.

Krishnamurphy, S. (2000) Management Marketing Chicago Ill, Deciphering the Internet Advertising Puzzle, 9 (3), pp.35-39.

Machanda, P., Dube, J., Goh, K. Y. & Chintagunta, P. K. (2006) Journal of Marketing Research, The Effect of Banner Advertising on Internet Purchasing, 43 (1), pp 98-108.

Moutinho, L., Goode, M. & Davies, F. (1998) Quantitative Analysis in Marketing Management, John Wiley & Sons Ltd, West Sussex.

Neuborne, E. (2007) World Advertising Research Centre, Attract a Crowd http://www.warc.com/ArticleCenter/Default.asp?CType=A&AID=WORDSEARCH87735&Tab=A Accessed 20/08/2009.

Oz, E. (2002) Foundations of E-Commerce, Pearson Education Ltd, New Jersey

Raskin, R. (2006) World Advertising Research Centre, Facebook Faces its Future http://www.warc.com/ArticleCenter/Default.asp?CType=A&AID=WORDSEARCH81502&Tab=A. Accessed 20/08/2009.

Rodgers, S. & Thorson, E. (2000) Journal of Interactive Advertising, The Interactive Advertising Model: How Users Perceive and Process On-line Ads, 1 (1), pp.15-39.

Saunders, M., Lewis, P. and Thornhill, A, (2003), Research Methods for Business Students, 3rd ed. (Essex: Pearson Education Limited).

Sarantakos, S. (2007) A Toolkit for Quantitative Data Analysis, Palgrave MacMillan, Hampshire/New York.

Sharma, A. & Sheth, J. N. (2004) Journal of Business Research, Web-based Marketing: The Coming Revolution in Marketing Thought and Strategy, 57 (7), pp. 696-702.

Tamler (2009), World Advertising Research Centre, Social Networking- Fancy Fad or Future Money Spinner.

Tixier, M. (2005) International Business Review, Globalization and Localization of Contents: Evolution of Major Internet Sites Across Sectors of Industry, 47 (1), pp.15-48.

Unni, R. & Harmon, R. (2007) Journal of Interactive Advertising, Perceived Effectiveness of Push vs. Pull Mobile Location Based Advertising, 7 (2), n.pp.

Vogt, C. & Knapman. S (2008) World Advertising Research Centre, The Anatomy of Social Networks. http://www.warc.com/ArticleCenter/Default.asp?CType=A&AID=WORDSEARCH87631&Tab=A Accessed 20/08/2009.

Whiteside, S. (2008) World Advertising Research Centre, Social Networking in the UK: A Summary of an Ofcom Report into Attitudes Behaviours and Use http://www.warc.com/ArticleCenter/Default.asp?CType=A&AID=WORDSEARCH87851&Tab=A Accessed 20/08/2009

Whiteside, S. (2008) World Advertising Research Centre, The International Communications Market: A Summary of Ofcom Research into Global Media Trends http://www.warc.com/ArticleCenter/Default.asp?CType=A&AID=WORDSEARCH88824&Tab=A Accessed 20/08/2009

Wolfe, J. World Advertising Research Centre, Space Race http://www.warc.com/ArticleCenter/Default.asp?CType=A&AID=WORDSEARCH82609&Tab=A. Accessed 20/08/2009

Xie, T., Donthun, U, N., Lohtia, R. & Osmonbekov, T. (2004) Journal of Interactive Advertising, Emotional Appeal and Incentive Offering in Banner Advertisements, 4 (2), n.pp.

Yarmis, J. L. (2009) Business Week, How Facebook will Upend Advertising, May 27th

INDUSTRIAL POLICY, DECENTRALISATION AND GROWTH IN SOUTH EAST EUROPE

Will Bartlett
LSEE, European Institute
London School of Economics and Political Science
E-mail: w.j.bartlett@lse.ac.uk

ABSTRACT

This paper explores the role of industrial policy as a means to stimulate economic revival of economies of South East Europe which have been severely affected by the recent global economic crisis. Following the crisis there has been a loss of confidence in the prescriptions of neo-liberal economic thought which prescribed a strong reliance on the market and the withdrawal of the state from active intervention in the economy to promote industrial development. As yet, however, no single alternative growth model has been proposed which has won widespread acceptance. Policy reactions have focused on supporting the financial sector though bank bail-outs combined with a macro-economic policy package involving loose monetary policy, guarantees for sovereign debt, fiscal retrenchment and austerity packages; the design of active industrial policies to improve competitiveness have been less in evidence. This paper reviews some international experience of industrial policies in different institutional contexts. Specifically, it addresses the issue of whether industrial policies are best delivered by central governments, or by sub-national levels of government within a context of administrative and fiscal decentralisation designed to stimulate local economic development. The paper assesses the relevance of such policies of in the context of the countries of South East Europe, and reviews the various approaches which have been adopted to promote economic growth in the region in recent years. This paper argues that a Europeanisation of industrial policy has taken place as a consequence of the EU pre-accession, even in countries which are not currently candidate states. It concludes with an assessment of the relevance of industrial policy to economic recovery in the region, and the role that decentralisation and local economic development may play in that process.

1. INTRODUCTION: THE ECONOMIC CRISIS AND INDUSTRIAL POLICY

With the advent of the global economic crisis, the limitations of unregulated free-market capitalism have become apparent. The rise of the financial sector as a dominant force in many developed economies, accompanied by de-industrialisation has left these economies vulnerable to destructive financial bubbles. The most recent permutation of the global crisis has seen the transference of private sector indebtedness to the state. Faced with the urgent need to raise labour productivity and international competitiveness so that renewed economic growth would underpin a sustained reduction of government deficits, countries in the European periphery are bereft of suitable policy instruments. It is in this context that finding suitable forms and approaches to industrial policy is once again on the agenda, promoted indeed by the European Commission which has called for a 'fresh approach' to industrial policy as a means to promote recovery from the economic crisis in the EU (EC 2010).

This paper explores the role of industrial policy as a means to stimulate economic revival of economies of South East Europe which have been severely affected by the recent global economic crisis. Following the crisis there has been a loss of confidence in the prescriptions of neo-liberal economic thought which prescribed a strong reliance on the market and the withdrawal of the state from active intervention in the economy to promote industrial development. As yet, however, no single alternative growth model has been proposed which has won widespread acceptance. Policy reactions in developed countries have focused on supporting the financial sector though bank bail-outs combined with a macro-economic policy package involving loose monetary policy, guarantees for sovereign debt, fiscal retrenchment and austerity packages; the design of active industrial policies to improve competitiveness have been less in evidence. In South East Europe policies have been broadly conservative, allowing budget deficits to increase from their previous relatively low levels, while simultaneously cutting public expenditure to constrain the deficits along with support from the IMF in the worst affected counties such as Serbia and Romania (Bartlett and Monastiriotis 2010; Cviic and Sanfey 2010).

The paper reviews some international experience of industrial policies in different institutional contexts. Specifically, it addresses the issue of whether industrial policies are best delivered by central governments, or by sub-national levels of government within a context of administrative and fiscal decentralisation designed to stimulate local economic development. The paper assesses the relevance of such policies of in the context of the countries of South East Europe, and reviews the various approaches which have been adopted to promote economic growth in the region in recent years. The paper concludes with an assessment of the relevance of industrial policy to economic recovery in the region, and the role that decentralisation and local economic development may play in that process.

2. THE ADOPTION OF DECENTRALISED INDUSTRIAL POLICIES IN THE EU AND USA

After the end of the Second World War, most governments in Western Europe adopted active industrial polices to stimulate post-war economic recovery. Industrial policy was used to direct state support to favoured industries, guided by various sorts of planning. The most active proponents of this approach were the French who maintained adopted a formal planning approach to support selected industrial sectors and build 'national champions' (Cohen 2007). Governments also channelled development funds into less developed regions,

focusing on large infrastructure projects and subsidies to large scale industries to support the development of regions in decline.

In the late 1980s, with the development of the EU Single Market, this 'vertical' approach to industrial policy lost favour, as the Reagan-Thatcher approach to economic policy emphasised the withdrawal of the state from economic management, the privatisation of state owned enterprises, and a greater reliance on market forces and the creation of a business friendly 'investment climate' in which the spontaneous forces of the market would decide which industries or sectors prospered and which fell by the wayside. The new 'horizontal' approach to industrial policy saw a role for the state in supervising an enabling environment for business growth, by setting out the rules of the game, ensuring the rule of law, and generally creating a level playing field in which all could compete on an equal basis. The old idea of 'picking winners' from the era of vertical industrial policy was derided as infeasible and ineffective and was replaced by a wave of economic liberalisation. The new emphasis was on Competition Policy which would eliminate or at least significantly reduce state aid to industry, and promote horizontal measures establish a level playing field for companies across the Single Market.

In the 1990s the focus of industrial policy in the EU further shifted away from sectoral industrial policies towards decentralised *territorial* industrial policies embodied in the EU regional policy and the activities of the European Regional Development Fund (Begg and Mayes, 2000). This emphasised the fostering of 'regional competitiveness', and has led to the creation of programmes of regional development which embody new formulations of industrial policy such as support for 'regional innovation systems' and support for SMEs at a local level through (i) creation of business clusters and (ii) an emphasis on the 'knowledge economy' and 'knowledge transfer' from public research and higher education institutions to the business sector.

(i) Decentralised business networks and industrial clusters

Business networking and industrial clusters became the focus of this new decentralised industrial policy approach within which small and medium sized enterprises (SMEs) became an increasing focus of attention. Italian industrial districts became a paradigm for a new form of economic development based upon dense clustering and networking of small firms in specific geographic locations. Drawing on the research evidence from the Third Italy as well as other areas where industrial districts had been observed such as Baden-Wurttemberg in Germany, Cooke and Morgan (1993) identified a new "network paradigm" in which the spatial dimension of inter-firm networking is of key importance in understanding these forms of organisation. Stabher, Schaefer and Sharma (1995) showed how programmes to support business networking had been widely developed as a tool for regional industrial policy. Inter-firm networks were also identified as an important element for decentralised industrial policy in transition economies where rapidly changing economic conditions the emergence of new and more flexible industrial economies to replace the old obsolete hierarchical industrial structures (Franičević and Bartlett, 2001).

Viewed from a policy perspective, the recognition of the importance of inter-firm networks and their geographical concentration led to the emergence of the notion of industrial clusters as a policy device. If such networks had been so effective in the Third Italy and elsewhere, could they be artificially created by governments seeking to promote economic growth and development? The influential work of Michael Porter stimulated a growth of policy interest in the beneficial effects of industrial clusters, and governments rushed to provide programmes

and subsidies to industries to establish such clusters. However, few of these initiatives proved to be successful. As Feldman et al. (2005) argued, effective clusters are created by entrepreneurs as a part of their strategic business strategy in response to economic incentives. They evolve, rather than being the product of conscious design. Nevertheless, policy makers in many transition countries have supported the creation of clusters, starting with the cluster policy introduced in Slovenia in 2001, spreading throughout the South East Europe region as a result of support and policy transfer from international donor organisations and the EU assistance programmes.

Such decentralised industrial policies were not confined to Europe, but have also been adopted in the USA. Shrank (2009) shows how industrial policy in the USA has become decentralised, reflecting the emergence of a networked economy. Industrial policy is delivered through institutions such as the National Institute of Standards and Technology, and the Small Business Administration which provides Small Business Innovation Research grants allocated on a decentralised and competitive basis. The Advanced Research Projects Agency brokers the relationship between scientists, engineers, and entrepreneurs that foster the growth of new firms and industries. According to Shrank, over the last three decades, the USA has been transformed from the virtual archetype of a 'liberal market economy' into an increasingly enthusiastic practitioner of industrial policy. This industrial policy is based upon the principles of experimentation, diversity, and local knowledge. Under the SBIR programme, public institutions must allocate 2.5 per cent of their R&D funds to small businesses through competitive awards. Under the programme, the agency allocated awards to 1,500 firms, simultaneously fostering cooperation between research institutions and the small business sector on a decentralised basis. The programme has been evaluated as a success (Shrank 2009), and has provided a useful example of how industrial economies can be redesigned to serve the new knowledge economy. The view that the USA implements effective industrial policies is echoed by Ketels (2007) who identifies the effectiveness of decentralised industrial policies in the areas of science and technology, local economic development and trade supporting policies despite the lack of an overall strategy.

(ii) The knowledge economy and regional innovation systems

The accession of the East European economies to the EU in 2004 led to an increased pace of delocalisation as industries began to transfer from the UK, France and Germany to the new member states in the East. This prompted calls for a more coordinated approach to industrial policy. In 2005 the European Commission re-launched the Lisbon Agenda as the "Growth and Jobs Strategy". The new strategy re-emphasised the horizontal approach to industrial policy based on improving competitiveness through increased support for innovation by aiming to increasing expenditure on R&D to 3% of EU GDP, promoting the uptake of Information and Communication Technologies (ICT), and developing innovation poles linking regional centres, universities and businesses.

The new emphasis by the Commission on innovation and the knowledge economy chimed with the voluminous academic research into regional innovation systems. This showed that differences in innovative capacities between countries and regions are linked to the presence of institutions which promote learning and the transfer of technology (Morgan, 1997). Porter (2000) argued that industrial clusters would benefit from knowledge transfer from local universities. Policy makers began to support programmes to facilitate links between high technology companies and institutions of higher education. Universities began to set up programmes to encourage academics and students to establish high-tech spin-off companies to commercialise the results of their scientific inventions. Yet the use of spin-offs as a

mechanism of knowledge transfer is not without its drawbacks and difficulties. Evidence from several studies showed that only a minority of spin-offs will have growth potential (Druilhe and Garnsey, 2004), in the absence of adequate support, spin-offs may remain stuck at a small scale of operation (Degroof and Roberts, 2004), that spin-offs may find it hard to raise either outside equity capital or loan funds to finance their activities (Lerner, 2004), and that spin-offs typically lack the managerial expertise they need to develop the capabilities to exploit the commercial potential of their technologies (Wright, Vohora and Lockett, 2004).

Spin-off companies are often located in science or technology parks based either within or close to a university or research institute. Some early empirical evidence suggested that the level of interaction between firms in science and technology parks and local universities is generally low (Massey et al., 1992) and that cooperation between firms in a park may also be less than one might expect (Quintas et al., 1992; Johanisson, 1998) which may be due to the heterogeneity of the firms in a Park (Lowengren-Williams, 2000). Nevertheless, interactions between park-based companies may be greater than among other firms (Felsenstein, 1994). Lindelöf and Löfsten carried out an empirical study of 265 new technology firms in ten science parks in Sweden, and compared these with a matched sample of off-park firms. They found stronger links to universities, higher levels of technological innovation, and higher rates of growth in firms located in parks compared to off-park firms.

It should not be thought, however, that the 'horizontal' and decentralised approach to industrial policy in the EU was adopted on the basis of unanimous approval by all the Member States (Trouille, 2007). France and Germany in particular were dissatisfied with the horizontal approach to industrial policy and have continued to implement their own industrial policies, with France in particular continuing to pursue 'vertical' policies of supporting 'national champions'.[1] They were unable to influence the EU approach much however, as it had been captured by neo-liberal arguments which had been pushed hard by the UK in particular (Smith 2005). Nevertheless the more liberal market interpretation of industrial policy was dominant, and this was transferred to East European accession countries as part of the conditionality of the accession process. In most cases this chimed in any case with the market-oriented policies being adopted in post-communist transition but in a few cases, particularly in South East Europe, the liberal policy approach was less favoured and state intervention in the economy persisted for longer.

3. INDUSTRIAL POLICY IN SOUTH EAST EUROPE

The countries of South East Europe became highly industrialised under the communist system, to an extent greater than was justified by their level of economic development. However, with the onset of transition to a market economy in the 1990s the industrial basis of these countries collapsed. This was a common phenomenon of the transitional recession and restructuring that affected all transition countries, but was even more emphasised in South East Europe following the break-up of former Yugoslavia, and the wars and conflicts that affected the whole region either directly or indirectly. In addition, international assistance and the transfer of policy ideas that came with it emphasised the importance of withdrawing the state from an interventionist role in supporting the economy. Conditionality related to EU accession process further emphasised the creation of competitive economies and the sharp

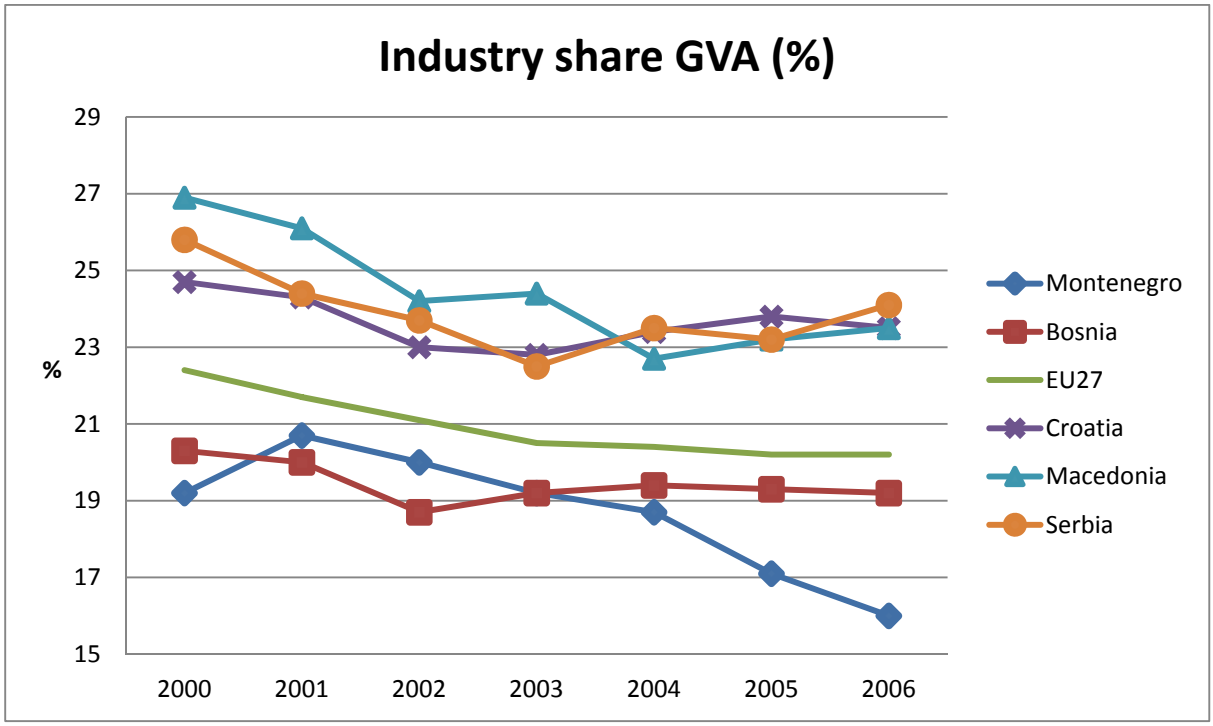
[1] Trouille (2007: 518) cites the French Beffa Report "For a Renewed Industrial Policy" as advocating industrial policies focused on large-scale programmes in high-tech industries, and notes that the report has been criticised for relying on 'old French recipes' inspired by de Gaulle's vision of grand projects from the 1960s.

reduction in state aid to industries. As a consequence of this conditionality, a Europeanisation of industrial policy has taken place even in countries which are not currently candidate states.

Some countries tried to resist these trends, and the pace of privatisation and marketisation was indeed slower in South East Europe (SEE) than in the countries of Central and Eastern Europe (CEE) and the Baltic. Privatisation was adopted gradually and hesitatingly, and state aid to industries in the form of subsidies with the aim of preserving employment was widespread (Hare and Hughes 1992). Countries as diverse as Bulgaria, Romania, Serbia and Slovenia followed a gradualist approach to privatisation. In the view of the former Slovenian Minister of Economy, Tea Petrin, privatisation on its own was unlikely to promote economic growth in the absence of an industrial policy to guide the replacement of the old industrial structures in small transition economies (Petrin 1996). Croatia, after an initial burst of enthusiasm in the early 1990s, delayed the completion of privatisation. The issue of the restructuring and privatisation of the shipbuilding industries has become a critical one in relation to the completion of EU accession negotiations. The shipbuilding industry has been kept alive by large subsidies over the years, in response to the political pressure of local interest groups and in consideration of the serious impact on employment which would result from letting this industry collapse. Serbia resisted the effective implementation of transition policies until the democratic turn in 2000. Despite all this, by the end of the 1990s, the region had witnessed a sharp reduction in the share of output produced by the industrial sector. From about 2000 onwards, all SEE countries were vigorously pursuing market-friendly economic policies. Privatisation was completed in Bulgaria, Romania and Slovenia in the run up to or following accession. Together with the liberalisation of capital markets and the ensuing rapid growth of foreign credits, rapid economic growth was led by strong expansion of the services sector.

Elsewhere, the neoliberal perspective was taken on board more readily, at least towards the end of the 1990s. Countries such as Albania and Macedonia completed the privatisation process in the late 1990s and adopted a liberal market variety of capitalism, as did Montenegro in the 2000s. Other countries, such as Slovenia, opted for a more gradualist approach creating what has been described as a corporatist variety of capitalism (Luksic 2003). Despite these differences, the influence of the EU accession process has eventually become a decisive factor, as industrial policy has formed one of the negotiating ‘chapters’ of the acquis which must be taken on by aspiring EU members as a requirement of the accession process. Thus, in the 2000s, the EU new member states (Slovenia, Bulgaria and Romania) eventually adopted the EU horizontal measures, along with a decentralised approach to industrial policy, while the candidate states are in the process of doing so (Croatia, Macedonia). In contrast, Serbia and Bosnia Herzegovina have retained a more interventionist approach with large subsidies to specific industries, and protection of monopolistic interests in the economy through tariff and non-tariff protection policies, though even in those countries measures implementing EU style policies of industrial parks and regional development agencies, along with support for SMEs are being funded through the IPA programme.

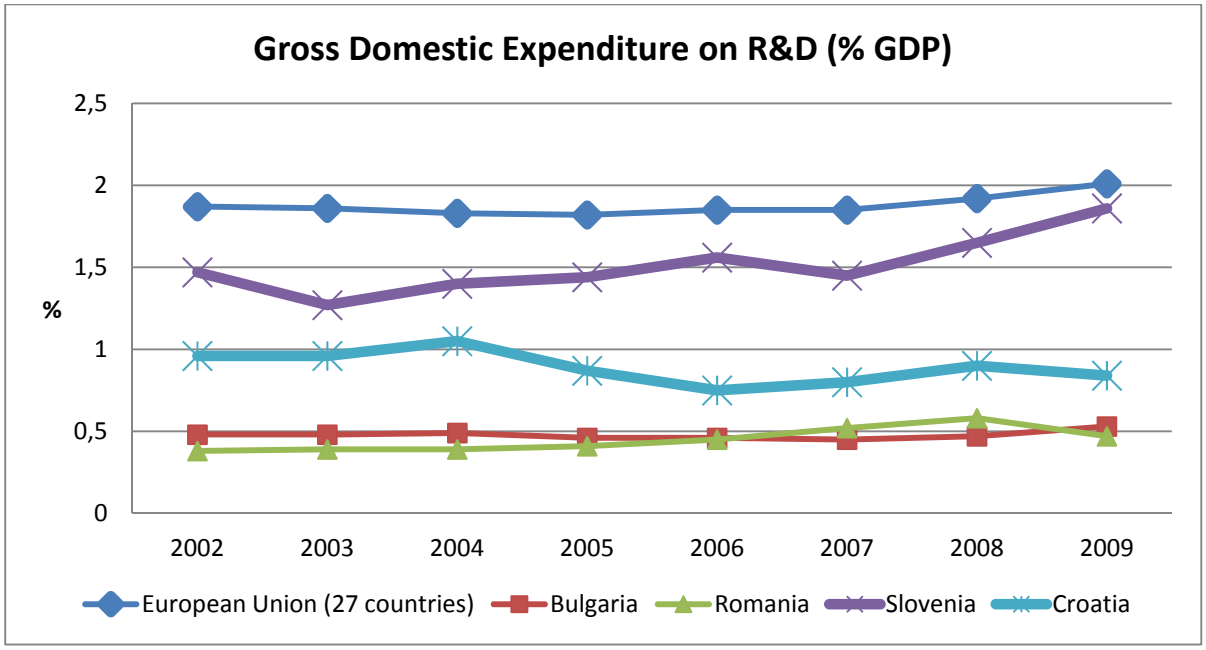
Figure 1: Industry share in GVA (%)



Source: Eurostat Pocketbook on Candidate and Potential Candidate Countries, 2009 edition

As shown in Figure 1 above, the share of industry in gross value added (GVA) has fallen in all the Western Balkan countries, although there was a slight pick-up after 2003 in Serbia, Croatia and Macedonia. This fall in the share of manufacturing follows the EU trend, and reflects the rapid growth in services sectors during the period of economic growth in the early 2000s. The most precipitous decline occurred in Montenegro, whilst in Bosnia the share of industrial production in GVA was virtually flat throughout the first half of the decade.

Figure 2: Gross domestic expenditure on R&D (% GDP)



Source: Eurostat online data

Innovative small firms have also played an important role in underpinning economic growth in transition countries (Radosevic 2002). While economic growth in the early stages of transition depended on a reallocation of resources from low-productivity large state firms to higher productivity SMEs in the emerging private sector in all sectors, improvements in economic growth in later phases of transition depend on the pace of innovation and the development of a knowledge-based economy (Radosevic, 2004). Yet, state expenditure on R&D in the transition economies of SEE have been systematically below the average in the EU. Significant differences in gross expenditure on R&D as a proportion of GDP (GERD) can be observed between countries. As shown in Figure 2 above, Slovenia has caught up with the EU average GERD ratio of around 2% since accession in 2004, while in Croatia the GERD ratio has fallen over time towards the far lower levels typical in Bulgaria and Romania, where it has hovered around just 0.5% over the last decade.

3.1. Europeanisation of Industrial policy in the EU Member States in SEE

3.1.1. Slovenia

An exception to general avoidance of industrial policy was Slovenia (Bartlett 2000). Very early on in the transition process Slovenia established a number of measures of industrial policy designed to support local economic development based upon supporting small firms through interest rate subsidies and other supportive measures.[2] The Slovenes were influenced by the example of the successful Italian experience with industrial districts which demonstrated the potential for economic development based on local networks of small firms which had been an important element of regional industrial policy in the Veneto and Emilia Romagna. The main policy approach was to preserve the old established industrial base while establishing a core of high growth small businesses which would be capable of generating high quality jobs (in terms of value added per worker). The focus of the policy was on the search for potentially fast growth firms which could be supported by the state through the main SME agency: the Small Business Development Centre (Bartlett and Prašnikar, 1995).

Unlike most other transition countries, Slovenia adopted a gradualist approach to privatisation from the start. Even at the point of accession to the EU in 2004, the main state owned banks had not been privatised. In fact, what privatisation did occur resulted perversely in greater state control, since most firms allegedly privatised were bought out by state funds and state sponsored privatisation investment funds (Pahor et al. 2004). In the run-up to EU accession the Slovenian policy changed to a greater emphasis on horizontal industrial policies, and the removal of subsidies and state aids for industry in keeping with the EU acquis (Šuštar, 2004). On the eve of accession, the EU's Comprehensive Monitoring Report on Slovenia recommended the termination of the Slovenian Development Corporation, the body that owned state companies, as its main recommendation on the Chapter on Industrial Policy (EC 2003). In keeping with the horizontal approach to industrial policy, Slovenia adopted a programme for developing industrial clusters involving companies and research institutes beginning with a pilot programme in 2000-2003 (Palčič et al. 2010). One of the aims was to promote knowledge transfer from research institutes to the companies in the cluster. The programme provided co-financing for the costs of the initial phase of creation of clusters, for the preparation of a joint development strategy, and for the costs incurred during the first two years of their operations. Industrial policy focused on support for small firm clusters and

[2] Even before independence in 1991, within the former Yugoslavia, Slovenia had taken a leading role in a country-wide initiative to establish support centres for small firms.

networks, through a decentralised system of support for innovation using technology parks and university-sponsored spin-offs (Bartlett and Bukvič 2006).

3.1.2. Bulgaria

Bulgaria had a legacy of investment in high tech industries from the communist era when it specialised in computer industries. Although the large firms mainly collapsed in the 1990s, a significant number of high tech SMEs developed with some support from the state (Bartlett and Rangelova, 1996). By the time of its accession to the EU in 2007 state support had been withdrawn from most sectors of the economy as Bulgaria complied with the EU accession criteria. According to the final regular annual report in 2005 Bulgaria's industrial strategy broadly complied with the principles of European industrial policy. The privatisation and restructuring process had moved forward and Bulgaria had improved the business environment, consolidated the banking sector and attracted foreign investment. However, in order to complete its preparations for accession, Bulgaria was requested to continue to develop an industrial policy to promote innovation and strengthen economic competitiveness, complete its privatisation strategy and the restructuring of the steel industry. The share of sectoral state aid in industry fell from 0.11% of GDP in 2004 to 0.03% in 2006 just before accession.[3] EU industrial policy, to which Bulgaria was asked to conform, was limited to enhancing the competitiveness of enterprises in general, promoting an environment conducive to initiative and to the creation of SMEs, and to exploiting the industrial potential of innovation, research and technological development. By 2011, Bulgarian industrial policy was fully in line with the EU industrial policy approach. This was neatly summarised in the National Reform Programme document for 2010-1013 adopted in April 2011:

> "The government policy will [support] research and development of innovations by businesses, acceleration of knowledge transfer towards them through development of high-technology parks and technological incubators, centres for transfer of technologies, etc. Assistance is also envisaged for innovation networks, for establishing or expanding the operations of networks of 'business angels' in Bulgaria. Considerable efforts will be made for the promotion of clusters and regional business incubators development with a view to increasing the efficiency of enterprises' production and market performance. With a view to increasing their competitiveness, the enterprises will be supported in the process of technological modernisation and introduction of internationally-recognised standards."[4]

3.1.3. Romania

In Romania, in the run up to accession the industrial policy became gradually oriented towards EU-style horizontal industrial policies. State aids to the manufacturing sector fell from 51.9% of national state aid expenditure in 2002 to just 15% of total expenditures in 2006. Moreover total state aid expenditure fell from 2.6% of GDP in 2004 to just 0.71% in 2006 (GOR 2008: 87). At the same time the amount of state aid devoted to horizontal objectives increased to 80.5% by 2006 from 63.8% in 2004. The share of state aids with a sectoral target correspondingly diminished in line with European policy on reducing state aids to industry.

[3] Eurostat data on state aid by type of aid

[4] "Republic of Bulgaria: National Reform Programme 2010-1013, in Implementation of the Europe 2020 Strategy", Sofia: Ministry of Finance

Table 1: National state aids for manufacturing industries in Romania

	2002	2003	2004	2005	2006
National State Aid (€m) (a)	859.3	918.4	1,607.0	639.3	691.8
Manufacturing (%) (a)	51.9	33.9	46.9	15.0	15.0
Sectoral state aid % GDP (b)	0.95	1.08	1.67	0.48	0.57

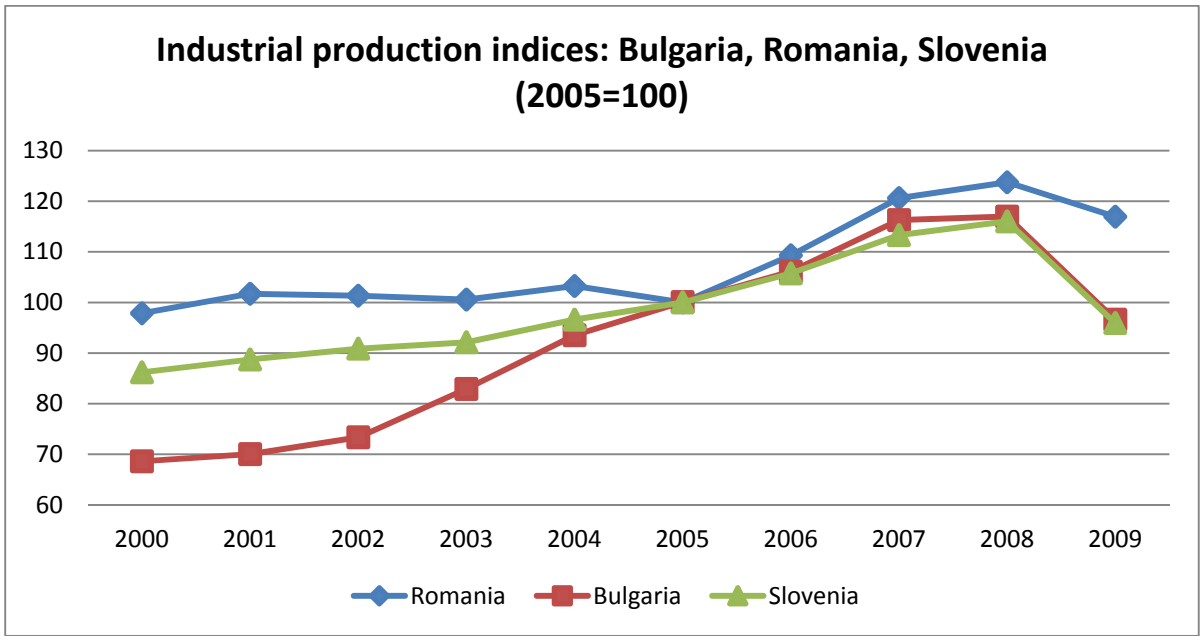
Source: (a) GOR (2008), Annex 4 (b) Eurostat

As one of the priority measures for implementing horizontal polices, the government launched a National Strategy for Research, Development and Innovation (RDI) for the period 2007-2013, which called for a strong promotion of scientific research, technological development and innovation. The aim was to increase public funds for research from 0.5% of GDP in 2007 to 1% of GDP by 2010. Other measure supported improved regulation to support investments, facilitating enterprise entry and exit, improving the participation of SMEs in public procurement, developing business infrastructure, and increasing enterprise competitiveness. Of particular interest was the set of measures designed to increase enterprise competitiveness which involved large scale investments in modernisation and regional development of which €1.7m was provided for financing investments in SMEs, €401.7m for financing large investment projects that created at least 300 jobs, and €50m for regional development for projects which created at least 500 jobs

3.1.4. Industrial production performance in the NMS

Indices of industrial production for the EU member states of SEE are shown in the table below for the period 2000-2009. In Slovenia and Bulgaria, industrial production expanded continuously up to the onset of the economic crisis in 2008, after which there were sharp declines in 2009 bringing industrial production back to the levels of 2004. In Romania, after a period of stagnation in the early 2000s, industrial production picked up in the run-up to accession to the EU, and was less severely affected by the economic crisis – although overall Romania experienced the sharpest fall in GDP in 2009 of all three countries.

Figure 3: Industrial production indices: New Member States in SEE



Source: Eurostat industrial production statistics

3.2. Industrial policy in EU Candidate States

3.2.1. Croatia

The Europeanisation of Croatian industrial policy has been in evidence as the pre-accession process has gathered pace. Croatia has been gradually adopting the EU acquis on competition, and in 2009 established the Croatian Competition Agency (CCA). The CCA issued 18 decisions on anti-trust and merger cases in its first year of operation, as well as resolving 23 cases of state aid in line with the acquis. The CCA is also in charge of the sensitive issue of restructuring and privatising the Croatian shipyards, the tendering procedure for which was completed in May 2010. The privatisation of shipbuilding is a key element in the completion of the negotiations in this field. In contrast the stipulations on enterprise and industrial policy (Chapter 20) relate mainly to support for SMEs and alignment with the Small Business Act for Europe. In relation to industrial policy, the EC 2010 Progress Report noted that measures had been taken to address the impact of the economic crisis through the Economic Recovery Programme introduced in April 2010 which included measures to improve the business environment and create a competitive economy. The Report also approvingly referred to Croatia's active participation in the EU Competitiveness and Innovation Programme and the Europe Enterprise Network. However, further efforts were considered necessary to improve the business environment by reducing administrative burdens and focusing on innovation and skills.

Several horizontal measures have been introduced in line with the EU industrial policy approach. A "Strategy for the Development of Science in the Republic of Croatia in the 21st Century" has been adopted, and the government has developed programmes to enhance cooperation between research institutes and universities and the business sector (Bartlett and Čučković, 2006). A business innovation network (BICRO) has been established which is designed to link innovative enterprises, research institutions, and universities in an attempt to stimulate knowledge transfer and promote innovative activity. A set of institutions similar to those in Slovenia has been developed to facilitate knowledge transfer and the start up and growth of high technology industries including incubators, technology parks, technology centres, and a programme to stimulate the formation of technology clusters. By 2010, as many as 138 entrepreneurial zones had been established

An EU-compatible institutional framework was established to promote regional economic development with the creation of the Ministry of Regional Development in 2008. A Law on Regional Development was passed at the end of 2009, stipulating that each county should have its own regional strategy by the end of March 2011. A Regional Development Strategy was elaborated covering the period 2011-2013, according to which partnerships should be strengthened on the three NUTS2 levels. By-laws set out how membership of these partnerships should be selected from ministries, counties, towns, municipalities, NGOs, and the social partners. However, opinion about the performance of the partnerships seems to be mixed. On the positive side, partnerships appear to work well at county level with clear sets of priorities. Yet, there are also doubts about their effectiveness. Partners are supposed to meet at least twice a year, but often lack the capacity to operate effectively.

Despite this formal adherence to the EU horizontal approach, Croatia continues to pursue an active industrial policy through the state development bank HBOR. While the growth of domestic credit fell sharply in 2009, lending to the corporate sector increased by 2.0%, with lending to households taking the brunt of the decline in credit. Almost half of the recent

increase in corporate loans was related to the government's programme to stimulate corporate financing through the HBOR. Moreover, the Privatisation Fund continues to hold a stake in 768 companies, with a majority holding in 79 of them. According to the European Commission's Report, in 2010 'overall, very limited progress has been made towards reducing the large role of the state in the economy'.[5]

The Croatian Agency for Small Business (HAMAG) was established in 2003 as a state agency aiming to develop the SME infrastructure, including regional development agencies, incubators, industrial parks and technology parks. In one active interventionist programme, HAMAG subsidises vouchers for consultancy services for SMEs in the amount of 50% with a budget of HRK 1 million per year. The main goal of HAMAG is to work locally and regionally. Contracts have been signed with local partner institutions such as RDAs, who manage the voucher scheme. The SMEs who approach the partner institutions for consultancy service are offered a choice of certified consultants. The partner institutions arrange a first meeting between the SME and the chosen consultant. A voucher is created and HAMAG is invoiced for payment on receipt of the correct documentation. Each year HAMAG gives out around 120 vouchers. The business consultant network is part of the Croatian Recovery Programme.

In addition, subsidised credit lines for local SMEs are provided by the State in a programme delivered through local banks. The credits, with a ten year payback period, carry an interest rate subsidy of 2% from the State and a further 2% from the County, disbursed by local commissions, whose membership consists of representatives from the Ministry of Economy, the County, the local bank, and the Chamber of Commerce. Other initiatives have been developed at local level, such as in the town of Split which has its own programme for SME development which focuses on the crafts sector. Similar local programmes have been developed in other towns and counties.

3.2.2. Macedonia

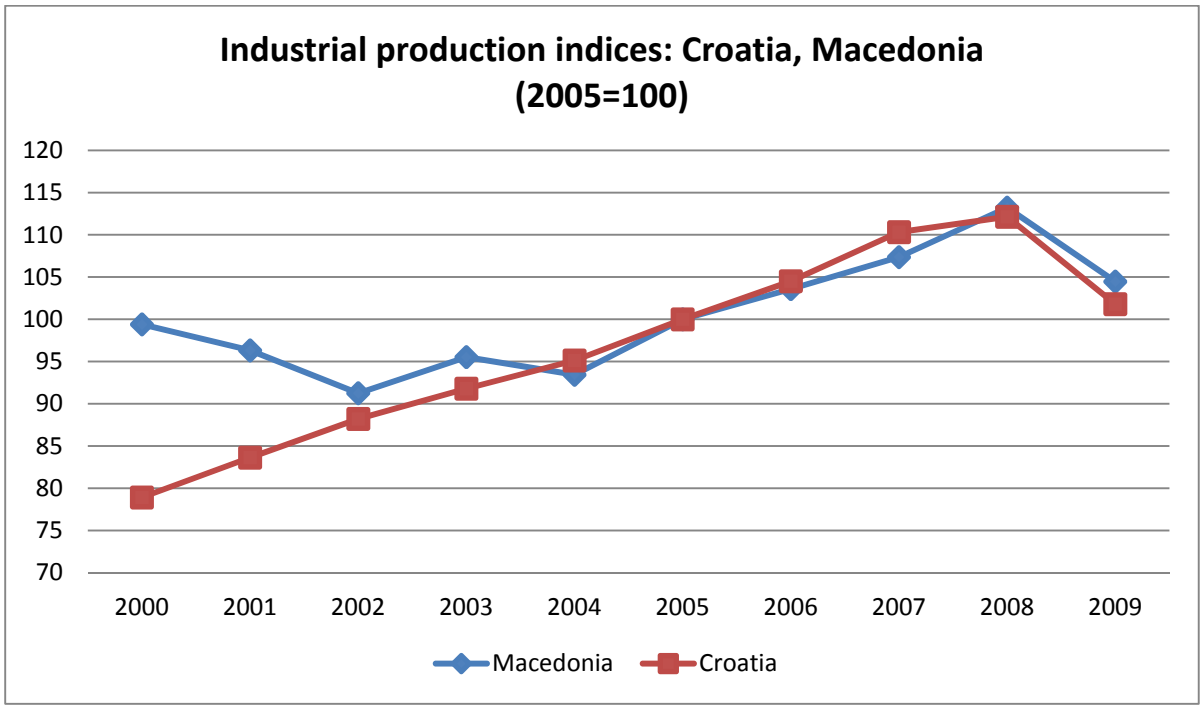
The recent approach Industrial policy in Macedonia has been developed almost exactly in line with the EU horizontal approach, clearly influenced by the EU pre-accession process. The industrial policy of Macedonia (MoE 2009) aims to attract FDI, promote research and development and innovation, develop eco-friendly technologies and products, promote SME development and entrepreneurship, and develop clusters and networks. The adopted measures are designed to support applied research, development and innovation in industry, stimulate knowledge transfer between universities and industry, stimulate the commercialisation of new products and services in the field of product design, support industry in employing researchers, stimulate transfer of technology, create technological industrial zones, protect intellectual property rights, and develop an integrated innovation policy (MoE 2009: 32-33). The document states quite bluntly that "the policy is horizontal in its nature and does not focus on supporting selected industries" (MoE 2009: 6). The vision of the policy is to encourage the production of higher value-added products and services based on knowledge, innovation and collaboration. However, it also identifies organic wine and foods, eco-steel, eco-friendly construction, ITC, specialised electronic parts, renewable energy production, creative industries, medical equipment and service, authentic tourism and other industries as part of the vision for development by 2020. Quite how these aspirations are to be met without specific sectoral measures to promote them is left suitably vague.

[5] EC (2010) *Croatia 2010 Progress Report*, SEC(2010) 1326, Brussels: Commission of the European Communities, p. 23

3.2.3. Industrial production performance in the Candidate States

Industrial production in Croatia grew steadily from 2002 to 2008. In Macedonia, industrial production languished from 2000 to 2004 when there was a noticeable pick up in performance with industrial production growing at a similar rate to Croatia between 2004 and 2008. In common with other countries in the region, the industrial sector experienced a sharp downturn in 2008-9. The net result was an increase in industrial production in Croatia from an index of 79 in 2000 to an index of 101 in 2009, while in Macedonia the index rose from 99 in 2000 to just 104 in 2009. While Macedonia adopted a more liberal approach to industrial policy, completing the privatisation of the industrial sector in the late 1990s, and adopting EU horizontal industrial policy measures, Croatia had maintained a state holding in many industries, adopted decentralised industrial policies through support to SMEs through subsidised interest rates at county level through HAMAG, and continued to provide subsidies to preserve the shipbuilding and other strategic industries. Overall the Croatian approach appears to have brought about a greater improvement in manufacturing performance over the decade, although other factors such as the Free Trade Agreements and CEFTA regional free trade area as well as many other factors undoubtedly played a role in contributing to the differences in performance between the two countries.

Figure 4: Industrial production indices: Candidate countries



Source: Eurostat online data on Candidate and Potential Candidate Countries

3.3. Industrial policy in EU Potential (and new) Candidate States

3.3.1. Serbia

The industrial policy adopted in Serbia from 2000-2010 overturned the policy of the previous regime which had given large subsidies to enterprises in order to maintain employment. It involved the privatization and restructuring of the economy, attraction of FDI, creation of a competitive business environment, and the strengthening of the entrepreneurial sector.

However, state aid continued to be offered to the industry sector despite the broad orientation towards transition policies, and has even increased in recent years.

Table 2: State aid to industry (excluding transport, agriculture and fisheries) (% GDP)

	2003	2004	2005	2006	2007	2008	2009	EU-27
Share of GDP (%)	2.4	2.1	1.0	1.4	1.7	1.5	2.0	0.42%

Source: Report on State Aid Granted in the Republic of Serbia in 2009, Belgrade: Ministry of Finance

State aid to industry as a share of GDP was reduced by more than half between 2003 and 2005, but has crept back up since then, as the pace of transition reforms slackened. State aid to industry was 2% of GDP in 2009, more than four times as high as the average for the EU-27 (which was 0.42%). However, within the total, the share of horizontal measures has been increasing while the share of sectoral state aid has been reduced (from 19.5% of the total in 2007 to 17.3% in 2009). A new Law on State Aid Control was adopted in July 2009, in line with EU principles, following the signing of the Stabilisation and Association Agreement in July 2008, which carries stipulations regulating the granting of state aid.

The new industrial policy for 2011-2020 is quite strongly oriented to EU style horizontal measures. It will focus on sustainable industrial growth and development, institution building, improved investment climate; strengthening of competitiveness, faster development of entrepreneurship, increased and restructured export, reforms of the educational system in line with needs of the economy, active and dynamic cooperation between science and industry, stimulation of innovation, development of regional industrial centres and regional business infrastructure. All of this is in line with the EU horizontal approach to industrial policy. Nevertheless, the EC 2010 Report on Serbia stated that "Serbia has made little progress in developing and implementing a modern industrial policy. The industrial strategy remains to be adopted."

Serbia is also developing its own decentralised approach to industrial policy at local level. A recent research project studied the implementation of decentralisation policies in a number of municipalities in Serbia.[6] It found that several municipalities have established business zones which compete against one another for outside investors by offering a range of incentives and subsidies to attract both domestic and foreign businesses to the municipalities. To take one example, in the municipality of Svilajnac south of Belgrade, a new business zone has been created with its own supply of electricity and water. Businesses are provided with rent-free spaces for 99 years, which are free of tax for three years. Outside investors are required to employ 50% of their workforce from the local population, and receive an employment subsidy from the National Employment Service. The enterprise zone is mainly financed through competitive funding from the Ministry of Economy and the National Investment Plan. Altogether it is expected that the zone will employ 1,000 people, of which 500 will be from the local unemployment register, mainly unskilled workers. Currently, there are three agricultural businesses in the zone, two of which are in foreign ownership producing processed cucumber, gherkins, and herbs, and one in domestic ownership, producing meat products. The foreign investors are from Holland and Switzerland and already have a market in the EU. Inputs are supplied by local farmers, and the foreign investors ensure and guarantee the necessary quality by local producers. A German company is producing plastic parts for the motor industry. The LA is negotiating with Panasonic to build the largest factory

[6] Project on 'Decentralisation and Regional Policy in South East Europe', LSEE Research Unit, European institute, LSE, funded by the Latsis Public Benefit Foundation.

in Europe producing LED screens. Another company, bought through privatisation by Austrian company, produces train tracks. Other municipalities also have similar enterprise zones, but they have not been as successful as Svilajnac which has adopted a very pro-active decentralised industrial policy.

3.3.2. Montenegro

Montenegro has been perhaps the prime example of the pursuit of the neoliberal agenda with a free trade policy starting in 2000 which opened the country to unrestricted imports and led to a rapid process of de-industrialisation. The consequence of the privatisation policy and the reduction of the role of the state has been the same in most countries – deindustrialisation involving a dramatic reduction in the share of industry in GDP, and a sharp increase in the share of employment in the services sector, including business services, finance and tourism, but predominantly retail and wholesale trade. It is hard to see that this strategy can lead to long run sustainable growth in peripheral economies, and is likely to lead to a situation in which the economic growth of the country is highly dependent on the growth of the core economies of the EU.

3.3.3. Bosnia and Herzegovina

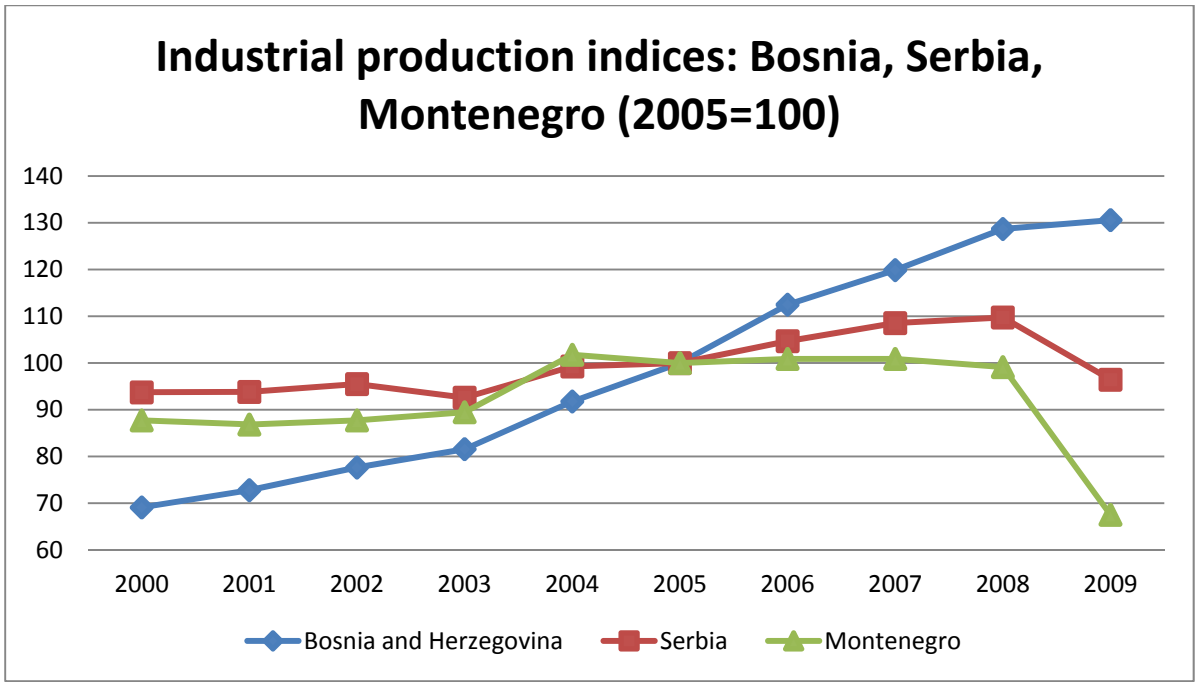
Under the socialist system in former Yugoslavia, Bosnia and Herzegovina had established a network of public infrastructure and a significant industrial base. BiH has important natural resources: coal and iron ore deposits, forests, and water resources capable of providing hydroelectricity and safe drinking water. Heavy industries (steel and aluminium) were developed after World War II including defence industries. Industry had developed its own research capacity during this period, often in cooperation with academic research institutions. One of the characteristics of the structure of BiH economy prior to 1991 was a high level of production and export concentration. Twelve huge enterprises produced 35 percent of total GDP, and four of them generated more than 40 percent of total export. As opposed to other republics of former Yugoslavia, BiH had not developed strong public R&D structure, and the main carriers of R&D were industrial institutes. Unfortunately, most of these assets (in higher education, research and industry) collapsed during the 1992-1995 war. Many of the researchers from the industrial laboratories and universities emigrated to foreign countries.

Overall, there is little in the way of industrial policy in Bosnia and Herzegovina, and unlike the situation in Slovenia and Croatia there are few technology parks (Bartlett, et al. 2007). Co-operation between universities and companies is generally at a very low level in terms of technology innovations and transfer. Some regions have demonstrated a trend towards more regionally-based technology centres, which are donor-supported. An innovation centre was established in Zenica in 2008 at the University with the aim of becoming a technology park, while the city of Zenica and the local RDA established a technology park at the same time. Another Technology Park was established in Mostar in 2008, as a private company. Since the private status of the initiative prohibits the centre accessing public funds, a new Innovation Centre will be established as a non-profit foundation. In 2010 an innovation centre was established in Banja Luka, but so far with little success. The idea of developing a technology park in Sarajevo appear to be forgotten, even though it accommodates the largest number of faculties, institutes and donor organizations.

3.3.4. Industrial production performance in the Potential (and new) Candidates

Industrial production in the potential and new candidate countries was far more sluggish than in the EU Member States and Candidate States. The exception is Bosnia which appears to have experienced a remarkable industrial recovery, sustained even through the period of economic crisis. However, it should be noted that the increase in production in Bosnia has been from a very low level, and is mainly associated with some large foreign investments in the metal processing industry such as the investment by Mittal Steel, and the aluminium industry in Mostar. The collapse of industry in Montenegro has been associated with the neoliberal policy adopted by the government and the unilateral dismantling of tariff protection of domestic industry which has led to a large increase in competitive imports. The collapse of the wood and forestry industries in the North east of the country has not been matched by any appropriate policy of industrial regeneration. Industrial production has been equally flat in Serbia, ending the decade with an index of industrial production at 96.4 in 2009, only marginally above the 2000 level of 93.7.

Figure 5: Industrial production indices: Potential and New Candidates



Source: Eurostat online data on Candidate and Potential Candidate Countries

4. THE NEW EUROPEAN INDUSTRIAL POLICY AS AN EXIT FROM THE ECONOMIC CRISIS: WHAT ROLE FOR SEE?

Over the last decade, anxieties about the relative underperformance of European businesses in future technologies led to calls for a more interventionist industrial policy (Trouille, 2007). The recent global economic crisis, especially, has led to a rethink, with the German position being strengthened by its success in leading the EU out of the recession caused by the dominance of financial capital promoted by the Anglo-Saxon model of deregulation, neglect of industry, and excessive liberalisation of the financial markets. In 2010 therefore, the Commission launched a 'fresh approach' to industrial policy for the EU (EC 2010). A strong motivating factor has been the eastward shift in economic power to the new emerging economies in East Asia and the rise of the BRIC economies led by China. This has led to the

realisation that in order to enhance the global competitive position of the EU, there is a need for a European industrial policy, which would create globally competitive European industries, and European champions to compete against the rising powerhouses of China, India and the other emerging economies. While horizontal policies might continue to be needed to ensure the cohesion of the Single Market within the EU, the challenge of competition from without the EU has refocused minds on the need for sectoral policies which will enable the EU to meet the challenge of the rapidly changing global architecture, and find its own niche in the global economy as a significant player.

Consequently, in addition to improving existing horizontal measures, the Commission now called for a sector-specific dimension, identifying specific sectors for development at a European level such as space technology, clean and energy efficient motor vehicles, transport equipment, healthcare, environmental goods, energy supply industries, security industries, chemicals, engineering, transport-equipment, agro-food and business services.[7] Measures to support these industries are to focus on promoting innovation, understood to include business and organisational innovations. The new industrial policy draws on the provisions of the Lisbon Treaty in particular Article 173 TFEU on industrial policy. As part of the Europe 2020 strategy the Commission will now regularly report on the EU's and Member States industrial policies, organised through the Competitiveness Council and the European Parliament.

The new emphasis on sectoral policy should be seen in the context of increased global competition, and the inexorable shift of economic power to the BRICS and East Asian countries since the recovery from the global economic crisis began in 2010. Europe needs to compete on a global market in a world in which competitor nations are engaged in active policies to support their own industrial champions, despite WTO strictures against unfair competition. Thus the EU dimension of the new industrial policy is emphasised. The horizontal approach is still relevant as regards national industrial policies so as to prevent unfair competition within the EU, and to ensure a level playing field on the EU Single Market. Indeed it is enshrined in the Treaty of Lisbon. But in relation to global competitors, the EU now proposes to support Industrial policy cooperation among EU countries in the designated target industries.

The new European industrial champions will be based around advanced technologies and employ highly qualified workers. The question for the countries of South East Europe is to what extent they will be able to participate in this new world of super-advanced industrial development. How far will they be able to contribute to cooperative ventures to develop space technology, clean motor vehicles, nanotechnologies, and bio-engineering innovations? Given the well known deficiencies in the technological level and skills base in these countries, and the reduction in support to leading industry sectors in relation to EU accession and integration, it seems highly likely that the countries of SEE will be left out of this new game altogether, while at the same time being prevented by the EU horizontal approach and by EU competition rules from applying a sectoral industrial policy of their own designed to drive the exit strategy out of the economic recession itself and the likely post-recession period of low economic growth.

[7] The Commission website summarising EU legislation states that "The Community industrial policy combines a horizontal approach, aimed at ensuring cohesion and synergy among the various strategic sectors, with a sectoral approach, allowing the specific characteristics of the various sectors to be taken into account", http://europa.eu/legislation_summaries/enterprise/industry/n26109_en.htm

5. CONCLUSIONS

Despite the slow initial pace of transition in SEE, and the widespread use of state aids to industry as a measure of vertical industrial policy in the 1990s, with the onset of a faster pace of EU integration in the 2000s, the pro-competition industrial policies of the EU were adopted in almost all countries of SEE in the 2000s. In other words, industrial policy in SEE has been subject to the same processes of Europeanisation as have been observed in other policy areas. Within the New member States, state aid to industry was rapidly reduced in the run up to accession. A similar process is taking place not just in the Candidate States, but also in the Potential Candidates. Horizontal and decentralised approaches to industrial policy are replacing older reliance on more direct vertical forms of industrial policy that has been designed to support key industries and preserve employment in large firms. The decentralised industrial policies are being introduced alongside efforts to extend the decentralisation of administrative responsibilities towards lower tiers of government. These new approaches, to support SMEs, develop technology parks, local industrial clusters, and promote the transfer of knowledge from the universities and research institutes to the business sector. Countries such as Croatia and Slovenia which maintained state aids and strong industrial policies as long as possible seem to have had a more consistent expansion of their industrial production than other countries which adopted the neoliberal agenda and promoted openness and competition, such as Montenegro.

All of this followed the path of industrial policy in the EU, which has evolved from a reliance on subsidising national champions in the early post-war years, towards an emphasis on horizontal measures to support the Single Market, and decentralised measures to support the catching up of less developed regions. However, the industrial policy of the EU is not a fixed arrangement. It has been the outcome of intense differences of opinion over the appropriate policy to adopt. The main industrial countries, especially France and Germany, have persisted in efforts to lobby for policies that would be more supportive of specific industrial sectors such as chemicals. Until the onset of the global economic crisis these lobbying efforts were largely unsuccessful and the pro-competitive orientation of Member States such as the UK had predominated in ensuring the deepening of the horizontal and decentralised approach to industrial policy embedded in EU competition laws and laws prohibiting direct state aids to industry that would distort competition.

However, all this has changed with the onset and evolution of the global economic crisis since 2008. German influence has become stringer, and the shift of global economic power to the BRICS has made the EU much more concerned about its international competitive position. This sharpening of focus has brought vertical industrial policies, applied at the European level, back onto the agenda. While the requirements for competition and horizontal policies remain in place, a new space has opened up for the use of various measures to support industrial champions at the EU level, in industries as varied as space technology, clean and energy efficient motor vehicles, transport equipment, healthcare, environmental goods, energy supply industries, security industries, chemicals, engineering, transport-equipment, agro-food and business services. One of the common characteristics of these industries in the form envisaged in the ‘fresh’ approach to industrial policy now championed by the European Commission is the focus on advanced technologies and the application of highly skilled labour. The challenge for the countries of South East Europe will be to engage with this new agenda, and make a contribution to the new industrial sectors on the European level. In the absence of such engagement, the economies of the region will be held back from involvement in the leading sectors of European industry.

The alternative for the SEE countries seems to be to manoeuvre as best as possible within the constraints of EU competition policy to ensure that the adopted horizontal measures and decentralised industrial policies at local and regional level is well supported by the central government, appropriately funded making best use of EU funding sources. This requires effective fiscal decentralisation to provide local authorities with sufficient funds to meet the challenges of local economic development, ensuring full political support and effective ministerial coordination, and effective partnership between local administrations and business organisations at the local level.

BIBLIOGRAPHY

Bartlett, W. (2000) "Industrial policy and industrial restructuring in Slovenia", *Journal of Southern Europe and the Balkans* 2(1): 11-24

Bartlett, W. and Bukvič, V. (2006) "Knowledge transfer in Slovenia: promoting innovative SMEs through spin-offs, technology parks, clusters and networks", *Economic & Business Review for Central and Eastern Europe*

Bartlett, W. and Čučković, N. (2006) "Knowledge transfer, institutions, and innovation in Croatia", *Društvena istraživanja [Social Research]*, 15(3): 371-400 (75%)

Bartlett, W., Čičić, M. and Ćulahović, B. (2007), "Institutional issues and knowledge transfer to the business sector in Bosnia And Herzegovina", Paper presented at the *Coimbra Group Seminar* 'Universities as Agents of Change in Society', Mostar, 13-16 September 2007

Bartlett, W. and Franičević, V. (2001) "Small firm networking and economies in transition: an overview of theories, issues and policies", *Zagreb International Review of Economics and Business*, 4(1): 63-89.

Bartlett, W. and Monstiriotis, V. (eds.) (2010) *South East Europe after the Economic Crisis: a new Dawn or Back to Business as Usual?*, London: LSEE, London School of Economics

Bartlett, W. and Prašnikar, J. (1995), "Small firms and economic transformation in Slovenia", *Communist Economies and Economic Transformation*, 7(1): 81-101.

Bartlett, W. and Rangelova, R. (1996), "Small firms and new technologies: the case of Bulgaria", in: R. Oakey (ed.) *New Technology-Based Small Firms in the 1990s*, Vol. 2, London: Paul Chapman, pp 66-79.

Begg, I. and Mayes, D. (2000) "Decentralized industrial policy", *European Planning Studies*, 8(2): 149-56.

Cohen, E. (2007) "Industrial policies in France: the old and the new", *Journal of Industry, Competition and Trade*, 7:213-227.

Cooke P. and Morgan, K. (1993) "The Network Paradigm: New Departures in Corporate and Regional Development", *Environment and Planning D: Society and Space*, 11: 543-64

Cviic, C. and Sanfey, P. (2010) *In Search of the Balkan Recovery: The Political and Economic Reemergence of South Eastern Europe*, London: Hurst

Degroof, J. and Roberts, E. B. (2004), "Overcoming weak entrepreneurial infrastructures for academic spin-off ventures", *Journal of Technology Transfer*, 29: 327-352.

Druilhe, C. and Garnsey, E. (2004), "Do academic spin-offs differ and does it matter?", *Journal of Technology Transfer*, 29: 269-285.

EC (2003) "Comprehensive monitoring report on Slovenia's preparations for membership", *mimeo*, Brussels: European Commission

EC (2010) *An Integrated Industrial Policy for the Globalisation Era: Putting Competitiveness and Sustainability at Centre Stage*, COM(2010) 614, Brussels: Commission of the European Communities

Felsenstein, D. (1994), "University-related Science Parks – 'Seedbeds' or 'Enclaves' of innovation?", *Technovation*, 14 (2): 93-110.

GoR (2008) *National Reform Programme: Implementation Report*, Bucharest

Jakopin, E. (2011) *Industrial policy of Serbia: -new approach, objectives, instruments*, Belgrade: Republic Development Bureau.

Ketels, C.H.M (2007) "Industrial policy in the United States", *Journal of Industry, Competition and Trade*, 7: 147-167

Lerner, J. (2005), "The university and the start-up: lessons from the past two decades", *Journal of Technology Transfer*, 30 (1/2): 49-56.

Lindelöf, P. and Löfsten, H. (2004), "Proximity as a resource base for competitive advantage: university-industry links for technology transfer", *Journal of Technology Transfer*, 29: 311-326.

Lowengren-Williams, M. (2000), *Advantages of a Science Park Location: Case Studies from the Ideon Science Park*, University of Lund.

Luksic, I. (2003) "Corporatism packaged in pluralist ideology: the case of Slovenia", *Communist and Post-Communist Studies*, 36(4): 509-525

Massey, D., Quintas, P. and Wield, D. (1992), *High Tech Fantasies: Science Parks in Society, Science and Space*, London: Routledge.

MoE (2009) *Industrial Policy of the Republic of Macedonia, 2009-2020*, Skopje: Ministry of Economy

Morgan, K. (1997), "The learning region: institutions, innovation and regional renewal", *Regional Studies*, 31 (5): 491-503.

Pahor, M., Prašnikar, J. and Ferligoj, A. (2004) "Building a corporate network in a transition economy: the case of Slovenia", *Post-Communist Economies*, 16(3): 307-331.

Palčič, I., Vadnjal, J. and Lalić, B. (2010) "Industrial clusters in Slovenia – a success story?", Acta Tehnica Corviensis – Bulletin of Engineering, 4(3): 143-150

Petrin, T. (2006) "Industrial policy and the restructuring f firms in post-socialist Slovenia", *Review of Industrial Organisation*, 11: 325-337.

Porter, M. (2000) "Location, competition, and economic development: local clusters in a global economy", *Economic Development Quarterly*, 14 (1): 15-34.

Quintas, P., Wield, D. and Massey, D. (1992), "Academic industry links and innovation: questioning the Science Park model", *Technovation*, 12 (3): 161-175.

Radosevic, S. (2002), "Regional innovation systems in Central and Eastern Europe: organizers and alignments", *Journal of Technology Transfer*, 27: 87-96.

Radosevic, S. (2004), "(Mis)match between demand and supply for technology: innovation, R&D and growth issues in countries of Central and Eastern Europe", in: J. Svarc, et al. (eds.), *Transition Countries in the Knowledge Society*, Zagreb, Institute of Social Sciences, pp. 83-100.

Shrank, A. and Whitford, J. (2009) "Industrial policy in the United States: a neo-Polanyian interpretation", *Politics and Society*, 37(4): 521-53.

Smith, M.P. (2005) "Germany's quest for a new EU industrial policy: why it is failing", *German Politics*, 14(3): 315-331

Stabher, U. H., Schaefer, N.V. and Sharma, B. (eds) (1995), *Business Networks: Prospects for Regional Development*, Berlin and New York: Walter de Gruyter

Šuštar, B. (2004) "Industrial structure and international competitiveness of post-communist Slovenia", *Post-Communist Economies*, 16(1): 74-88.

Trouille, J. (2007) "Re-inventing industrial policy in the EU: a Franco-German approach", *West European Politics*, 30(3): 502-23.

Wright, M., Vohora, A. and Lockett, A. (2004), "The formation of high- -tech university spinouts: the role of joint ventures and venture capital investors", *Journal of Technology Transfer*, 29: 287-310.

NEED FOR INTEGRATION OF LABOUR MARKET POLICY AND SOCIAL POLICY IN CROATIA

Predrag Bejaković
Institute for Public Finance
Zagreb, Smičiklasova 5
E-mail: <predrag@ijf.hr>

Željko Mrnjavac
Universitiy of Split, Faculty of Economics
Split, Matice Hrvatske 31
E-mail: <mrnjavac@efst.hr>

Key words: *Labour market policy, social policy, social inclusion, unemployment,*

ABSTRACT

Croatia, like many other Central and Eastern European countries (CEECs), has been characterized during the past 20 years by U-shaped trends of GDP, strong and persistent declines in employment rates and unemployment pools desperately stagnant in spite of the rapid structural change taking place. The Mentioned remarkable increase in unemployment has not been accompanied by adequate scientific and political attempts to understand the causes of the rise in unemployment that took place. Line ministries and institutions throughout the entire period were assigned to develop programs of active labour market policy (ALMP).Until now, evaluations of ALMP in Croatia were reduced to attempts to analyse effectiveness of measures on diminishing overall rate of unemployment or unemployment of selected disadvantaged groups, without opening the question of how those measures should be integrated into other related policies. It is particularly important that labour market policy and social policy be co-ordinated so as to become mutually reinforcing. Co-ordination is, of course, desirable, but is often difficult to achieve. This paper is an attempt to point out the limitations and the real potential of ALMP, and its connections with welfare policy. First, we analyse the possibilities and limitations of active labour market policy (ALMP). A summary of ALMP suggests contradictory evidence as to the efficiency of different programmes. After a short review of the current situation regarding cooperation between employment and social policy in Croatia and providing different successful experience, we present proposals for improvement.

List of abbreviations used in the text

ALMP - Active Labour Market Policy
APEP - Annual Employment Promotion Plans
CBS - Central Bureau of Statistics
CSW- Centres for Social Welfare
CES - Croatian Employment Service
LFS - Labour Force Survey
NAEP - National Action Employment Programme

1. UNEMPLOYMENT AND ALMP IN CROATIA

1.1. Importance of (un)employment and description of current situation

Unemployment is one of the most serious issues confronting us. People out of work for long periods and their families are damaged and communities and the economy are weakened. Of course, Croatia is not unique in suffering comparatively high levels of unemployment as it goes through the process of transition to a modern market economy. Restructuring national industries is a painful but necessary stage in a journey to development. It exposes high levels of hidden underemployment and puts many people out of work. But at the same time it encourages greater economic efficiency, which the nation needs to flourish in an increasingly competitive world and creates the conditions for the growth of new and different jobs. Nor is high unemployment confined to transitional countries. Many of the member states of the European Union (EU) have also experienced persistently high levels of unemployment in recent years.

Many reasons have been suggested and disputed for this phenomenon. But what is clear is that EU recognises the vital importance of employment in ensuring economic and social well-being and has vigorously promoted labour market reform measures. The EU has done this primarily through the European Employment Strategy and annual guidelines to member states about reforming their labour markets. Within this process member states produce annual employment action plans taking account of the EU guidance and reflecting their own particular circumstances. Most candidate countries have also followed this practice as a discipline for labour market reform within the transitional and accession processes and as a preparation for gaining access to the EU's structural funds later. This is a valuable approach to labour market reform and one that should be followed.

Croatia has two sources of (un)employment statistics. Firstly, there are official unemployment data that are processed by the Croatian Employment Service (CES). Secondly, there is a set of indicators that are derived from the Labour Force Survey (LFS), which has been conducted since 1996 by the Croatian Bureau of Statistics (CBS), whose methodology is harmonised with the rules and instructions of the ILO and the Eurostat, ensuring the methodological comparability with the studies conducted by EU countries.

A decade-long decline in employment was reversed in 2001. After reaching the peak in 2002, uunemployment started to fall and prospects for labour force began to improve. Although employment in crafts has increased there has been insufficient job creation in the economy as a whole, notably in the sector of small and medium enterprises. The rebalancing of the economy in Croatia took place almost entirely through job losses in agriculture and industry with few expanding activities until very recently in the service sector. The structure of manufacturing employment in Croatia is now similar to EU countries but with more labour intensive industries. The share of public sector employment has declined and accounts for around 30% of all employment.

According to estimates of the Central Bureau of Statistics, in mid-2009, the population of the Republic of Croatia was around 4,429,000, while working-age (15+) population amount 3.65 million persons, a figure which is quite stable in the last ten years (2001-2010). In the mentioned period the total activity rate varied between 47% and 49% which means that it was very low, particularly when compared with EU average. This also holds for employment rate. For the population 15-64 it was mostly bellow 55% showing signs of very slow increase in

first decade of 2000s (the employment rate for the total population in age 15-64 years grew from 53.4% in 2001 to 54.8% in 2005), and increased further to 57.0% in 2007 and 57.8% in 2008, but decreased significantly afterwards to 56.6% in 2008 and to 54.1% in the first three quarters of 2010. Total unemployment rate for the whole population in age bracket from 15 to 64 fell in the whole period from 15.7% in 2001 to 13.1% in 2005 and to 8.6% in 2008. After that there has been an increase to 9.3% in 2009 and particularly strong growth for 2.7 percentage points to 12.0% in 2010. Unemployment rate by prime age total population has been decreased from 32.6% in 2005 to 22.0% in 2008, but after that there has been recorded its increase to 25.1% in 2009 and to 31.3% in 2010. In comparison to male (whose average unemployment rate in the observed period was below 10%), female are significantly more exposed to unemployment and their average unemployment rate in the observed period was above 12%. However, it looks like that economic sectors where males are predominant labour force suffer more during the crisis and therefore male unemployment rate increased more from 7.1 in 2008 to 11.5% in 2010 (an increase for 4.4 percentage points) in comparison with sectors where predominantly are employed women, so female unemployment rate rose from 10.4% in 2008 to 12.7% in 2010 (an increase for 2.3 percentage points).

Briefly, according to LFS Croatia has a relatively low activity and employment rate particularly for women, youth and older persons. Mentioned groups have higher unemployment rate in comparison with average population, particularly prime age male.

According to the CES figures, in the period 2001-2008, the number of persons unemployed decreased from 395,000 to 240,000 almost by 155,000 or by almost 40%. A particularly significant decrease was recorded in 2008 (10%), when the number of the unemployed reached a level of 237,000. An economic crisis in the following period has caused the increase of registered unemployed persons by more than 26,000 (or 11%) in 2009 and even bigger rise in 2010 by almost 40,000 people or 15%. Until recently, there was a constant rise in the share of the long-term unemployed (those who have been waiting for more than one or two years for a job - almost 50% of all unemployed wait for a job longer than 1 year).

Unemployment in Croatia is the result of a lack of structural changes in the economy. The destruction of jobs in the context of the liquidation and bankruptcy of a large number of companies has not been matched by sufficient job creation in the private sector. Relatively high real wages, institutional rigidities and wide-spread skills mismatches appear to be major impediments for a more dynamic labour market performance. And even though the number of unemployed has been decreasing over the last several years, women continue to dominate this category and, moreover, increase their share therein.

The most important causes of poverty and social exclusion are unemployment and a relatively high rate of economic inactivity. Unemployment and low activity rate are mainly the consequence of insufficient demand for labour force and the mismatch in labour supply and demand. In order to facilitate and improve employment, the structural mismatch has to be eliminated or reduced first of all through an active labour market policy directed primarily toward those persons who have lower employability prospects or toward those who are long-term unemployed, such as young people, older workers, particularly women and, people with disabilities.

The magnitude of the unemployment problem has prompted the Government to announce new employment policy measures. According to it, CES subsequently developed a number of Active Labour Market Measures (ALMP). These initiatives represented a substantial shift

away from the traditional bureaucratic delivery of employment services, towards services that are both more customer oriented and more closely integrated into other areas of government activity such as the provision of cash benefits and social services. However, situation changed in the period from 2002 to 2010, so we provide a short history of recent ALMP measures in Croatia.

1.2. A short history of recent ALMP in Croatia

High unemployment led the Government of the Republic of Croatia in the beginning of 2002 to launch the National Action Employment Plans (NAEP). Under this Programme, between the start of application of active measures from the Program of the Government of the Republic of Croatia (1 March 2002) and 4 August 2005 when the program was terminated, 57 609 contracts on co-financing of employment and education had been signed. Furthermore, 11 015 contracts or 19% of the total number of concluded contracts were signed in 2005 only. Implementation of the Program helped 80 371 registered unemployed persons, out of which 47% were women, to get a job. Under the Promotion Employment Program, educational activities were organised both for known and unknown employers, as well as education programs aimed at enhancing one's prospects to retain a job.

In the period 2002-2005, under the active labour market policy, a total of 80 371 unemployed persons had been employed, out of which 47.2% were women. It is fair to say that overall, in the period of 2002-2005, ALMP had been efficient considering the number of those who were employed, but insufficiently focused on the less employable population groups because virtually all persons registered with the Croatian Employment Service had been able to access at least some of the incentives. At the same time, another unfavourable aspect is that wage subsidy measures should account for the major part of the total spending on ALMP measures, whereas not enough emphasis is placed on improvement of qualifications, acquisition of knowledge and competence, and improvement of employability and adaptability for both unemployed and employed persons. Furthermore, the 2002-2005 active policy programs contained a significant share of *dead weight*[1] and other adverse effects such as displacement[2]. So far, there has been virtually no systematic evaluation of the ALMP measures. The exception is the public works program (implemented in an earlier period) which, according to the assessment, had failed to improve either the employability or the wages of participants after completion of such a program. There had been no significant investments in this program.

Having considered and analysed the labour market in the Republic of Croatia, and because of the need to determine priorities in addressing the unemployment-related problems, the Government of the Republic of Croatia adopted at the end of 2004 the National Action Employment Plans (NAEPs) for the period 2005-2008, and later for the periods 2009-2010 and 2011-2012. The aims of the NAEPs are: improvement of the labour market efficiency in Croatia, raising employment and reducing unemployment, and adjustment to the processes of Croatia's accession to the EU. The National Action Employment Plans are based on the

[1] "Dead weight" subsidy is a subsidy given to a person who would have gotten a job even without subsidies. Substitution means employing a subsidised person instead of another person not entitled to a subsidy. It is important to note that impact of substitution may have social justification if the persons in question belong to a group whose employability is low.

[2] Displacement means loss of jobs in companies that are not employing subsidised workers but are forced to lay off a number of workers under the pressure from the competition which is benefiting from the subsidies system.

European Employment Strategy, and although they are linked to the annual guidelines for labour market reforms in the member countries, they also take into account specific Croatian features. The Croatian NAEPs consist of the key measures, extremely desirable measures and desirable measures. The active and preventive measures that constitute an integral part of the National Plans are designed so as to contribute to promotion of higher employment and better social inclusion, at the same time enabling the unemployed and economically inactive to join the various forms of training that increase their competitiveness and facilitate their integration in the labour market. They are supported in their task by modern institutions active in the labour market. Equally, new measures are aimed at increasing the number of new and better jobs through promotion of entrepreneurship and a more favourable business environment.

Based on the NAEP for the particular period, Annual Employment Promotion Plans (APEPs), together with instruments for theirs enforcement were drafted. The enforcement measures are aimed at: developing entrepreneurship through co-financing of the incorporation costs of new cooperatives, starting new trades and crafts, subsidising interest on entrepreneurial loans, promoting self-employment, providing loans to entrepreneurs in tourism, providing education of the long-term unemployed and persons with low level of qualifications, as well as the young early school leavers, in order to enable them to acquire additional knowledge and skills that are in demand in the labour market, thus increasing their employability and matching the supply and demand in the labour market. In elaboration of these enforcement measures, a particular emphasis is placed on promotion of integration and prevention of discrimination against persons with an unfavourable labour market position (persons with low employability, unemployed single parents of minors, unemployed Croatian war veterans etc.): by co-financing the costs of employment, inclusion into public works programs executed by local government units, enforcement of measures from the National Program for the Roma. The measures from APEPs include: active and preventive measures for the unemployed and economically inactive, creating new jobs and developing entrepreneurship, promoting development of human capital and life-long learning, promoting integration and combating discrimination against persons with an unfavourable labour market position, reducing unofficial employment and regional differences.

APEP 2007 was particularly successful. It includes various measures for encouraging entrepreneurship, development of cooperatives, co-financing of employment, education and self-employment. The measures including employment, education or acquiring additional knowledge and skills in demand on the labour market are targeted at the long-term unemployed, young people without previous working experience, persons of older working age, persons with lower educational qualifications, as well as persons who left school (drop-outs). Further, a part of operational measures pertained to promoting integration and the fight against discrimination of persons in unfavourable position in the labour market (e.g. people with disabilities, persons who have lower employability prospects, unemployed single parents of children under age, treated drug addicts etc.) through co-financing employment and inclusion into the public works programmes implemented by local self-government units.

In various APEPs, CES is tasked with enforcement of *preventive and active measures* with a focus on a more inclusive labour market. Preventive measures include improving the quality of services and efficiency of the CES. Active measures include co-financing the costs of employment for young persons below the age of 29 who have no working experience, long-term unemployed and older unemployed persons (women above the age of 45 and men above the age of 50). The Service is also responsible for co-financing education for a known and unknown employer, co-financing employment of special groups of the unemployed, carrying out public works and enforcing measures from the National Program for the Roma.

In 2007, 4,750 contracts were received about the support for employment and education, financing of education of unemployed persons, as well as for co-financing of employment in public works programmes. Through the implementation of active policy measures in 2007, a total of 8,494 persons were employed or included in education/training (93.1% of the planned 9,125), of whom 4,296 persons were employed through employment support, 707 persons were included into training for a known employer (professional development grants), 2,960 persons were included into training for an unknown employer, and 531 persons were employed through public works programmes. Of the total number of persons covered by the measures in 2007, 4,346 (or 51.1%) were women.

In 2008, a total of 7,531 persons were employed, out of this total number, 3,641 persons were women or 48.3%. In 2009, a total of around 6,000 persons were included in the implementation of the ALMP, where off total number, almost 3,000 were women. Results of the ALMP – the number of persons employed through these measures are presented in Table 1. In the years preceding the crisis, the coverage rate for active programmes was slightly over 3%, and it fell to 2.5% in 2009. (The programme coverage rate is the percentage of the unemployed who participated in any active labour market programmes, such as training, skilling, subsidized employment or public works. It should be noted that training and skilling are also provided for employed workers in Croatia, so the estimate of the coverage rate for the unemployed is probably biased upwards).

As the full data (primarily structure of participants and their characteristics) for 2010 are not yet available, we provide comparative data for 2009 and 2008. In 2009 a total of 3,025 people participated in educational programmes tailored to meet labour market needs, of whom 1,447 were women. Of the total number of women included in education (1,447), 77% or 1,112 were prime-age women. As regards educational level, persons with completed secondary education had the highest share (67.3% or 749), followed by persons with lower educational level (23.6% or 263), and persons with tertiary education qualifications (8.9% or 100). The information on the coverage of prime-age women with secondary qualifications is an indicator of their inadequate education, primarily arising from reproduction of occupations which are not in such a great demand on the labour market, which is a reflection of a lack of co-ordination between educational and economic reforms, lack of work experience due to reduced demand on the labour market, and family and other socio-economic factors that may influence their employment opportunities. Women were primarily included in educational programmes for economist professions (bookkeeper, accounting and financial expert worker, administrative secretary, real estate agent), tourist and catering industries (hotel maid, cook, waitress, pastry cook, cleaning lady) and health care (care giver, masseuse, sanitary technician).

According to the available aggregate data by the end of the year of 2010, the total numbers of 13,088 persons were included in the implementation of active labour market policy measures. Out of the total number, 6,468 were women with a share of 49.4%. Employment was achieved using the following measures: Employment co-financing with 2,423 persons or 18.5%, Education co-financing for the known employer with 614 or 4.7%, Education financing for an unknown employer with 4,566 persons or 34.9% per cent, Financing in public works with 5,037 persons or 38.5% and Occupational training without commencing employment (448 or 3.4%). Furthermore, by the end of 2010, the total number of 304 persons were included in the implementation of the measures within the National Programme for Roma/Action Plan for the Decade of Roma Inclusion 2005-2015, out of whom 84 (27.6%) women.

Table 1: Number of employed persons and their structure according to the measures of the Active Labour Market Measures in 2008, 2009 and 2010

Measure	2008[1]	Structure 2008 in %	2009[2]	Structure 2009 in %	Indices 2009/ 2008	2010[3]	Structure 2009 in %
Measure 1 - Employment co-financing of young persons without working experience	1,003	13.3	213	3.4	21.2		
Measure 2 - Employment co-financing of the long-term unemployed	1,290	17.1	298	4.7	23.1	2,423	18.5
Measure 3 - Employment co-financing of persons above the age of 50	706	9.4	116	1.8	16.4		
Measure 4 - Employment co-financing of special groups of the unemployed	351	4.7	65	1.0	18.5		
Measure 5 - Education co-financing for a known employer	1,105	14.7	644	10.2	58.3	614	4.7
Measure 6 - Education financing for an unknown employer	2,361	31.4	3,025	48.0	128.1	4,566	34.9
Measure 7 - Public works	699	9.3	1,935	30.7	276.8		
Measure 8 - Public works - individual projects	16	0,2	-			5,037	38.5
Occupational training without commencing employment						448	3.4
Total	**7,531**	**100**	**6,296**	**100**	**83.6**	**13,088**	**100**
The measures in the framework of the National Programme for the Roma / Decade of Roma Inclusion 2005 - 2015	247		244		98.8	304	

1- Period covered from March 25 until December 31, 2008.
2- Period covered from May 25 until December 31, 2009.
3- By the end of December in the year of 2010

Source: Yearly Report by Croatian Employment Service, available on www.hzz.hr, for 2010 the Monthly Statistical Bulletin, year 23 (12).

The only active labour market programme that was significantly expanded during the crisis is public works (index 276 in 2009/2008), but it still covered only a small fraction of the unemployed. Public works in Croatia mostly include reimbursement of employment costs to the municipal authorities who provide public utility jobs to the unemployed. The wage rate under public works programmes is set at a low level: 75% of the minimum wage (30% of the average wage). Public works provide temporary employment and are primarily meant as an income-support programme, and therefore, they do not substantially improve the future employment prospects of the participants. Regardless of the adverse characteristics presented here, public works and related programmes (such as workfare or work experience

programmes) can be used as a mean to provide temporary income support to those unemployed who are not eligible to unemployment benefit (new labour market entrants and/or informal sector workers).

There was an increase in the number of people employed through Measure 6 Education financing for an unknown employer (index 128.1 in 2009/2008). Its objective is the improvement of the job prospects of unemployed persons through skill upgrading. For the above measures most participants are long-term unemployed persons. Long term unemployed persons are faced with higher risks of falling into penury, while a depreciation of human capital due to unemployment and a weak link with the labour market enforce the vicious circle of social exclusion and poverty. Regarding unemployment and long-term unemployment - often important factors that determine poverty - Croatia does not differ much from other countries in transition, although its rates are higher than the average in other EU countries. Among other proposals, it is important to increase the amount of unemployment benefit instead of prolonging its duration. It is also better to target labour policy measures towards the most vulnerable citizens and groups with lower employability.

All remaining programmes were reduced in size (total enrolment in ALMP fell by 26% in 2009 relative to 2007). Particularly in decline are the number of people employed through ALMP as recorded in Measure 3 - Employment co-financing of persons above the age of 50 (index 16.4 or drop of 83.6%) and Measure 4 - Employment co-financing of special groups of the unemployed (index 18.5 or drop of 81.5%). There has been some shift from Measure 5 - Education co-financing for a known employer, which as a matter of practice is provided largely to the workers already employed and towards Measure 6 - Education financing for an unknown employer, which is provided to the unemployed.

One should welcome the newly introduced Programme of professional training for work without concluding an employment contract. It should enable young unemployed persons to gain their first work experience. However, due to the Programme's recent introduction, the effects of are as yet unknown. In 2010 in mentioned programme participated 448 persons, but one can assess that their number will increase in the future.

As a conclusion, it can be said that active labour market programmes and measures, which are meant to help job losers to find new jobs, had and have an extremely low presence and coverage in Croatia (lower than in any EU country). Furthermore, their structure in Croatia had been inappropriate and mostly oriented to subsidies which do not improve the skills of the unemployed and (probably) have high deadweight costs and other adverse effects such as substitution and displacement. Finally, there have been no clear target groups. The situation changed for the better in the last few years: measures began to be increasingly oriented towards those with the lowest level of employability and disadvantaged people at risk of or in long-term unemployment. Furthermore, ALMP in Croatia have been monitored, but not fully and systematically evaluated for their net effect. Thus, it was impossible to answer what would have happened to the individuals had they not gone on active measures such as training and education. Recently, for the first time and only once ALMP activities have been evaluated (CES, 2008).

2. LIMITATIONS OF LABOUR MARKET POLICIES

Of course, one has to be aware that the positive effect ALMP has on the employment chances of participants may be at the expense of non-participants, without having any real effect on the aggregate level. In the reverse situation, it is also possible to have no measurable effect on

participants but positive effect on a macro-level (de Koning, 2001). When, for example, unemployed people with good labour market prospects are trained in occupations in which a shortage exists, their job chances may not increase, but other unemployed may benefit from their transition to other labour market segments. Calmfors and Holmlund (2000) analyzing unemployment and economic growth mentioned positive employment implications of ALMP and stressed the difficulties in assessing outcomes of job creation and training programmes. There is a number of mechanisms that work in opposite directions. Wage pressure may be reduced if the programmes enhance the competitiveness of the long-term unemployed in the labour market. This would also happen if training programmes can facilitate the reallocation of workers from sectors with weak to sectors with strong demand for labour.

There are also plausible negative effects on regular employment. There may be direct crowding-out effects of job creation programmes on regular employment as employers have incentives to replace regular with subsidized labour. Such programmes may also increase wage pressure by effectively reducing the costs of unemployment. This is presumably especially relevant if the programmes are used as a means to allow the long-term unemployed to renew their benefit entitlement.

Even if activating labour market policy fails to reduce aggregate levels of unemployment, one could argue that it contributes to increasing mobility into and out of unemployment. Of course, there may be good arguments for preferring an open society where the burden of unemployment is shared between many people for a short period of time to a society with an underclass of long-term unemployed people. For people on social assistance or receiving unemployment benefit the probability of acquiring paid (permanent or flexible) job is extremely low. The longer people stay in social assistance and/or unemployment, the lower the likelihood into entering into employment and escaping from poverty.

The economic theory states that ALMP hardly affects total employment directly (de Koning et all. 2001). But when ALMP succeeds in reintegrating long-term unemployed (LTU) or social assistance recipients, the effective labour supply increases. Therefore, reintegrating the long-term unemployed and preventing long–time unemployment is certainly worthwhile. There are other meaningful activities in addition to paid employment which can be a source of social integration and individual fulfilment. Nevertheless, the preventing of long-term and recurring unemployment would be a major contribution towards combating poverty and social exclusion and/or social assistance recipients.

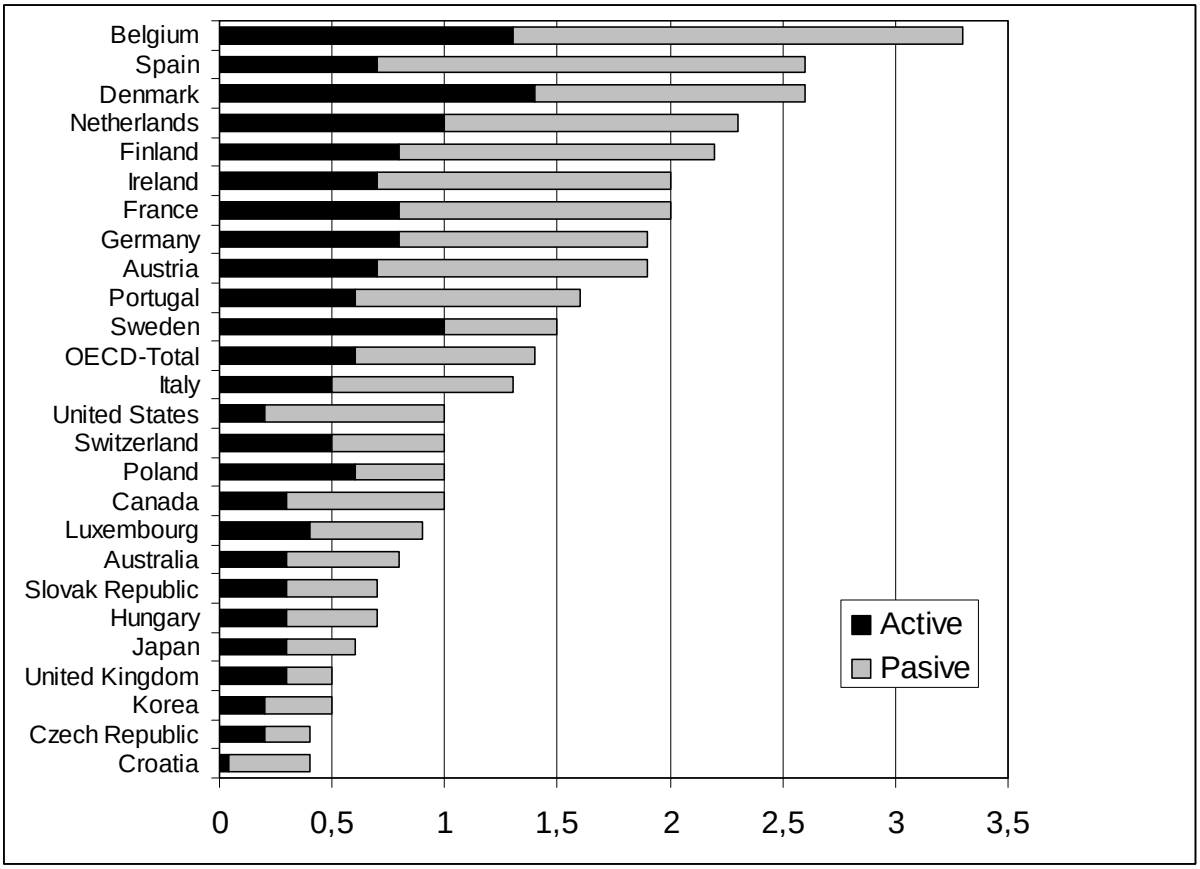
Unemployment generally becomes a social problem when people remain in it for long periods of time. Since long-term unemployment often leads to social exclusion, reintegrating the long-term unemployed may also contribute to their social reintegration.

ALMP could redistribute job opportunities so that fewer people become long-term unemployed and/or social assistance recipients. When total employment and total labour supply are given, this would imply distributing the unemployment burden among more people (assuming that not the same people are experiencing more unemployment spells as a result of the policy intervention). Clearly, an increase in total employment as a result of ALMP would be preferable to a redistribution of unemployment amount a greater number of people.

Croatia spends on all labour market programs around 0,4 % GDP, significantly less than other EU countries with similar income level. In these expenditures the share of active programs is also very low, ranging from 10 to 14 percent in past years. This is in sharp contrast to EU

countries where expenditures on active programs in most cases represent at least one-third of total labour market expenditure (Figure 1).

Figure 1: Percentage of public spending on LMP in GDP in 2008



Source: OECD and own calculation

Low expenditures on ALMP correspond to very low number of beneficiaries in relation to the number of the unemployed so the impact on overall unemployment couldn't be but negligible. Active labour market programs are run on a small scale in Croatia so in years preceding the crisis coverage rate was just over 3 % of unemployed and even diminished to 2,5 % in 2009. This clearly indicates that programs in Croatia had to be narrowly targeted to selected disadvantaged groups and were not meant to diminish growing level of unemployment. They were even less adequate to increase general employment level in time of crisis. Number of included persons was simply too small to have any noticeable effect. Because of the fiscal strain, despite being faced with the growing labour market tensions engendered by the crisis, the Government will not be able to significantly expand ALMP expenditures.

The overall spending on social assistance in Croatia is high by regional standards. In fact, Croatia allocates double the amount of GDP for social assistance programs compared to an average of the Central and Eastern European countries. However, despite a large allocation of budgetary resources for this purpose, the coverage of the poorest 20 percent of population with any of the hundred different social assistance programs remain on the low side compared to the best performing peers.

Resources allocated to social assistance would be sufficient to eliminate poverty in Croatia if they were spent efficiently. Higher efficiency would require the reallocation of resources

between programs: away from those poorly targeted towards the well targeted ones with strong positive impact on poverty. Therefore, there is a large scope for improving the system effectiveness.

The poor rely more on state transfers and less on earned income than the non-poor. Less than a quarter of incomes for the poorest 10 percent come from paid employment (wages), while for the non-poor, this share is almost two times higher, around half of their income.

The current economic crisis has revealed that the social protection system in Croatia is relatively ill fitted to cope with increase in unemployment and the corresponding fall in incomes. Poverty has significantly increased and the social protection system did little to mitigate the effects of the crisis. After all, only two programs: unemployment benefit and social welfare support, have partly cushioned the impact of the crisis. However, the coverage of both programs is low, and accordingly many of the workers and families affected by the crisis were left without adequate income support. But every crisis creates an opportunity for reforms.

An economic crisis quickly turns into a social crisis: workers lose jobs and earnings, and their families fall into poverty. There is a strong relationship between one's labour force status and his/her income status in Croatia. An unemployed person is about three times more likely to be poor as an employed person and at the same time, the risk of poverty declines with an increase in the number of the employed household member. So the increase in unemployment is bound to translate into higher poverty.

The economic contraction led to a rapid worsening of labour market conditions. The resulting fall in labour incomes quickly translated itself into the rising poverty. At the same time, due to the budgetary strain, the fiscal space to increase expenditures on social protection has been extremely limited. Hence it is important to design employment and social safety net policies capable to mitigate the adverse social effects of the future economic downturns and alleviate their poverty impact. The purpose of the ensuing policy discussion is thus to suggest ways to strengthen the social protection system in Croatia so that it can effectively tackle vulnerability to poverty resulting from the future unemployment.

Given the resources spent on social assistance, the outcomes in terms of poverty reduction can be significantly better. There is a need for activation policies to prevent labour market exclusion, and to reintegrate the long-term unemployed into the labour marketed. Activation interventions should be tailored to the needs of different categories of clients by dividing them into different categories based on the distance from the labour market and the amount of help needed. Social inclusion of disadvantaged groups should be promoted by supporting their access to the labour market, focusing on the long term unemployed beneficiaries of social assistance.

Due to fiscal constraints, a balance needs to be struck between fiscal and social considerations. Determining spending priorities is thus critical. When the government budget is strained and unemployment is rising, then only those labour market programs should be expanded that have a clear positive impact either on incomes of the unemployed or on their employment opportunities to ensure that the most vulnerable of them do not lose contact with the labour market and drift into inactivity.

The incidence of long-term unemployment is high in Croatia by regional standards, and most of the long-term unemployed are clients of the social assistance system. The lack of harmonization leads to a costly system which negatively impacts value for money. If Croatia aims to strengthen the poverty impact of social spending the Government should consider consolidating administration to the extent possible by merging relevant functions.

To avoid disappointing results, it is particularly important that labour market policy and social policy be co-ordinated so as to become mutually reinforcing. Income protection and unemployment benefits as well as employment protection legislation should create incentives for labour market integration and efficiency. Co-ordination is, of course, desirable, but is often difficult to achieve. Labour market policy tends to be short-term and action oriented while social policy is more long-term, and culturally and socially oriented. There will probably always be some tensions between these different types of policies and the cultures they relate to. Complexities and interrelationships among labour market policy and social policy explain why the calls for cohesion, integration and co-ordination have become legion (Sohlman and Turnham, 1994).

3. CO-OPERATION BETWEEN LABOUOR MARKET POLICY AND SOCIAL POLICY IN CROATIA

Centres for Social Welfare are legal persons founded by the Ministry of Health and Social Welfare, usually with several CSWs existing in each county. According to the law, CSWs are primarily responsible for administrative decisions of the first instance on access to benefits/services in the area of social welfare and family law and their execution. They also participate in court proceedings either by provision of information or being a party to a suit, particularly when it concerns protection of personal interests of children and other family members who are not able to provide for themselves or for their rights and interests. They carry out control over foster families, provide care for children who run away from family or an institution, apply educational measures on children with behavioural disorders outside their own family or with stay in the family, and provide home care assistance. they also have a general preventive and analytical duty. Additionally, CSWs also carry out duties of counselling regarding problems in marriage and family, upbringing of children, adoption; participate in suppressing the addiction to alcohol, drugs or other narcotics. However, this duty is gradually being shifted to Family Centres, which are being created in each county largely out of current CSW staff providing the counselling activities.

3.1. Background information on Centers for Social Welfare

Centres for Social Welfare are legal persons founded by the Ministry of Health and Social Welfare, usually with several CSWs existing in each county. According to the law, CSWs are primarily responsible for administrative decisions of the first instance on access to benefits/services in the area of social welfare and family law and their execution. They also participate in court proceedings either by provision of information or being a party to a suit, particularly when it concerns protection of personal interests of children and other family members who are not able to provide for themselves or for their rights and interests. They carry out control over foster families, provide care for children who run away from family or an institution, apply educational measures on children with behavioural disorders outside their own family or with stay in the family, and provide home care assistance. It also has a general preventive and analytical duty. Additionally, CSWs also carry out duties of counselling

regarding problems in marriage and family, upbringing of children, adoption; participate in suppressing the addiction to alcohol, drugs or other narcotics. However, this duty is gradually being shifted to Family Centres, which are being created in each county largely out of current CSW staff providing the counselling activities.

The Croatian Employment Service (CES) - was established as a public institution owned by the Republic of Croatia and subject to the legislation governing institutions. The person in charge of the management of the Service is the Director who represents it and acts on its behalf. CES performs the activities from the scope of its work in the following organisational units: Central Office and 22 regional offices with accompanying 94 branch offices. In this way CES presence on the whole territory of Croatia has been guaranteed. CES Central Office established work policy, methods and techniques are implemented in the practice by regional offices, which attain its goals in the field in direct contacts with unemployed persons, employers and other interested organisations. The Central Office provides guidelines for the work in the Regional and Local Offices through its logistical support from all the aforementioned activities, such as vocational guidance, job mediation, information, publishing, analysis and data processing, legal, personnel and financial administration and other. The second level within the CES structure is Regional Offices. They perform professional and work activities from the CES priority functions, as well as provide support for them via monitoring and analysis of employment trends, in other words of unemployment in their counties. The work of the Regional Offices cannot be imagined without their cooperation with economic subjects, whether it be the case of small or medium-sized entrepreneurs or local government or self-government. Furthermore, the Regional Offices have to identify the needs of their county and implement their activities in line with these specificities. The third level in this structure is local offices. CES priority functions are job mediation, vocation guidance and provision of financial support to unemployed persons. Furthermore, CES organises and provides training for employment includes various forms of training, rehabilitation, education and skill improvement of the unemployed and employed persons with the goal to increase their employability. From various documents, for example Ministry for Health and Social Welfare (2007), it is quite obvious that there is a weak co-operation and insufficient co-ordination between social welfare services and employment services to provide an integrated response to the needs of service users.

Box 1 - Models from other countries

In **the Netherlands**, one can see a model of one-stop shop and outsourcing instead of integration. The Netherlands instituted a comprehensive reform of their social assistance and employment services institutions in 2002. Since then, three types of actors have been involved in providing employment services and financial benefits to able-bodied adults lacking income:
- Central Organization for Work and Income (Centrale Organisatie voor Werk en Inkomen (CWI));
- Institute for Employee Benefit Schemes (Uitvoeringsinstituut Werknemersverzekeringen (UWV)); and,
- Municipalities.

In this model, the CWI presents a one-stop shop in which every person that wants work or financial support can go to. The CWI assesses the situation of the client in terms of his or her distance from the labour market, using a system called *kansmeter* based on the characteristics

of the person. A person who is seen as without any problems in accessing the labour market is referred to vacancies, temporary employment agencies, and other intermediaries so that he or she does not need to enter the system. However, many clients also need financial assistance. This is not the role of the CWI, but of UWV and the municipalities. The UWV provides contributory unemployment benefits while municipalities provide non-contributory benefits. CWI collects information about the client and passes it along with the client to UWV and municipalities who have their front offices in the premises where CWI is housed. If a client is transferred to the UWV of a municipality, the responsibility for helping them find a job is also transferred to the UWV or municipality. These no longer implement active labour market measure, but completely outsource them through public tenders to certified private reintegration firms on an outcome basis.

In **the United Kingdom**, a new Job centre plus system is a model of integrated services for all able-bodied adults and their families. In 2001, the Department of Work and Pensions restructured its agencies for employment and benefit matters, creating three agencies based on respective customer groups:
- Job centre Plus provides an integrated service to people of working age. It offers help to people looking to move into work and support for people who can not. All employment service, social assistance, and family benefits to people of working age are provided here.
- The Pension Service is a dedicated service for current and future pensioners.
- The Disability and Carers Service supports disabled people and their carers, both employed and unemployed. It is responsible employed and unemployed. It is responsible for delivering benefits related to disability. The UK model also uses outsourcing of employment services, although not as extensively as the Australian, Danish or Dutch models do. Under a centre-left government, it has been a concerted model to modernize the state provision of services and benefits.

Slovakia presents an example of a transition country that went the same path as the UK. In 2004, the government merged the National Employment Bureau with the former Social Affairs Departments of the General County Offices. Before the merger, there were 79 County Employment Bureaus as well as 8 Regional Employment Bureaus and the Central Employment Bureau. On the social side, each of the 8 General Regional Bureaus and 79 General County Bureaus had a social department responsible for all non-contributory benefits, family protection and other issues (practically identical to CSWs in terms of responsibility). After the merger, Central Office of Employment, Social Affairs and Family was created with 46 Bureaus of Employment, Social Affairs and Family across the country. The first-contact network was not diminished though as these were preserved as branches. At the same time, the merger and elimination of management layers allowed decrease of staff of 900 without sacrificing any employees directly serving clients.

Over 50,000 of people registered as unemployed receive social welfare payments. They have to attend a centre of social welfare and an office of the Croatian Employment Service. Their attendance at the employment office confirms that they meet the conditions for being registered as unemployed. The employment office is responsible for helping and encouraging them to find and take up employment. The CSW is responsible for assessing their needs and for making social welfare payments. Registered unemployed people who get social payments deal with two institutions largely as though they are unrelated. And by the same token, two institutions are dealing with the same people largely because of the same circumstances – that they are unemployed.

Information goes between the CES and the CSW to confirm that the unemployed person is registered as unemployed and has attended the employment office. The exact arrangements vary between different offices; in some cases the information is physically transported by the client in the form of a piece of paper signed by a counsellor; in other offices there are electronic links. The CES also generates monthly paper list of people registered as unemployed for the CSWs.

According to the experiences from various countries (some presented in Box 1) the whole range of coordination models could be applied, On one end of the spectrum, there could be a full merger along the lines of the UK or Slovakia. This would mean that whatever the institutional set-up chosen by counties, the social and employment services would be provided jointly both physically and organisationally. This could take a form of:

- a joint Social Welfare and Employment Centre at the county level with branches across the county
- or several Social Welfare and Employment Centre across the county supervised directly by the county administration

At the same time, this would require an institutional change within the county administration, where the social welfare and employment competences would need to be brought together (or more likely to be created in the case of employment, where counties currently have little authority or administrative capacity).

On the other end of the spectrum, there is a number of steps that could increase in coordination without a full merger:

- co-location. Even though the international experience with co-location as a measure to better co-ordinate implementation of employment and social policy is not highly impressive, it could be considered for two other reasons. First of all, co-location can be the first step towards more formal co-operation between the two services (this was the UK experience). Secondly, even if co-location provides no co-ordination benefits, it still decreases administrative burden for the clients by having the services in the same location
- presence of representative of one institution on the administrative council of the other one and vice versa. Both services currently have administrative councils that perform a supervisory and advisory function over the directors of CSWs/CES Regional Offices. A modified version of these bodies is envisioned under the decentralisation options in the previous reports. Therefore, one of the easiest steps to improve co-ordination would be to appoint a representative of each agency to the administrative of the other one. The natural choice would be that of directors; however, this would need to be considered in the light of potential conflict of interests – each director would be simultaneously, to some extent, supervising and supervised by the other director, depending on the exact powers of the administrative council.
- joint councils at the county level or regular meetings of managers. This could be seen as an alternative to the previous bullet, where a separate new formal or informal body could be established where the top managers of both services in a county would meet on a regular (monthly or quarterly) interval. This would involve top managers at the county level and at the branch level.
- agreements on sharing of information and co-operation plans. These agreements could contain many areas, ranging from synchronisation of IT systems and data exchange to co-operation plans stipulating both joint actions and synchronisation of individual action

- staff exchanges. Since one of the reasons for increased collaboration is the mental and psychological "distance" between the two services, temporary or permanent exchanges of staff could go a long way towards alleviating the problem and forging closer links.

As we can see, there is a myriad of potential combinations. Our preferred approach for the medium term (next 4 to 5 years) is as follows:

- The CES remains responsible for registering unemployed welfare recipients and for ensuring they fully meet the conditions especially 'actively seeking' work;
- The CSWs remain responsible for assessing need;
- The CSWs remain responsible for setting up and maintaining payment arrangements;
- The CES is responsible for checking each month that the recipient continues to meet the conditions for unemployment and for allowing payment to procedure or for stopping payment.

Under these arrangements the client should not have to visit the CSW more than once unless there is a change in their circumstances. The CES will have a key role in the payment process as part of the authorisation procedure. This can be done either through negative or positive input from the CES. Negative input would require the CES to tell CSWs that the client ceased to meet the conditions for unemployment and to stop automatic payment. Positive input would require the CES to tell the CSW in every case every month that each client meets the conditions for unemployment and that automatic payment could continue. The CES and CSW should develop closer working relations on the ground particularly in planning the provision of measures for long term unemployed welfare recipients.

4. CONCLUSION AND RECOMMENDATIONS

There is clearly a strong association between long term unemployment, poverty and social exclusion. The problem of long term unemployment is growing. In the RC there has been a continual rise in the share of the long-term unemployed - those who have been waiting for more than one year for a job till recently accounted for more than a half of all unemployed. What can be concluded about the policy framework in Croatia as regards its effect on welfare recipients? The following are the most striking points:

There is nothing exceptional about the passive measures – unemployment compensation. This does not mean that they are without criticism but that *in themselves* they should not lead to worsening the flow of unemployed people into long term unemployment; Active labour market measures are diverse and recognised as a useful instrument of labour market policy. They are not yet sufficiently targeted to where most international evidence indicates they are effective i.e. disadvantaged people at risk of, or in, long term unemployment. Their scale is small and their availability is made particularly uncertain by the funding arrangements. They are not yet integrated as closely as possible with benefit (administration of unemployment compensation) and placement work;

Activation is developing well and the CES is creating the institutional capacity for it to become a central feature of the administration of unemployment compensation. It needs to be configured and reinforced so that it is present in all aspects of the administration of unemployment compensation and directed to lessening the flow of people into long term

unemployment; 'activation' works best through the accumulation of small effects at each stage of administration;

There is no focus in the range of policies measures on long term unemployed people: activation does not intensify with the duration of unemployment, active labour market measures are not directed towards those at a disadvantage in the labour market nor used in support of activation, and job brokering/mediation is understandably biased towards finding the best people to keep employers satisfied;

For long term welfare claimants the involvement of two distinct and separate organisations makes more difficult the integration of activities to support and encourage active job search within the administration of their payments system. The CES faces the dilemma of keeping employers happy and getting people of low employability and motivation into employment. This challenge is faced by all public employment services. In Croatia a strategy for doing so has yet to evolve. New measures need to be developed that specifically address the problems faced by long term unemployment.

There is no universal model for all countries, but there are some indications that Croatia could benefit from establishing a closer relationship between employment policy and social policy. In countries with high long-term unemployment, the interaction between benefit systems and employment policy is significant. Additionally, as countries move to placing an emphasis on active jobseekers, the link between policy and the delivery of social and employment services becomes more important. In Croatia, this link seems to be missing.

Although Croatian spending on ALMP increased before the economic crisis and fiscal limitations, there were problems related to *their short duration* and *relatively low consistency*. Different programmes started and enabled results that were better than expected, but the implementation of the programmes ceased (mostly because of insufficient financial possibilities or restrictions). Currently, the size of labour market programmes is too small in Croatia to have an impact on labour market conditions. Accordingly, the programmes would need to be substantially expanded in order to effectively mitigate the employment effects of economic downturns, particularly the adverse problems of long-term unemployment. However, only those programmes should be expanded which are cost-effective, and are found to have a significant net impact on labour. It is important to define clear targets regarding employment and the reduction of unemployment (particularly long-term) of minority groups. Furthermore, additional attention should be oriented towards increasing the scope (number of activities), the number of participants and the efficiency of the ALMP designed for improving the problem of long-term unemployment. As part of the process, there is a need to improve planning and resource allocation which are proposed for the active labour market policy.

As important recommendations one could propose:

- Further efforts in improvement of both the employability and retention of older workers will have to be enacted, in order to assist in contribution to the sustainability of social security systems, and improve the adequacy of incomes in retirement.
- It is necessary to continue shifting the emphasis from passive measures (financial support of the unemployed) to active forms of assistance (training measures and education in accordance with the changing labour market needs), in order to increase the employment of those with a low level of education or those with the knowledge and skills that are not in demand on the labour market.

- More attention has to be given to creating conditions for employment of the most endangered and vulnerable groups in the labour market, exposed to accumulated problems and the consequences of social exclusion, whose access to the labour market is consequently specially difficult (such as persons with intellectual and health problems, addicts, victims of violence, former inmates, homeless and similar).
- It is crucial to focus ALMP measures on long-term unemployed or groups those are at risk of doing so, instead of targeting almost all unemployed persons. In other words, it is necessary to decrease inflow in the long-term unemployment and to decrease the number of those who are already long-term unemployed.
- There is a need to provide intense, individualised mediation and career counselling/guidance services in employment, acquisition of job-search and job-creation skills, and training and education programs.
- There is a need to constantly design a development plan for professional rehabilitation, vocational education and training, employment and work of people with disabilities (provide professional rehabilitation, employment and work at open labour market according to individual capabilities and needs, and only exceptionally under special conditions and sheltered enterprises).
- The priority in the ALMP area is to develop the "culture of evaluation", in other words of examining impacts of the ALMP measures and avoiding a disorganised approach (such as allocating significant funds and then the implementation of the programmes ceased).
- Current links with the services that would support integration and social inclusion of service users such as employment and social welfare are generally weak, and there is a need to strength them.

BIBLIOGRAPHY

Calmfors, Lars and Bertil, Holmlund, 2000. **Unemployment and economic growth: a partial survey**, Swedish Economic Policy Review 7 (2000) 107-153, On line available on http://people.su.se/~calmf/Calmfors_HolmlundSEPR2000.pdf [Accessed 30. 3. 2011]

Central Bureau of Statistics, various years: **Labour Force in the Republic of Croatia Annual Average**, Zagreb: Central Bureau of Statistics

International Labour Organisation. (2009): **Decent Work Country Agenda between Croatia and the International Labour Organization 2010-2011**, Geneva: International Labour Organisation, http://www.ilo.org/public/english/region/eurpro/budapest/download/dwcp/dwa_croatia.pdf [Accessed 12. 2. 2011]

Card, D., Kluve, J., Weber, A. (2009). **Active Labor Market Policy Evaluations: A Meta-Analysis**, IZA *Discussion Paper Series* No. 4002

Croatian Employment Service, various years. **Yearly Report by Croatian Employment Service**, Zagreb: Croatian Employment Service.

Croatian Employment Service. (2008). **Evaluation of Active Labour Market Policies Implemented by Croatian Employment Service, Final Report**, Project Evaluation, design of recommendations, capacity building and grant scheme management in the field of active employment measures in Croatia – Zagreb: Croatian Employment Service.

Franičević, V. (2008): **Decent Work Country Report – Croatia**, Zagreb and Geneva: International Labour Organisation.

Koning, de, J. (2007): **The Evaluation of Active Labour Market Policies**, Measures, Public Private Partnerships and Benchmarking, Cheltenham; Northampton: Edward Elgar.

Layard, R., Nickell, S. and Jackman, R. (1991): **Unemployment: Macroeconomic Performance and the Labour Market**, Oxford: Oxford University Press.

Linden, B., (2005): **Equilibrium Evaluation of Active Labor Market Programmes Enhancing Matching Effectiveness** *Discussion Paper Series IZA DP No. 1526* Bonn: Forschungsinstitut zur Zukunft der Arbeit Institute for the Study of Labor.

OECD. (2010): **Key labour market statistics**, On line available on http://www.oecd.org/document/22/0,3746,en_2649_34747_43221014_1_1_1_1,00.html#almp [Accessed 29.03.2011]

Republic of Croatia, Ministry of the Economy, Labour and Entrepreneurship, (2010): **Report on the Implementation of the Joint Assessment of the Employment Policy Priorities of the Republic of Croatia for 2009.** Zagreb: Ministry of the Economy, Labour and Entrepreneurship.

Ministry for Health and Social Welfare, Social Welfare Development Project. (2007): **Social Care Services Planning Handbook,** Zagreb: Ministry for Health and Social Welfare, Social Welfare Development Project.

Republic of Croatia, Ministry of Health and Social Welfare, (2008): **Report on the Implementation of the Joint Inclusion Memorandum of the Republic of Croatia for the Period from March 2007 to June 2008**, Zagreb: Ministry of Health and Social Welfare.

Republic of Croatia, Ministry of Health and Social Welfare, (2009): **Report on the Implementation of the Joint Inclusion Memorandum of the Republic of Croatia for the Period from January 2008 to March 2009**, Zagreb: Ministry of Health and Social Welfare.

Republic of Croatia, Ministry of Health and Social Welfare, 2010. **Report on the Implementation of the Joint Inclusion Memorandum of the Republic of Croatia in 2009**, Zagreb: Ministry of Health and Social Welfare.

Sohlman, Asa and David Turnham, 1994. **What can developing countries Learn from OECD Labour Market Programmes and Policies?**, The Research Programme on the Human Factor, Development Technical paper N° 93, Paris: Organization for Economic Co-operation and Development, On line available on http://www.oecd.org/dataoecd/25/37/1919260.pdf [Accessed 31. 3. 2011]

UNDP Croatia. (2006): **Quality of Life and Risks of Social Exclusion in the Republic of Croatia, Quantitative research on general population**, Zagreb: UNDP,

World Bank and UNDP Croatia. (2010): **Social Impact of the Crisis and Building Resilience**, Zagreb: World Bank and UNDP Croatia, www.worldbank.hr [Accessed 7. 2. 2011]

MEASURING THE COMPETITIVENESS OF ROMANIA'S NORTH- WEST REGION: A BILATERAL APPROACH

Bíborka-Eszter Bíró
Babeş-Bolyai University
Faculty of Economics and Business Administration
Cluj Napoca, Teodor Mihali Street, nr.58-60, Romania
Phone: + 40.264 41 86 52; Fax: + 40.264 41 25 70
E-mail: biro_biborka@yahoo.com

Key words: *region, competitiveness, enterprises, structural instruments, operational programs*

ABSTRACT

Competitiveness is one of the key concepts of the European Union's regional policy issues. The aim of present paper is to define the level of competitiveness of the North-West development region in Romania compared to the other development regions and to national average. Moreover it gives an insight into the system of structural instruments available for the enterprises of the above mentioned region.

In the first part a traditional measurable economic category: the per capita GDP is used to define the level of competitiveness of the North-West region. To have a more accurate view on factors influencing competitiveness - represented by GDP per capita – an economic interpretation driven decomposition of the indicator has been made within the framework of this study. Concerning the territorial dimension of the problem, a NUTS 3 level decomposition of the above mentioned indicators has also been performed for the North West Region.

The second part consists of a comparison made between the indicators of the North West region and those of the other regions'. Besides, it defines the place of the mentioned region in national context. In both cases the calculated indicators are based on data referring to year 2007.

The third part deals with those enterprises which obtained financial supports from Structural Instruments dedicated for the 2007-2013 programming period through Operational Programs in the North West Region. According to this, three Operational Programs available for enterprises are presented: Economic Competitiveness Operational Program, Regional Operational Program, Human Resource Development Operational Program. A general view of the applicant enterprises and the state of grants is outlined as well.

1. INTRODUCTION

Eight regional divisions (so called: development regions) were created in 1998 in order to better coordinate regional development in Romania, country which progressed towards accession to the European Union. Each development region is made up by several subregional units called counties. Regional divisions correspond to NUTS2 level divisions in European Union member states, but do not actually have an administrative status and do not have a legislative or executive council or government in Romania. As of 2011, Romania is divided into 41 counties and one municipality which are assigned as NUTS3 level divisions. Currently, Romania has no NUTS-4 units, the counties being composed directly of cities (some of which with municipality status) and communes.

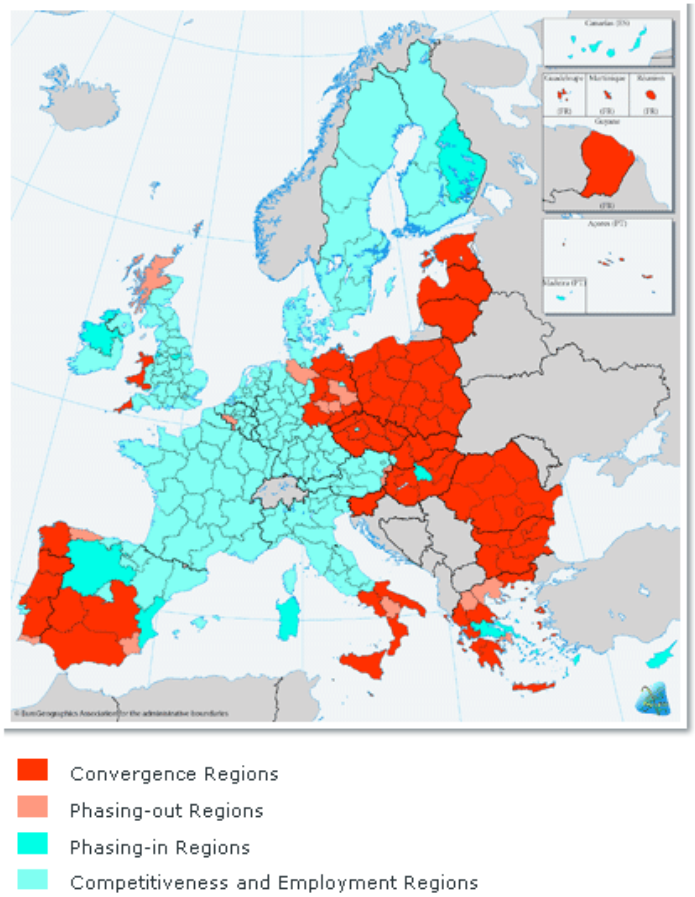
Prior to Romania's accession into the European Union, development regions were called statistical regions, and were used exclusively for statistical purposes. Thus they formally existed for over 40 years, the development regions are publicly a news. There are proposals in the future to cancel county councils (but leave the prefects) and create regional councils instead. This would not change the nomenclature of the country's territorial subdivision, but would presumably allow better coordination of policy at the local level, more autonomy, and a smaller bureaucracy. [1] This is difficult to achieve because Romanian regions can receive administrative status only through constitutional amendment.

The competitiveness of a development region can be measured through several channels. One of these is a top down approach which measures the competitiveness through a macroeconomic indicator, the regional per capita GDP. Besides, there are also other micro leveled attempts – bottom up approach - to measure regional competitiveness, e. g. through the number of the established enterprises or the capacity of enterprises to apply for different financial supports offered by the EU. The first part of present paper deals with the competitiveness measured by the regional per capita GDP of the selected region while the final part deals with the situation of those enterprises which claimed financial instruments and have signed financing contracts also from the selected region.

[1] RAPORT al Comisiei Prezidenţiale de Analiză a Regimului Politic şi Constituţional din România – Pentru consolidarea statului de drept (REPORT of the Presidential Commission for Analysis of Political and Constitutional Regime in Romania - To strengthen the rule of law)

1.1. Romanian regions in European context

Figure 1 Eligible areas in the EU under the Convergence Objective and the European Competitiveness and Employment Objective



Source: European Commission, Regional Policy DG, Accessed at: http://ec.europa.eu/regional_policy/atlas2007/index_en.htm (22.02.2011)

For the 2007-13 period, Romania has been allocated approximately €19.2 billion under the Convergence objective[2] and €455 million under the European Territorial Cooperation objective. Romania's contribution (including private sources) to complement the EU investments will amount to at least €5.5 billion, bringing the total investments in structural and cohesion policy to approximately €25.2 billion over the next seven years. (EC, 2009: 2)

All regions in Romania are eligible under the Convergence objective. As established in the National Strategic Reference Framework for Romania, the EU funding will be invested in reducing the economic and social development disparities between Romania and the other EU Member States, by generating 15-20% additional GDP growth by 2015. Five thematic priorities have been established to achieve this objective (EC, 2007: 1-3):

[2] The Convergence Objective concerns regions characterised by low levels of GDP and employment, where GDP per head is less than 75% of the EU average as it stood between 2000 and 2002. It applies to 99 regions representing 35% of the EU-27 population and aims to promote conditions conducive to growth and ones which lead to real-time convergence in the least-developed Member States and regions.

1. Development of basic infrastructure in line with European standards – improving the basic infrastructure (roads, rail, water) in Romania is a prerequisite for launching economic growth and improving social cohesion.

2. Increasing the long-term competitiveness of the Romanian economy – Romanian enterprises need to move beyond reliance on low labour costs and take a major step into the 21st century economy. The resources of the Structural Funds are available for developing better access to funds, commercial exploitation of research results and full participation in the knowledge-based economy.

3. Development and more efficient use of Romania's human capital – while unemployment is relatively low in Romania, so is the labour force participation rate, and there is substantial evidence of skills shortages and mismatches. Improvements in education, vocational training, lifelong learning and active labour market policy will be combined to equip employers and employees so that they can take full part in the economic transformation that has already started and will be accelerated as a result of the Structural Funds.

4. Building an effective administrative capacity – whether to successfully implement the Structural Funds or to achieve the wider goals of Romania's modernization, sound and effective administration is essential. The National Strategy therefore includes a specific operational program focused on this area, and has set aside resources in each of the operational programs for improving effective delivery.

5. Promoting balanced territorial development (territorial priority) – fast-growing economies will, in the absence of any intervention, distribute growth unevenly, leading to increased divergence within the country, congestion costs and other inefficiencies. The purpose of the territorial priority is to counter these centrifugal effects and to ensure that all regions and territories in Romania reap the benefits of European Union membership.

2. MEASURING REGIONAL COMPETITIVENESS- A TOP DOWN APPROACH

A region is neither a simple aggregation of firms nor a scaled version of nations; it can be characterized on "its own" meso-level. Hence, competitiveness is not simply resulting from a stable macroeconomic framework or entrepreneurship on the micro-level. New patterns of competition are recognizable, especially at regional level: for example, geographical concentrations of linked industries - like clusters - are of increasing importance and the availability of knowledge and technology based tools show high variability within countries. (Annoni and Kozovska, 2010: 2)

An interesting broad definition of regional competitiveness is the one reported by Meyer-Stamer (2008: 7): We can define (systemic) competitiveness of a territory as the ability of a locality or region to generate high and rising incomes and improve livelihoods of the people living there. This definition focuses on the close link between regional competitiveness and regional prosperity, characterizing competitive regions not only by output-related terms such as productivity but also by overall economic performance such as sustained or improved level of comparative prosperity (Bristow, 2005). Huggins (2003) underlines, in fact, that "true local and regional competitiveness occurs only when sustainable growth is achieved at labour rates that enhance overall standards of living." (in Annoni and Kozovska, 2010: 2)

A common representation of competitiveness which is "suitable to measure" competitiveness as defined by the European Commission is: GDP per capita, which can be broken down into various component factors, each with an economic interpretation.

The general relation - following this classical methodology of the territorial approach of regional competitiveness – consists of three interrelated factors: labour productivity, employment rate and share of working age population (Vincze – Mezei, 2010: 3):

$$\frac{GDP}{P} = \frac{GDP}{E} \cdot \frac{E}{P_{Wa}} \cdot \frac{P_{Wa}}{P}$$

Where P=total population; E=employment; P_{Wa}=population at working age; GDP/P=income per capita; GDP/E=labour productivity; E/P_{Wa}=rate of employment.

The components of a more detailed breakdown is not entirely independent either – some interrelation is likely between the indicators, e.g. highly productive regions using skilled labour may well display high rates of employment (Gardiner, 2003: 4):

$$\frac{GDP}{Population} = \frac{GDP}{Total\ \ Hours\ \ Worked} * \frac{Total\ \ Hours\ \ Worked}{Employment} * \frac{Employment}{Working\ \ Age\ \ Population} * \frac{Working\ \ Age\ \ Population}{Population}$$

Productivity *Work-Leisure* *Employment Rate* *Dependency Rate*

Beside this, here are a number of arguments about the use of GDP per employee or GDP per hours worked as a measure of productivity (usually data availability means an obstacle to actually calculate these values). The regional implications of choosing an hours worked measure are perhaps more profound than at the national level. Regions are more likely to be specialised in particular sectoral activities, e.g. agriculture, which means that adjusting for different hours worked profiles will more accurately represent the true labour effort involved in producing the output against which it is measured. Another important aspect to mention is the question of sustainability. This involves the amount of resources, e.g. energy and emissions, used in enabling a region or country to become competitive (Gardiner, 2003: 4).

Productivity can be decomposed into sectoral components using the expression below (Vincze, 2003):

$$\frac{GDP}{P} = \sum_{k=1}^{m} \frac{GDP_k}{E_k} \cdot \frac{E_k}{P};\ k = \overline{1,..m}\text{, economy activities; if } \begin{cases} GDP = \sum_{k=1}^{m} GDP_k \\ E = \sum_{k=1}^{m} E_k \end{cases}$$

Following this decomposition – lead by the structure of economic activities (sectors) – the main factors of competitiveness are the labour productivity on economic activities' level weighted by the employment by sectors compared to total population.

2.1. The competitiveness of Romania's North-West region

2.1.1. Methodology applied

The formula below was used for the decomposition of the regional competitiveness' indicator, the per capita GDP in the actual calculations made within the framework of present study (both on NUTS2 and NUTS3 levels):

$$\frac{GDP}{total \cdot population} = \frac{GDP}{employment} \times \frac{employment}{working - age \cdot pop.} \times \frac{working - age \cdot pop.}{total \cdot population}$$

The first fraction on the right-hand side of the formula is measuring labour productivity, the second is the rate of employment and the third fraction reflects the share of population in working age from the total population[3]. Given the standard definition of competitiveness, no unique indicator of regional competitiveness can be found. It is interpreted rather as a combination of closely connected, well-measurable and unambiguous traditional economic categories:

– per capita GDP of the region (otherwise regional growth),
– labour productivity of the region,
– employment rate of the region,
– share of population in working age.

Hence the substance of regional competitiveness: the economic growth in the region, which growth is generated by both a high level of labour productivity and a high level of employment (EC, 2001). In other words, competitiveness means economic growth driven by high productivity and a high employment rate. The standard concept of competitiveness basically expresses balanced regional economic growth. If the employment rate is high, then sooner or later the living standard will also increase. (Lengyel, 2006: 4)

2.1.2. Interpretation of the results

In present section the obtained results referring to the North-West region are presented on the basis of the results in *Tables 1, 2* (See APPENDIX).

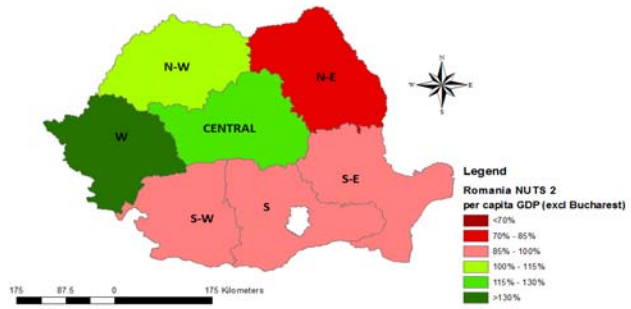
The North-West Development Region consists of six counties : Bihor, Bistrița-Năsăud, Cluj, Maramureș, Satu-Mare and Sălaj, which have a share of 14.3 % of the territory of Romania and host 2.73 million inhabitants (12.7% of Romania's population) .The region contributed approximately 12 % to the total national GDP, more exactly 12.1 % in 2002 and 12.2 % in 2007 and was rewarded with a GDP per capita of 6675 lei in 2002 and 18585 lei in 2007. Despite the fact that the nominal value of per capita GDP increased from 2002 to 2007, the share of this region's contribution to the national GDP remained the same. In both years (2002, 2007) the region's per capita GDP was mildly lower than the national average, which showed 6957 lei in 2002 and 19273 lei in 2007.

[3] In present study, population in working age is represented by data referring to population > 15 year, 2002 (both for 2002 and 2007, due to data availability)

Figure 2, The competitiveness of Romanian NUTS2 regions (per capita GDP of each region vs. national average)-2007

Source: Own edition based on own calculations

Figure 3 , The competitiveness of Romanian NUTS2 regions (per capita GDP of each region vs. "new" national average, excluding Bucharest)-2007

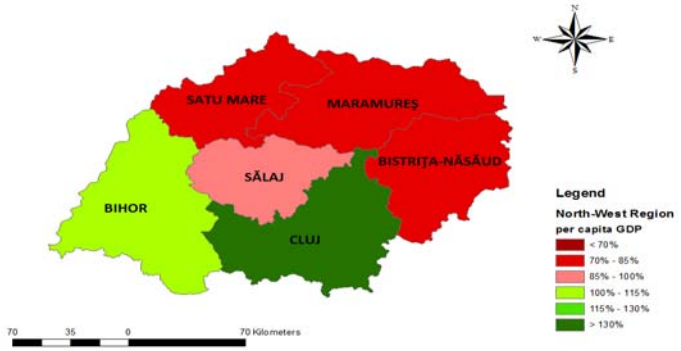


Source: Own edition based on own calculations

Figures 2 and 3 show the situation of Romanian NUTS2 regions in national comparison by comparing each region's per capita GDP value to the national average of the same indicator.
It is important to mention that because of the fact that Bucharest-Ilfov region shows outstanding values on all examined indicators, another calculation has been made according to which a new average was defined among the seven other regions, omitting values of Bucharest-Ilfov. The values of this new national average indicate lower level, such as 6148 lei in 2002 (versus the 6957 lei including Bucharest-Ilfov as well) and 16543 lei in 2007 (versus 19273 lei). It is clearly visible that the per capita GDP value of the analyzed North-West region (6675 lei in 2002 and 18585 lei in 2007) is over the newly calculated average which means that among the seven regions occupies a prominent place. Figure 3 indicates the regions' situation compared to the newly defined national average.

In 2002 Cluj county being the most developed county of the region had the highest value of per capita GDP, 8511 lei and was followed by Bihor county with a 7761 lei per capita GDP value. The most underdeveloped county of the region is considered to be Maramureş county with a 4945 lei per capita GDP. The sequence of counties has not changed from 2002 to 2007, because in 2007 Cluj county remained the most competitive with 25978 lei per capita GDP value and was also followed by Bihor county where the per capita GDP showed 19322 lei. These are the two counties of the region of which per capita GDP values exceed the region's per capita GDP value either in 2002 or in 2007. The most undeveloped county of the region remained as well the same, being represented by Maramureş county which had a 13645 lei per capita GDP value in 2007.

Figure 4, Per capita GDP values of the N-W Region's counties (compared to regional average)-2007



Source: Own edition based on own calculations

The development level of the region can also be described with the indicator of labour productivity. This value in North-West Region was 16269 lei in 2002 and 42751 lei in 2007. Taking into consideration the NUTS3 level decomposition, the same conclusion can be drawn as in the case of per capita GDP i.e. the most developed county of the region is Cluj county with 19755 lei of labour productivity in 2002 and 54609 lei in 2007 and the most undeveloped county is Maramureş county with a 12945 lei labour productivity value in 2002 and 35311 lei in 2007. What is more, the labour productivity of the region with its' value of 16269 lei in 2002 remained below the national average which in the same year showed 18236 lei. The relation between the two indicators remained the same in 2007 when the national average of labour productivity was 47632 lei and the same indicator in the North-West region showed 42751 lei. In this case, the above mentioned new average without the outstanding values of the capital's region had been calculated as well and showed values close to values of North-West region. According to this, the average labour productivity of the seven regions was 16249 lei in 2002 (while the same value in the North-West region indicated 16269 lei) and 42563 in 2007 (while the same value in the North-West region indicated 42751 lei). It can be seen that in both years the analyzed region's values were almost the same but quite higher than the newly calculated average values. This also shows that taking into consideration the labour productivity, the North-West region occupies a good place compared to the other regions except the Bucharest-Ilfov region.

The employment rate of North-West Region was 0.505 in 2002 which was higher than the national average of 0.466. Within the region, Bihor county had the highest employment rate (0.556) and it was followed by Satu Mare county and the most competitive Cluj county

(which had the highest per capita GDP value) was only the third with 0.5 employment rate value. In 2007 the regional employment rate increased and reached a value of 0.529. Within the region the employment rate remained the highest in Bihor county (0.564) and was the lowest in Salaj (0.508) against the lowest value (0.462) of the year 2002 reached by Bistrita-Nasaud county.

Taking into account the place of North-West region occupied relative to the other regions we can observe that it is located in the middle. In 2007 it had higher per capita GDP value than North-East, South-East, South and South-West regions but lower than Bucharest-Ilfov, West and Central regions.

Note: The lei/euro currency rate was 4, 15 lei/euro when calculations were made.

3. MEASURING REGIONAL COMPETITIVENESS- A BOTTOM UP APPROACH

The competitiveness of a development region can not only be measured through the above mentioned and analyzed macroeconomic indicator defined at regional level (regional per capita GDP) but through the capacity of the enterprises established in the region to absorb supports from community resources.

In the 2007-2013 programming period Romanian regions are eligible under "Convergence" objective and can get supports from Structural Funds through seven operational programs as follows: Sectoral Operational Program- Increase of Economic Competitiveness (SOP-IEC), Transport Operational Program (T-OP), Environment Operational Program (ENVIRONMENT-OP), Regional Operational Program (ROP), Human Resource Development Operational Program (SOP-HRD), Administrative Capacity Development Operational Program (ACD-OP), Technical Assistance Operational Program (TA-OP). These programs are financed by the European Fund for Regional Development, the European Social Fund and by the Cohesion Fund.

Table 1, Structural supports for "Convergence Objective"

Operational Programs	*Managing Authority*	*European Fund*	*TOTAL ALLOCATION (million EUR)*
SOP-IEC	The Ministry of Public Finance	EFRD	3,944.4
T-OP	The Ministry of Transportation and Infrastructure	EFRD + CF	5,697.8
ENVIRONMENT-OP	The Ministry of Environment and Forests	EFRD + CF	5,588.5
ROP	The Ministry of Regional Development and Tourism	EFRD	4,439.9
SOP-HRD	The Ministry of Labor, Family and Social Protection	ESF	4,146.6
ACD-OP	The Ministry of Administration and Interior	ESF	224.7
TA-OP	The Ministry of Public Finance	EFRD	200.3
Total		19,21 billion EUR	24,242.2 (including national contribution)

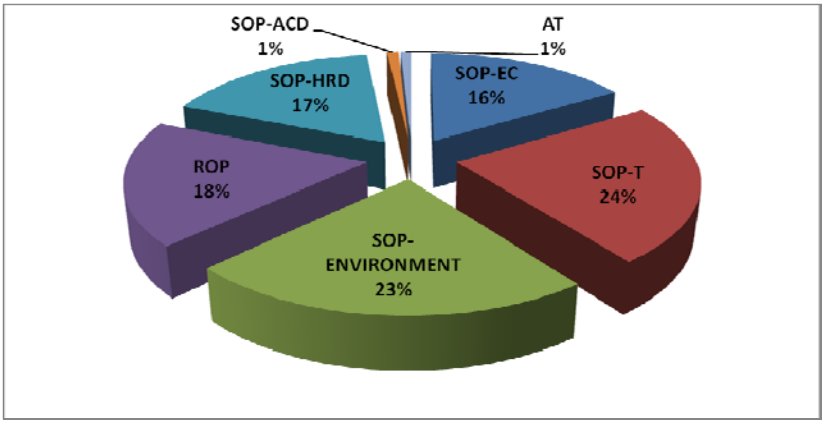
Source: Own edition based on NSRF data

Among these programs three are available for enterprises: Sectoral Operational Program-Increase of Economic Competitiveness (SOP-IEC), Regional Operational Program (ROP), and Human Resource Development Operational Program (SOP- HRD). The present section makes a review on those enterprises from North-West region which claimed supports through the above mentioned three operational programs. Before this, briefly presents the three operational programs.

3.1. Operational Programs available for enterprises

As Figure 5 shows, more than 50% of the supports offered through operational programs are available for enterprises. The three above mentioned operational programs cover 51% (16%+17%+18%) of the total sum dedicated for operational programs.

Figure 5, The distribution of supports for each type of operational program



Source: Own edition based on NSRF data

Sectoral Operational Program-Increase of Economic Competitiveness

Sectoral Operational Program –Increase of Economic Competitiveness is a document negotiated with the European Union through which productivity growth of Romanian enterprises is encouraged in order to reduce the disparities compared to the level of the EU.

The general objective of the program consists of productivity enhance of Romanian companies in accordance with the principle of sustainable development and the reduction of differences from the average productivity of enterprises from the EU. Beside the general objective there are defined some specific objectives as well. Some of these are: strengthening and development of the productive sector in Romania with respect for the environment, building an environment conductive to sustainable development of enterprises, R&D capacity building and fostering cooperation between RDI institutions and the productive sector, harnessing the potential of ICT both in public and private sectors, increasing energy efficiency and sustainable development of energy system. SOP-IEC has four priority axes and within each three major intervention areas.(Catană and Ofiţeru, 2010)

Regional Operational Program

Regional Operational Program implements important components of National Strategy for Regional Development of the National Development Plan (NDP) and together with the other

Sectoral Operational Programs contributes to the achieving of the NDP and National Strategic Reference Framework's objectives, thereby contributing to reduce the economic and social development disparities between Romania and EU Member States. The general objective of ROP is therefore to support, to the extent possible, an equally balanced growth of all parts of the Country not that much by redistributing public resources but by ensuring that all areas should have a minimum level of business, social and human capital infrastructure to allow growth to take place. ROP has six priority axes and within each several major intervention areas (Catană and Ofiţeru, 2010).

Sectoral Operational Program - Human Resource Development

The general objective of SOP - HRD is the development of human capital and increasing competitiveness, by linking education and lifelong learning with the labour market and ensuring increased opportunities for future participation on a modern, flexible and inclusive labour market for 1650000 people.

The specific objectives can be summarised as follows: promoting quality initial an continuous education and training, including higher education and research; promoting entrepreneurial culture and improving quality and productivity at work; facilitating the young people and long term unemployed insertion in the labour market; developing a modern, flexible, inclusive labour market; promoting (re)insertion in the labour market of inactive people, including in rural areas[4]; improving public employment services; facilitating access to education and to the labour market of the vulnerable groups. SOP- HRD has seven priority axes and within each several major intervention areas. (Catană and Ofiţeru, 2010)

3.2. Enterprises from the North-West region which claimed supports through Operational Programs and have already signed the financing contracts – Situation Overview

Aprevious part of present paper depicted the situation of the North-West region's competitiveness regarding the per capita GDP as the most important indicator of the analyzed area. The aim of this subsection is to assess the situation of grants available for enterprises given through Operational Programs, because this can be a micro leveled approach of the region's competitivenesss.

A study on the competitiveness of Romanian SMEs for 2006, conducted by the National Authority for the SMEs Council has revealed the accelerated but not sufficient evolution trend of this sector. Thus, while in the EU, from demographic point of view, there are over 50 SMEs per 1000 inhabitants, in Romania there are around 26 SMEs / 1000 inhabitants, but according to regions the weight differs. In Bucharest the average is 48.56% of SMEs per 1,000 inhabitants, followed by the Nord-West, West and Center regions, with demographic

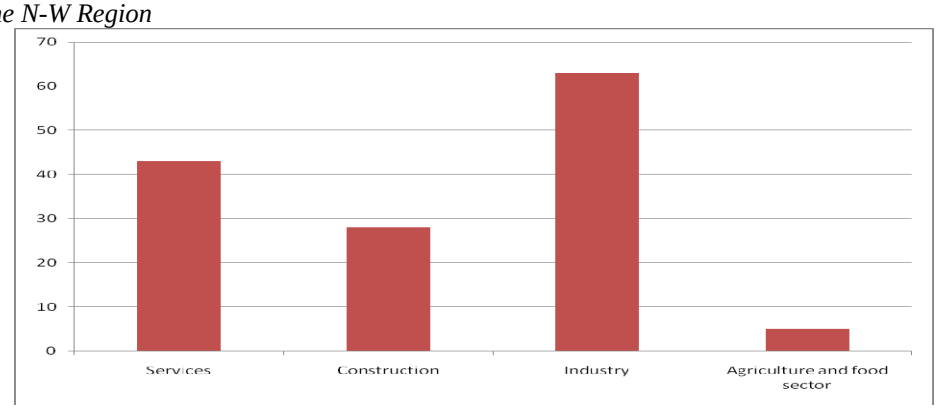
[4] *Rural area* refers to rural localities as defined under the Romanian Law No 350 / 2001 on spatial planning and urbanism and Law No 351/2001 for approving the National Spatial Plan – Section IV – Localities network, namely the localities where either the majority of population is occupied in agriculture, forestry or fisheries, or in terms of endowment with public utilities, do not fulfill the legal obligations to be declared as urban localities, even if the majority of population is occupied in other sectors than those mentioned before. Thus, from an administrative point of view, the Romanian territory is organized, at NUTS5 level, in 319 towns making up the urban area and 2,851 communes, making up the rural area (data for 31 December 2005). In their turn, communes are mostly made up of more than one village (12,946 villages in total)without any administrative responsibilities.

intensities of over 25 SMEs/1000 inhabitants. (Negrusa, Ionescu, 2009). At this time the number of SMEs in North-West region was about 60.000.

Although there are some strict eligibility criteria for the enterprises to get supporsts from structural resources through operational programs the number of enterprises which claimed supports through the three mentioned operational programs and have already signed contracts is very low regarding the total number of enterprises of the region and also regarding the number of enterprises which claimed supports yet haven't signed the financing contracts.

This section deals with the so called „winner" projects which have reached the moment of contract signing (until january 2011). In order to get a more accurate view on the acivity area of those enterprises which claimed supports and were chosen as winners, firms are ranked in a four sectored economy. In this context the four sectors are: services, construction, industry and agriculture and food sector

Figure 6, Number of enterprises which claimed supports through SOP-IEC and signed financing contracts in the N-W Region

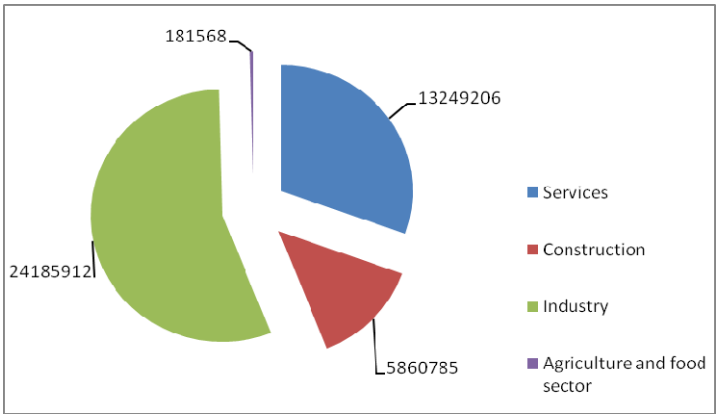


Source: Own edition

As Figure 6 shows, most of the enterprises which claimed supports through SOP-IEC and have already signed financing contracts belong to the industry sector. This can easily be explained by the fact that one of the specific objectives of SOP-IEC is the strengthening and development of the productive sector. Another such kind of specific objective is the harnessing of ICT potential both in public and private sectors. This is why the second sector regarding the number of winner projects is the service sector. Besides, there are some enterprises belonging to construction sector and very few of those belonging to agriculture and food sector. This last aspect regarding the small number of enterprises from agriculture and food sector can be explained by the fact that the National Strategic Plan for Rural Development implemented through the National Rural Development Program, provides the Romanian strategy for rural development aiming to increase the attractiveness of rural territory from an economic, social and environmental point of view. This policy complements and contributes to the achievement of the objectives of the cohesion policy, which is implemented through the Structural Funds and Cohesion Fund but has its'own fund, the European Agricultural Fund for Rural Development. Enterprises from agriculture and food sector therefore are mostly financed by EAFRD, which is not analyzed in the framework of present study.

Beside the number of „winner" enterprises, the value of claimed grants is presented as well by Figure 7.

Figure 7 Value of grants (EUR) -SOP-IEC, signed contracts, N-W Region

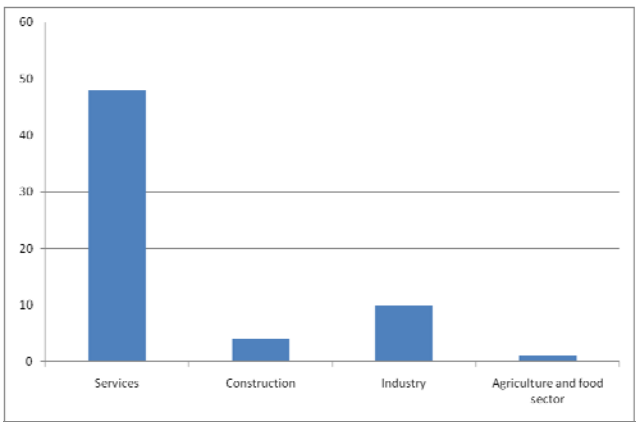


Source: Own edition

The value of grants follows the tendency presented in the case of the absolute number of enterprises which claimed supports and signed contracts. According to this, the industry sector is entitled to get the largest amount of money, 24185912 euro and is followed by the service sector with a sum of 13249206 euro. The 28 enterprises from construction sector are entitled to get 5860785 euro and the 5 firms from agriculture and food sector 181568 euro.

As Figure 8 shows, in the case of Regional Operational Program most enterprises which claimed supports and achieved the contract signing moment belong to the service sector. This can be considered as natural regarding the fact that most projects were submitted under Priority Axis 4 which is responsible for strenghtening the regional and local business environment. This kind of objective can be achieved by developing enterprises from the service sector. There are other objectives as well, such as the improvement of social infrastructure or sustainable development and promotion of tourism which also confirm the outstanding number of enterprises from the service sector. The industry sector occupies the second place with a number of enterprises less than 25% of the previous category (belonging to service sector). This means ten companies from the industry sector.The number of enterprises from other sectors is almost negligible as four companies belong to construction sector and only one enterprise to the agriculture and food sector. The lack of enterprises from agriculture and food sector can be explained by the same fact as in the case of SOP-IEC, namely by the fact that there is a separate fund, the EAFRD from which sgricultural enterprises are financed.

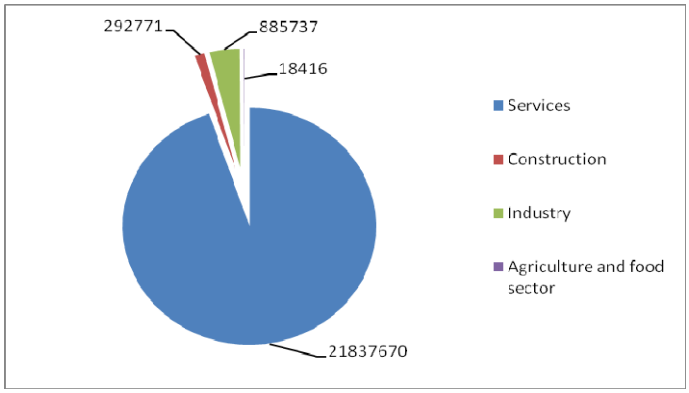
Figure 8, Number of enterprises which claimed supports through ROP anD signed financing contracts in the N-W Region



Source: Own edition

Figure 9 presents the value of the above mentioned grants, namely those which claimed supports from ROP and signed the financing contract entailed with it. As expected, the value of grants follows the tendency presented in the case of the number of enterprises. According to this, the largest sum of money, aproximately 95% of the total sum has been awarded to the service sector and it amounts almost 22 million euro from the slightly more than 23 million total sum. The industry sector received aproximately 0,9 million euro, the construction sector aproximately 0,2 million while the agriculture and food sector, precisely the single enterprise of the kind 18416 euro (0,08% of the total sum).

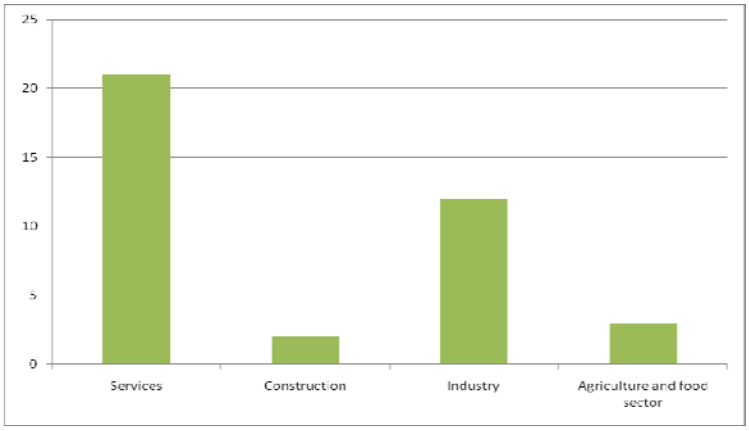
Figure 9, Value of grants (EUR) -POR, signed contacts, N-W Region



Source: Own edition

The third examined grant category given through SOP-HRD shows similarities to the supports given through ROP. According to this, regarding the number of enterprises which claimed financial instruments through SOP-HRD and have signed the accompanying financing agreements at first place stands the service sector. Although the total number of companies is more less than in the case of ROP, the rates are similar. Within the service sectosr twenty-one companies claimed for such supports and signed financing contracts, while from the industry sector twelve enterprises, from the agriculture and food sector and from the construction sector three, respective two firms. Figure 10 contains the graphic representation of the above described situation.

Figure 10, Number of enterprises which claimed supports through SOP-HRD and signed financing contracts in the N-W Region



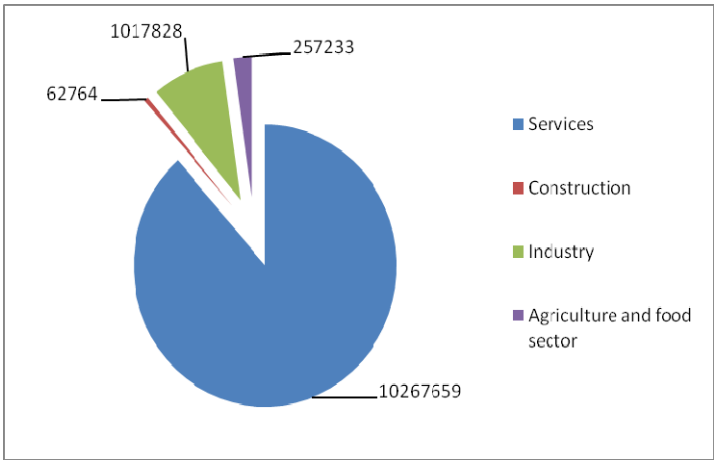
Source: Own edition

It is important to mention that enterprises from agriculture and food sector do not claimed the mentioned supports to develop their main field of activity - which is naturally an agricultural

topic and for which there exists a separate fund (EAFRD) – but to develop their human resources. Actually the general objective of SOP-HRD already sets that - regardless which enterprise in which sector of the economy belongs – the aim of the program is to develop the human capital and increase competitiveness.

Figure 11 contains the graphic representation of the ditribution of grant values awarded through SOP-HRD by enterprises belonging to different sectors of the economy.

Figure 11, Value of grants (EUR) –SOP-HRD, signed contacts, N-W Region



Source: Own edition

The distribution of grant values follows the above presented tendency. As most of the enterprises which claimed supports through SOP-IEC and have signed the accompanying financing contracts belong to the service sector, the value of grants awarded to them means almost 90% of the total value with its' sum of 10267659 euro. In the industry sector the value of awarded projects exeeds 1 million euro and represents slightly more than 8 % of the total value, but in the case of the other two sectors these values are much lower, 257233 euro, respectiv 62764 euro representing 5 % respective 2 % of the total value.

4. CONCLUSION

In European context all Romanian regions are eligible under „Convergence" objective which means that every Romanian region is characterised by low levels of GDP and employment, namely the per capita GDP is less than 75% of the EU average. In national context, the analysed region of Romania, the North-West region, regarding the competitiveness measured by per capita GDP values occupies a medium position after the region of the capital (Bucharest-Ilfov, which has outstanding values in every aspect),the West reion and the Central region. Considering the last part of the paper, the bottom-up approach of competitiveness, it can be stated that more enterprises should recieve supports from european funds through different operational programs. The number of applicant entreprises is much lower than the total number of entreprises of the region. What is more, the number of winner projects, through which entreprises practically get supports is significantly lower than the number of delivered applications. This should mean that applicants can not compose acceptable projects and that this field of activity needs development in the near future.

BIBLIOGRAPHY

Annoni, P. – Kozovska, K. (2010): EU Regional Competitiveness Index – RCI 2010, JRC Scientific and Technical Reports, EUR 24346 EN http://easu.jrc.ec.europa.eu/eas/downloads/pdf/JRC58169.pdf, accessed on 05.03.2011

Catană, A., Ofiţeru, L: Ghidul finanţărilor europene, Ed. Contaplus, Bucureşti, 2010

European Commission: European Cohesion Policy in Romania, 2009 http://ec.europa.eu/regional_policy/sources/docgener/informat/country2009/ro_en.pdf , accessed on: 20.03.2011

European Commission: National Strategic Reference Framework. Cohesion policy 2007-2013 – Romania (2007): http://ec.europa.eu/regional_policy/atlas2007/fiche/ro_en.pdf , accessed on 20.03.2011

Gardiner, B. (2003): Regional Competitiveness Indicators for Europe - Audit, Database Construction and Analysis, Regional Studies Association International Conference, Pisa, 12-15 April, 2003 http://94.76.226.154/Libraries/Downloadable_Files/Regional_Competitiveness_Indicators_for_Europe_PDF.sflb.ashx , accessed on: 16.03.2011

Lengyel, I. (2006): An Attempt for the Measurement of Regional Competitiveness in Hungary, Paper prepared for the Conference on "Enlargement, Southern Europe and the Meditteranean", Volos, Greece, August 30th – September 3rd http://www-sre.wu-wien.ac.at/ersa/ersaconfs/ersa06/papers/350.pdf , accessed on: 16.03.2011

Martin, R. L. (2006): A Study on the Factors of Regional Competitiveness; A draft final report for the European Commission Directorate-General Regional Policy http://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/3cr/competitiveness.pdf , accessed on 23.03.2011

Negrusa, A, Ionescu, Gh: The Role of Internationalization Activity for the SME's Development – Case Study for Transylvania Region, International Review of Business Research Papers, Vol.5, No.6, November 2009, Pp. 261-268

OECD-1: Regions Matter: Economic Recovery, Innovation and Sustainable Growth, Publication date: 03/12/2009 http://www.oecd.org/document/37/0,3343,en_2649_34413_36878693_1_1_1_1,00.html , accessed on: 27.02.2011

OECD-2: How Regions Grow: Trends and Analysis, Publication Date: 24/06/2009 http://www.oecd.org/document/26/0,3343,en_2649_34413_44591194_1_1_1_1,00.html , accessed on: 27.02.2011

Vincze, M. (2003): Regional competitiveness in Romania; in: Competitiveness of National Economies and the efficient integration into the European Union (ed. M. Bîrsan and T. Paas), Ed. Fundaţiei pentru Studii Europene, Cluj-Napoca, p. 207-221.

Vincze, M. – Mezei, E. (2010): Interpreting the diversity of employment problems in rural areas on the basis of a typology of localities: a Romanian case study; Regional Studies Association – International Conference, May 2010, Pécs http://www.regional-studies-assoc.ac.uk/events/2010/may-pecs/papers/Vincze.pdf , accessed on: 04.08.2010

APPENDIX

Table 1. Breakdown of GDP/cap in the N-W development region 2002

2002	**GDP/cap**	**GDP/Empl.**	**Empl./Pop>15**	**Pop.>15/Pop.**
TOTAL	6957	18236	0.466	0.818
TOTAL (without Bucharest-Ilfov)	6148	16249	0,466	0,812
NORTH - WEST	**6675**	**16269**	**0.505**	**0.812**
Bihor	7761	17089	0.556	0.816
Bistrita-Nasaud	5326	14824	0.462	0.777
Cluj	8511	19755	0.500	0.861
Maramures	4945	12945	0.485	0.787
Satu Mare	6040	15153	0.505	0.789
Salaj	5240	13477	0.485	0.802

Source: own calculations based on INS data

Table 2. Breakdown of GDP/cap in the N-W development regions, 2007

2007	**GDP/cap**	**GDP/Empl.**	**Empl./Pop>15**	**Pop.>15/Pop.**
TOTAL	19273	47632	0.489	0.828
TOTAL (without Bucharest)	16543	42564	0,472	0,824
NORTH - WEST	**18585**	**42751**	**0.529**	**0.822**
Bihor	19322	41312	0.564	0.829
Bistrita-Nasaud	15702	39153	0.514	0.781
Cluj	25978	54609	0.553	0.861
Maramures	13646	35311	0.484	0.798
Satu Mare	14575	35469	0.509	0.807
Salaj	15942	38037	0.508	0.825

Source: own calculations based on INS data

Note: The lei/euro currency rate was 4, 15 lei/euro when calculations were made.

SOCIAL NETWORKS AS A RESPONSE ON CHANGING BUSINESS ENVIRONMENT AND THEIR APPLICATION ON MANAGERIAL COMMUNICATION

─ ABSTRACT ─

Senka Borovac Zekan
University Centre for Professional Studies
21000 Split, Livanjska 5
Phone: ++ 38521329304
E-mail: sborovac@oss.unist.hr

Andrea Russo
University Centre for Professional Studies
21000 Split, Livanjska 5
Phone: ++ 38521329304
E-mail: arusso@oss.unist.hr

Katja Rakušić
University Centre for Professional Studies
21000 Split, Livanjska 5
Phone: ++ 38521329304
E-mail: krakusic@oss.unist.hr

Jagoda Ćukušić
Student
E-mail: jcukusic@erstebank.hr

Key words: *social networks, knowledge management system (KMS), changing business environment*

ABSTRACT

Networking facilitates knowledge transfer. It is considered as the systematic and continuous activity between two or more people associated in the group with the intention of achieving common goals. The benefits of the networking are multiple; the groups have a greater effect than the sum of individual effects, groups can reach more complex and far-reaching goals than individual projects and development of information technology allows the networking of individuals regardless of time, place and number of participants (virtual network). Organizations that succeeded to build effective networks are able to take advantage of new knowledge more successful than organizations that do not use these kinds of networks. Social networks are already becoming a part of most Knowledge Management functions in recent years. Knowledge managers are learning what makes social networks successful and how to manage this new kind of communication tool in achieving organizational goals. The article discusses the possibility of using the social networks pattern in helping knowledge managers improving communication among employees and knowledge sharing at all levels within the organizational structure.

1. INTRODUCTION

Rapid developments in Information Communication Technology during the last two decades have changed the way of doing business. The human being as a social existence cannot live without interacting with the others in their social environment. Today, modern organizations consist of large number of interacting individuals. Network ties create opportunities for the actors to communicate faster and more frequent.

This survey will explore possibilities of improvement in the field of communication management by implementing basic rules of social interactions. Our attention will be focused on the possibility of implementing connections and relationships that exist in social networks on formal links and relationships that exist within the company. In this article we have tried to give a new perspective on communication between individuals in the company due to the changes that occur in the field of technology that affects the way individuals behave.

The main idea is to help managers, but not only them, but to all employees in the company and at all levels in the organization, to improve the process of mutual communication.

We organize the paper as follows. The first chapter after introduction is dedicated to overview of contemporary theories in the communication field, social networks, the reasons for their creation and theories that derived from it.

The second chapter intents to explain some basic issues connected to social networks and to emphasize importance of their implementation in every organization. It brings a deeper analysis of social networks and the benefits provided by those groups and companies which apply them.

Third chapter will serve us to consolidate basic postulates and findings regarding formal and informal networks and their impact on organization design.

The basic communication variables will be identified in the fourth chapter and finally we will withdraw some implications and conclusions that derive from our theoretical overview.

2. THEORY REVIEW

There are many definitions of social networks in the literature, but we will use the one which defines the term "*social network*" to represent interpersonal connections between individuals, business units, or organizations. These links are not hierarchically influenced and they include information and knowledge flows. We can extract two overarching goals of networking. The first is to *transfer knowledge* and the second is to *facilitate* it. Social networks are already a part of most Knowledge Management (KM) functions these days. Knowledge managers have yet to learn what makes social networks successful and how to manage and leverage them to achieve organizational value. A large number of researchers interested in network relationships have recognized the knowledge dimension of networks and its link with competitive success (e.g., Dyer & Nobeoka, 2000, Bau; Calabrese, & Silverman, 2000; Gupta & Govindarajan, 2000; Nishiguchi, 1994). They believe that, through membership in a network and the resulting repeated and enduring exchange relationships, the potential for knowledge acquisition by the network members is created. Our interest is in communication, knowledge acquisition, how knowledge transfer between network members occurs, and what role social networks play in the transfer. Some authors (Gulati, Nohria, & Zaheer, 2000; Uzzi

& Gillespie, 2002) have an area of their research in understanding how the social context in which firms are embedded influences their behavior and performance. Further, in various academic (e.g., Adler & Kwon, 2002; Gargiulo & Benassi, 2000; Nahapiet & Ghoshal, 1998) and practitioner-oriented publications (e.g., Anand, Glick, & Manz, 2002; Baker, 2000), researchers recently have argued that access to new sources of knowledge is one of the most important direct benefits of social networks. Moreover, there is evidence suggesting that knowledge transfer is facilitated by intensive social interactions of organizational actors (Lane & Lubatkin, 1998; Yli-Renko, Autio, & Sapienza, 2000; Zahra, Ireland, & Hitt, 2000). As emphasized by Miles and Snow (1986), two major outcomes of the search for new competitive approaches are already apparent[1]:
First, the search is producing a new organizational form—a unique combination of strategy, structure, and management processes that we refer to as the *dynamic network.* The new form is both a cause and a result of today's competitive environment.
Second, as is always the case, the new organizational form is forcing the development of new concepts and language to explain its features and functions and, in the process, is providing new insights into the workings of existing strategies and structures. Networks provide firms with access to knowledge, resources, markets, or technologies.

Managers make strategic choices based on their perceptions of the environment and of their organizations' capabilities. Saying all of this in different language, ways of doing business traditionally have been highly contingent on ways of organizing, and major competitive breakthroughs have been achieved by firms that invented, or were quick to apply, new forms of organization and management[2]. New organizational forms arise to cope with new environmental conditions. However, no new means of organizing or managing arrives full-blown; usually it results from a variety of experimental actions taken by innovative companies.

2.1. SOCIAL NETWORKS RESEARCH AND ANALYSIS

Networks can be found in every aspect of professional activities. The network follows a set of underlying principles that guide the transfer of responsibilities, information and outcomes between members through the developed interconnections. The visualization of the relationships and the identification of network weaknesses can be easily done by graph measures such as density of communication and nodal distances. The concepts of cohesion, density, distances, and relationships have been applied by researchers in many diverse and distinct domains. Classic Social Network Analyses (SNA) research is focused on sociological networks which involve individuals in the workplace and their exchange of information to complete tasks (Krebs 2004). Ability to recognize these connections and relationships and to graphically map them is crucial for network researchers. Further, using a visual expression of these connections and relationships allows researchers to isolate relationships, visualize network principles such as dominance, centrality, and egocentricity, and graphically present results that were previously limited to mathematical matrices (Hanneman and Riddle 2005).

Every organization is conceived of as a bounded social system in which there is a relatively stable network of interpersonal linkages through which messages flow and which affect the

[1] Raymond E. Miles, Charles C. Snow (1986), The Regents of the University of California Organizations: New Concepts for New Forms, California Management Review Volume XXVIII, Number 3, Spring 1986.
[2] Raymond E. Miles, Charles C. Snow, (1984), "Fit, Failure, and the Hall of Fame," California Management Review, Vol. XXVI (Spring 1984): 10-28.

productivity and maintenance of the system (Schuler, 1975). From this perspective, one way to study organizational phenomena is to examine the formal and informal ties that connect groups and individuals within a firm. Social network analysis principally involves the study of both information exchange and influence of the relationships. It involves the comparison of prescribed group structures (such as work teams, departments, or divisions) and emergent group structures (such as informal cliques and friendships). Finally, it facilitates the characterization of groups in terms of the number and types of individual role players (stars, liaisons, and isolates) and the frequency, direction, and compatibility of intergroup communications.

There are several group structural properties that have been studied most frequently in prior research which can be categorized as descriptive of the group or descriptive of individuals within a group. Properties that are descriptive of the group include[3]:

1. Connectedness—the extents to which group members identify with the goals of other members of their groups; it is a measure of group cohesiveness (O'Reilly & Roberts, 1977).
2. Centrality—the degree to which relations are guided by the formal hierarchy (Tichy et al., 1979).
3. Reciprocity—the degree to which there is two-way communication in a workgroup (Newcomb, 1979).
4. Vertical differentiation—the degree to which different organizational hierarchy levels are represented in a given work group network (O'Reilly & Roberts, 1977).
5. Horizontal differentiation—the degree to which different job areas are represented in a given work group network (Mohr, 1979).
6. Coalitions—perceived linkages among several individuals who believe that their ability to dominate organizational relationships is greater as a group than as individuals (Thibaut & Kelley, 1959). Coalitions also can be used as individual descriptors when the analysis focuses on a person's membership or non membership in specific emergent groups.
7. Group structural properties that are descriptive of individuals who serve specific communications functions for a group include:
8. Stars—individuals who are seen as having a great deal of influence on the jobs of most group members and who are the focus of most communication within the group (Tichy & Fombrun, 1979).
9. Isolates—individuals who are seen as involved in almost no communication within the group and as being uncoupled from the network (Tichy et al., 1979).
10. Liaisons—individuals who serve as intermediaries among various emergent work groups within a department (Schwartz & Jacobson, 1977).

The potential contribution of social network analysis thus is as a means to address important unanswered questions regarding the design-performance relationship in organizations because it explicitly focuses on interpersonal processes and is capable of linking macro and group level approaches to the study of organizations (Crozier, 1972; Fombrun, 1982; Tichy & Fombrun, 1979; Tichy et al., 1979).

[3] Fred R. David, John A. Pearce (1983) Social Network Approach to Organizational Design-Performance, II University of South Carolina, Mississippi State University, Academy of Management Review. 1983. Vol. 8. No. 436-444.

2.2. SOCIAL NETWORKS AND THEIR IMPACT ON ORGANIZATION

The influences of the organizational design on the organization performance were the subject of many studies and theories (Dalton, Todor, Spendolini, Fielding, & Porter, 1980; Lawrence & Lorsch, 1969; Pennings, 1975). Although it is now clear that variations in design do affect performance (Dalton et al., 1980; Ivancevich & Donnelly, 1975; Van de Ven, Delbecq, & Koenig, 1976), there is a continued reason for interest. Specifically, the nature of the relationship between the two variables has yet to be defined. Macro level organizational design characteristics do not directly influence group performance as indicated by Tushman, Tichy, and Fombrun (1979), but, instead, their influence on performance is moderated by group level characteristics. As Tichy et al. suggest, organizational design may impact group performance principally because of its effects on communication (i.e., information) flow. Such effects may either augment or retard the information processing capability of the

organization and ultimately impact the performance of individual groups (MacCrimmon, 1974; Mears, 1974; Pelz & Andrews, 1966). Thus, though organizational design may indeed influence group performance, its impact may be mediated by group structural properties that mask the underlying significance of the design-performance relationship.

In an effort to advance the study of this perspective, this paper presents a conceptualization of social network and communication effectiveness. Social network analysis shows us who communicates with whom, and similarly, where there are gaps. Thus, we can consider a variety of networks: communication overall, who is turned to whom for help, and on-going assessment of which people turn to with new ideas. The analysis technique highlights relationships that may not show up on formal organization charts. Sometimes, where we think links should exist-they don't. Employees usually use these links either for short assignments or for providing coaching on collaboration. The aim is to achieve the goal, but to help the participants involved in the communication to communicate in the fastest possible way but not to be overburdened. There cannot be change done in just one thing in the organizations to take advantage of new technologies; it generally requires a combination of technology and adjustments to organizational practice.

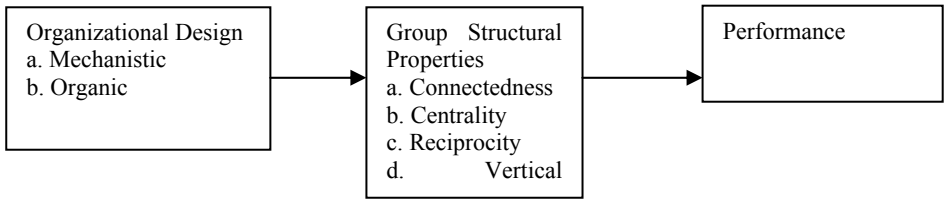
2.3. FORMAL AND INFORMAL SOCIAL NETWORKS

In reality, it is clear that knowledge shared between the formal and informal groups is not the same knowledge. There is a clear difference in the knowledge that is shared between the two groups. Some researchers like Burns and Stalker (1961) distinguished the 'formal structure' of the organization which is well-defined by management systems and structures from the 'informal structure' or 'private organization which is processed by individuals who communicate on issues not directly laid down and governed by management.

The concept of *social networks* as the essential structures upon which both formal and informal communication and knowledge transfer are based was introduced by Burns and Stalker, (1961) and Chandler (1962). They define formal social networks as those that are prescribed and forcibly generated by management, usually directed according to corporate strategy and mission. In contrast, *informal social networks*, or emergent networks, are unsanctioned and ungoverned organic structures connecting a potentially unbounded group of individuals (Mintzberg, 1973; Tichy, 1981). On the other hand, in the context of the firm, these informal networks extend not only internally but also externally across organizational boundaries. They include the working relationships, collaborations and exchanges of

knowledge between individuals which are not found in organizational structures, but are the result of the personal initiative of employees (Cross and Parker, 2004). Critically, they observe that the patterns of collaboration and communication revealed in informal networks are significantly different from the formal organizational structures implemented by managers. Thus, formal organizational structures fail to reflect accurately the true nature of social relationships and the dynamics and dependencies between staff. This can be to the detriment of efficient knowledge exchange within the firm (Cross et al., 2002b).

Figure 1. A Conceptualization of the Design Performance Relationship



Source: Jonathon N. Cummings and Rob Cross, Structural properties of work groups and their consequences for performance, Social Networks, Volume 25, Issue 3, July 2003, Pages 197-210

The authors who have succeeded in an attempt to summarize all the research to date are Cross and Parker (2004). Briefly, studies of informal relationships using social network analysis have revealed critical disconnections between business groups or individuals, the often unexpected locations of key individuals; who act to facilitate communication and link disparate groups, and significant instances of important personnel failing in their formal task of enabling and supporting collaboration. Previous studies reveal that senior managers play a key role in the formation of informal groups. Equally, those who are found at the hub of an informal network are frequently individuals who otherwise go unrecognized, and therefore unsupported in the firm.

Finally, the real value of the analysis of social networks within companies' lies in obtaining a realistic picture of relationships within the organization, regardless of formally defined relationships. Cross and Parker (2004) have stressed the importance of understanding informal networks because of their impact on organization performance.

3. CORPORATE SOCIAL NETWORKS

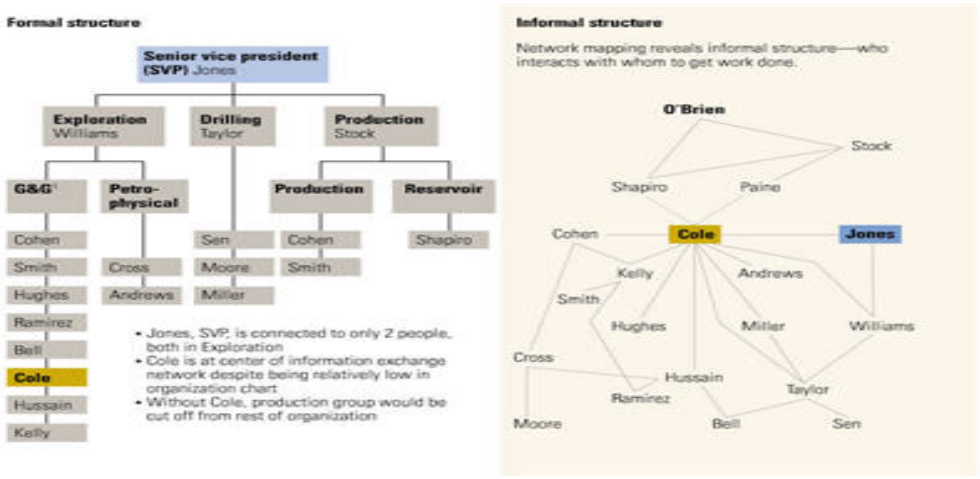
The old saying "If you can't measure it, you can't improve it" gets its full meaning when it comes to social networks within an organization. Improving workplace communication is a battle that every organization faces. Whether the issue is the loss of tacit knowledge as an aging workforce retires, information silos among different divisions, or the lack of conversation between multiple offices, communication issues impact every organization.

Today, all communication between employees is mostly done digitally so it can be monitored and measured. This allows for the detailed measurement of information shared inside the network. Corporate social networks capture information and data that was always there inside

a company, but now it's in a tangible place, and information can be measured concretely with less manpower required. At the same time, behavioral data and "invisible work" can be captured and measured, neither of which can be measured by people. Collecting data of

internal communication is not something new. Before the digital age, information about communication among employees was collected manually which took significant time and caused additional expenses. These "measurement" tools were based on self-reporting and possibly biased collection methods. Now that streams of data flow through an enterprise via its social network, actual information and its impact on corporate communications can be measured.

Figure 2.Communication ties and connections in formal and informal organizational structure



Source: http://www.adamsmithesq.com/archives/2007/10/partners-desks-and-the-im.html

Nowadays there is software that allows us to monitor internal communication. There are a number of tools that give us different kind of information, such as the number of messages exchanged between individuals, the most contacted persons, the most influential person etc. By analyzing these metrics, community managers can help their companies understand how and why employees in the network are communicating. The bias in reporting has been eliminated, making the data that much more powerful. With strong supporting data, companies can make educated changes to their communication patterns. When organizations have data over a certain period of time, and can watch it change and vary under different conditions, they can continuously fine tune and adjust in order to improve communications. Successful management of change can be achieved only through systematic monitoring of changes, their analysis and adjustment.

3.1. COMMUNICATION VARIABLES

Analysis of social networks is based on the importance of communication within members of the organization. Trying to understand what affects the transfer of information between organizations and individuals, and improving this communication, is the subject of communication research. Hirokava (1980) has proposed a model which highlights the variables that affects success of communication. His research showed that a decisive influence on the success of some groups is not individual behavior during the discussion, but their behavior after the discussion and observed over a longer period of time Specifically, the results suggest that not only do group members in effective groups produce more procedural statements than members of ineffective groups, but effective groups consistently spend more time interacting on procedural matters. The conclusion relevant to the proposed model is that

effective groups spend considerable time understanding the problem and how they are going to interact to solve the problem prior to putting forward suggested results.

An additional category of communications research is the role of communications within small groups. Similar to product development groups, project teams, and quality groups, construction teams are required to interact effectively to produce desired results quickly and efficiently. To this end, the factors that affect small group communications are a critical background component.[4] The research in this area is well established and provides critical insights into the variables that impact this success. In early 50's researchers involved in researching communication within teams, determined that the communication within small groups is influenced by such things as communication patterns, role of communication and group perception (Bales 1950; Newcomb 1951; Fisher 1974). Within this original and continuing research, it has been found that all groups experience a similar set of linear communication stages during the development of task solutions (Fisher 1974). The groups that have the ability to understand this process and the variables that impact the stages have the greatest opportunity for effectiveness in a given task (Poole and Roth 1989). If projects can be viewed from a social collaboration perspective, then an increased emphasis will be placed on developing teams that have shared values and trust among the participants. As demonstrated earlier, teams that have this as a basis will focus on sharing knowledge to produce high-performance results.[5]

4. NETWORK EFFICIENCY AND EFFECTIVENESS

In order to optimize a network by capitalizing on structural holes, Burt (1992) claims that increasing network size (number of direct contacts) without considering the diversity reached

by the contacts makes the network inefficient in many ways. Therefore, the number of non redundant contacts is important to the extent that redundant contacts would lead to the same people and, hence, provide the same information benefits. The term effectiveness is used to denote the average number of people reached per primary contact; while the term efficiency concerns the total number of people of people reached with all primary contacts.

Hence, effectiveness is about the yield per primary contact, while efficiency is about the yield of the entire network. An effective network therefore regards the primary contacts as ports of access to diverse clusters (because of non redundancy), and therefore achieves the yield of the entire network. The term that Burt (1992) uses to denote effectiveness in networks is effective size. Ideally, the number of non redundant contacts should increase with the number of contacts to achieve optimal efficiency (i.e., 1). As one increases one's number of contacts and gradually starts to have a smaller number of non redundant contacts, the individual's network efficiency decreases. Conversely, as the number of non redundant contacts increases relative to the lower number of contacts, the individual's network efficiency increases. Network Constraint dictates the extent to which an individual's opportunities are limited by investing the bulk of his or her network time and energy in relationships that lead back to the single contact (Burt, 1992, p. 55). In other words, constraint measures the degree to which an individual's contacts are connected to each other and is therefore a proxy for redundancy of contacts. According to Hanneman (2001), constraint also measures the extent to which an ego

[4] P.Chinowsky, J.Dieckmann, V.Galotti; A Social Network model of construction, Journal of Construction Engineering and Management, Vol.134, No.10, October 1, 2008., p.806
[5] Ibid, p.811.

is connected to others who are connected to one another. So if the ego has many connections to others, who in turn have many connections to still others, the ego is quite constrained. At organizational levels, individuals with high constraint indices are unable to conceive novel ideas because of the redundant nature of information that is sourced from a densely connected group of individuals. Previous research has consistently demonstrated that high-efficiency and low-constraint indices are useful indicators of an individual's ability to produce good ideas (Burt, 2004), to "get ahead" in terms of job performance and promotion (Burt, 1992, 2005), and to enjoy greater career mobility (Podolny & Baron, 1997). An individual in knowledge-intensive work with an efficient and low-constrained network structure is thus more likely to obtain useful knowledge from diverse and non redundant contacts, which has been linked to improved performance.[6] Katzenbach and Smith (1993) pointed out that for the existence of an effective communication is necessary to build trust among team members. Without the existence of trust within the network, building successful teams becomes impossible. The key to knowledge exchange is a level of trust between the members of the team. The fundamental principle why the approach of building social networks within an organization has to be done that way is a higher level of trust among team members, improving the exchange of information and knowledge, which all has a positive impact on performance and higher results.

5. IMPLICATIONS

The final set of implications applies to managers, especially those in a position to redesign their organizations. Executives who perceive the network form as a competitive advantage for their companies now have an explicit model to guide their redesign efforts. On the other hand, some companies cannot or will not vertically disaggregate and completely adopt the new form. Nevertheless, these companies desire the benefits of the network approach. Managers of these companies need ideas for, and the means of, altering their existing organizations so as to simulate desirable features of the dynamic network. The dynamic network form, as indicated earlier, has appeared as a means of coping with the business environment of the seventies and eighties. The implications for managers are clear: through a better understanding of the informal organization, they can more successfully capture and exploit new ideas; more efficiently disseminate information throughout the function; and more effectively understand the working habits and activities of employees. Although senior managers in larger organizations are often aware of the existence of informal organizational connections and relationships, rarely, or almost never they try to understand their deeper meaning or try to manage them. The distinction between formal and informal networks is clearly less important in companies with few employees. Are the key individuals found in the informal networks those who would be expected to be in key positions? If not, do these individuals understand the organization's expectations of their roles, and do they need coaching to fulfill them better? Should individuals who have been unexpectedly found to be the key in the informal networks be more integrated into the formal networks?[7]

[6] Kon Shing, Kenneth Chung, Measuring Performance of Knowledge-Intensive Workgroups Through Social Networks, Project Management Graduate Programme, University of Sydney, Australia, Project Management Journal, June 2009.

[7] James Allen, Andrew D. James and Phil Gamlen; Formal versus informal knowledge networks in R&D: A case study using social network analysis, Manchester Business School, University of Manchester, R&D Management 37, 3, 2007.

6. CONCLUSION

Using the concept of social networks for business purposes in the future will surely have a huge impact on the development of communication channels within the organization. Future forms will all feature some of the properties of the dynamic network form, particularly heavy reliance on self-managed workgroups and a greater willingness to view organizational boundaries and membership as highly flexible. There is likely to be a significant difference between what managers presume to be occurring in terms of knowledge exchange, and what occurs in practice. In reality, there is a significant difference between the amount of knowledge that managers think that is exchanged between members of the organization and those who actually are being exchanged. Studying informal networks can also reveal

structural gaps and thereby provide insight for successfully implementing formalized networks. The answer to this challenge is the relationship between knowledge exchange and trust. The key to high performance is the recognition by the team that the success of the team is of primary importance and that this success is based on the individuals openly exchanging knowledge for the benefit of the solution. Specifically, the underlying concept of this relationship is that by achieving trust and shared values within the project network, the project team will increase the exchange of knowledge and information, which will result in high performance output. Through the digital communication in the workplace and its analysis, organizations are able to recognize both; the critical and the bright spots, and consequently access to their elimination or improvement. There are multiple benefits of using of Social Networks as a communication tool within organization members, like; easier solving business problems, stimulating local action, motivating new ways of work and legitimizing cross-boundary communication.

BIBLIOGRAPHY

Adler, P. S., Kwon, S.W., (2002): **Social capital: Prospect for a new concept. Academy of Management Review**, 27: 17–40.

Anand, V., Glick, W. H., Manz, C. C., (2002): **Thriving on the knowledge of outsiders: Tapping organizational social capital. Academy of Management Executive**, 16(1): 21–31.

Baker, W. E., (2000): **Achieving success through social capital: Tapping the hidden resources in your personal and business networks**, **Academy of Management Review**, San Francisco, January: Jossey-Bass. 162.

Bales, R. F.:**Interaction process analysis**, Addison-Wesley, Cambridge, Mass, 1950.

Baum, J. A. C., Calabrese, T., & Silverman, B. S., (2000): **Don't go it alone: Alliance network composition and startups' performance in Canadian biotechnology. Strategic Management Journal,** 21: 267–294.

Brown, J.S., Duguid, P., (2001): **Structure and spontaneity: knowledge and organization**.

Burns, T.,Stalker, G., (1961): **The Management of Innovation**. London, Tavistock.

Chandler, A., (1962): **Strategy and Structure. Cambridge**, MA: MIT Press.

Crozier, M**.: Relationships between micro and macro sociology**, Human Relations, 1972, 25, 239-251.

Cross, R., Parker, A., (2004): **The Hidden Power of Social Networks**, Boston: Harvard Business School Press.

Cross, R., Prusak, L., Parker, A., Borgatti, S.P.,(2001**): Knowing what we know: supporting knowledge creation and sharing in social networks**. Organizational Dynamics, 30, 2, 100–120.

Dyer, J. H., Nobeoka, K., (2000): **Creating and managing a high-performance knowledge-sharing network: The Toyota case. Strategic Management Journal**, 21(Special Issue): 345–367.

Fombrun, G. J.: **Strategies for network research in organizations. Academy of Management Review**, 1982, 7, 280-291.

Gargiulo, M., Benassi, M., (2000): **Trapped in your own net? Network cohesion, structural holes, and the adaptation of social capital, Organization Science**, 11: 183–196.

Gulati, R., Nohria, N., Zaheer, A., (2000): **Strategic networks, Strategic Management Journal,** 21(Special Issue): 203– 215.

Gupta, A. K., Govindarajan, V., (2000): **Knowledge flows within multinational corporations. Strategic Management Journa**l, 21: 473–496.

Hanneman, R. A., Riddle, M., (2005): **Introduction to social network methods,** University of California, Riverside.

Hirokawa, R. (1980): **A comparative analysis of communication patterns within effective and ineffective decision-making groups, Communication Monography**, 473, 312–321.

Katzenbach, J., Smith, D. K., (1993): **The wisdom of teams**, Harvard Business School Press, Boston.

Kon Shing Kenneth Chung, (2009): **Measuring Performance of Knowledge-Intensive Workgroups through Social Networks**, Project Management Graduate Program, University of Sydney, Australia, Project Management Journal, June 2009.

Krebs, V. E., (2004):**Managing the connected organization**, www.orgnet.com, August 8, 2008.

Lane, P. J., Lubatkin, M., (1998): **Relative absorptive capacity and interorganizational learning, Strategic Management Journal**, 19: 461–477.

Losada, M., (1999): **The complex dynamics of high performance teams**, **Mathematic Computer Model.**, 30.09.10, 179–192.

Miles, C., Raymond, E., Snow, C.: New Organizations:**Concepts for New Forms, California Management review**, The Regents of the University of California, Volume XXVIII, Number 3, Spring 1986.

Mintzberg, H., (1973): **The Structuring of Organizations**, Englewood, NJ: Prentice-Hall.

Mohr, L. B. (1979): **Organizational technology and organizational structure. Administrative Science Quarterly,** 1979, 16, 444-459.

Nahapiet, J., Ghoshal, S., (1998): **Social capital, intellectual capital, and the organizational advantage. Academy of Management Review**, 23: 242–266.

Newcomb, T. M. (1979): **Reciprocity of interpersonal attraction; A non confirmation of a plausible hypothesis, Social Psychology**, Quarterly, 1979, 42, 299-306.

Nishiguchi, T., (1994): **Strategic industrial sourcing: The Japanese advantage**, New York: Oxford University Press.

Nonaka, I., Teece, D.J., **Managing Industrial Knowledge: Creation, Transfer and Utilization.** London, Sage, pp. 44–67.

O'Reilly, C., Roberts, K.: **Task group structure, communication and effectiveness in three organizations, Journal of Applied Psychology**, 1977, 62, 674-681.

Pearce, A.J., FRED R. DAVID University of South Carolina **A Social Network Approach to Organizational Design-Performance** Mississippi State University, "Academy of Management Review. 1983. Vol. 8. No. 3. 436-444

Raymond E. Miles, Charles C. Snow: **Fit, Failure, and the Hall of Fame, California Management Review**, Vol. XXVI (Spring 1984): 10-28.

Schuler, R. S., **Role perceptions, satisfaction, and performance; A partial reconciliation, Journal of Applied Psychology**, 1975, 60, 683-687.

Schwartz, D., Jacobson, E. (1977): **Organizational communication network analysis; the liaison communication role. Organizational Behavior and Human Performance**, 1977, 18, 158-174.

Tichy, N. M., Fombrun, C.: **Network analysis in organizational settings. Human Relations**, 1979, 32, 923-965.

Tichy, N. M., Tushman, M., Fombrun, C., (1979**): Social network analysis in organizational settings. Academy of Management Review**, 1979, 4, 507-519.

Uzzi, B., Gillespie, J. J., (2002): **Knowledge spillover in corporate financing networks: Embeddedness and the firm's debt performance. Strategic Management Journal**, 23: 595–618.

Yli-Renko, H., Autio, E., Sapienza, H. J., (2001): **Social capital, knowledge acquisition, and knowledge exploitation in young technology-based firms**, Strategic Management Journal, 22: 587–613.

Zahra, S. A., Ireland, R. D., Hitt, M. A., (2000**): International expansion by new venture firms: International diversity, mode of market entry, technological learning, and performance. Academy of Management Journal**, 43: 925–950.

INNOVATION CHALLENGES FACING COMPANIES IN CROATIA AND SLOVENIA

Barbara Bradač Hojnik
Faculty of Economics and Business, University of Maribor
Razlagova 14, 2000 Maribor, Slovenia
Phone: ++ 386 2 22 90 258; Fax: ++ 385 2 25 16 681
E-mail: barbara.bradac@uni-b.si

Miroslav Rebernik
Faculty of Economics and Business, University of Maribor
Razlagova 14, 2000 Maribor, Slovenia
Phone: ++ 386 2 22 90 258; Fax: ++ 385 2 25 16 681
E-mail: barbara.bradac@uni-b.si

Key words: *innovation challenges, companies, innovation performance, Croatia, Slovenia*

ABSTRACT

Intense competition in past decades, stemming from the opening of national markets and global expansion of production, has forced companies to use all their best resources and core skills to exploit business opportunities. Companies compete in a fast-changing environment, where the key question is how to succeed in such an environment. The only viable answer is to act in such a way to achieve and sustain a competitive advantage through continuous innovation. Companies' performance at different levels of innovation also reflects their innovation performance at the national level. This paper's driving research question examines the innovation performance of companies and, based on the results, defines the main challenges of selected countries to improve companies' innovation abilities and performance.

Several methodologies to measure innovation abilities and performance of companies exist; this paper is based on two of them. The first one is the *European Innovation Scoreboard*, which assesses the innovation performance of selected countries using the *Community innovation Survey* database. The second is based on *SME Performance Review Indicators*, which measure the performance of European SMEs in different areas, including innovativeness. These two sources represent the database for the empirical comparison of Slovenia and Croatia. The results indicate that several differences exist between the compared countries and that both face many challenges in developing innovation capabilities of companies and improve policies and mechanisms supporting innovativeness to improve companies' innovation performance.

1. INTRODUCTION

The main aim of the European Union established 10 years ago was to become the most developed and competitive region in the world; however, this goal still has not been reached. Reaching this goal requires achieving and sustaining the competitive advantages of companies and, subsequently, of countries. However, in this context, competitive advantage is constantly created and destroyed in a continuous process of Schumpeter's creative destruction. Accordingly, innovation is a condition for sustaining competitive advantages. Therefore, companies must continuously innovate. The traditional idea that innovation is the result of research and interaction between companies and other actors has been replaced by the social network theory of innovation (European Commission, 2004, 5). In this sense, knowledge plays a crucial role in fostering innovation.

However, the level of innovation in European countries is still not high enough. The current research examined the state of innovation in companies by investigating several areas that could provide a more holistic picture of innovation in analysed countries—namely, enablers of innovation activities, types of innovation activities, cooperation and support for performing innovation activities, and results of innovation activities. This paper compares two countries that were historically part of the common state Yugoslavia: Croatia as a EU candidate and Slovenia, who joined the EU in 2004. According to the European Innovation Scoreboard (European Commission, 2010), Slovenia ranks among those countries that are "innovation followers" whereas Croatia is among the "catching-up countries".

2. CHARACTERISTICS OF INNOVATION IN COMPANIES

2.1. The need for innovation

Intense competition in past decades, open markets, and global production expansion have forced companies to use all their best resources and key skills to exploit business opportunities. In such circumstances, it is necessary to focus scarce resources on core competencies that help foster innovation (Andrade, Furtado, 2006). Companies can build appropriate competencies and complementary assets by making appropriate choices early and selecting one of several innovation strategies (Freeman, Soete, 1997): offensive, defensive, imitative, dependent, traditional, or opportunistic.

According to different surveys and research results, major differences in innovation levels exist among European countries. One survey, the European Innovation Scoreboard, which measures innovation performance among European (and other) countries, divides countries into four groups (European Commission, 2010):

- *Innovation leaders*, whose innovation performance ranks well above average (Denmark, Finland, Germany, Sweden, Switzerland, and the United Kingdom);
- *Innovation followers*, whose innovation performance is close to average (Austria, Belgium, Cyprus, Estonia, France, Iceland, Ireland, the Netherlands, and Slovenia);
- *Moderate innovators*, whose innovation performance is below average (the Czech Republic, Greece, Hungary, Italy, Lithuania, Malta, Norway, Poland, Portugal, Slovakia, and Spain); and

- *Catching-up countries*, whose innovation performance is well below average (Bulgaria, Croatia, Latvia, Romania, Serbia, and Turkey).

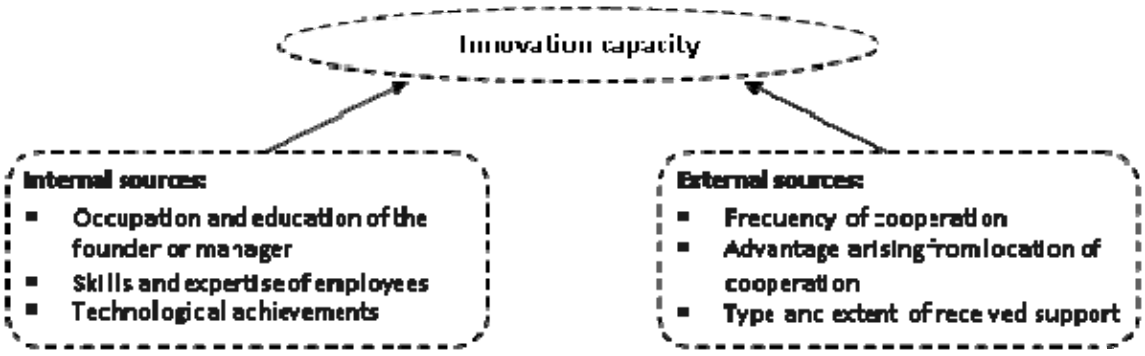
According to these findings, a lack of innovation exists in most European countries. Although all national economies have implemented several instruments and measures to foster innovation in the business sector, a huge challenge for them remains in applying these effectively and improving performance of all actors involved in national innovation systems.

2.2. Sources of innovation

A company or its environment must have access to assets and competencies that allow for the production of new ideas and the development of new products or processes. In general, five major sources of innovation exist for a company (Afuah, 2003, 69): (1) internal value chain activities; (2) external value-added chain of suppliers, customers, and complementary innovators; (3) universities, government, and private laboratories; (4) competitors and related industries; and (5) other nations or regions. Companies in today's environment cannot rely only on internal sources; they have to acquire knowledge for innovation from their environments as well (Cassiman, Veugelers, 2006; Rigby, Zook, 2002).

From external sources, companies typically acquire knowledge through licensing, outsourcing research and development, and hiring researchers (Arora, Gambardella, 1990; Granstrand et al., 1992). Access to external knowledge increases the effectiveness of internal research and development. In general, companies tend to use a combination of internal and external knowledge, although the latter is used as complementary activity (Cassiman, Veugelers, 2006). Chesbrouhg (2003) similarly argues that, although the outsourcing of research and development for a given company is very important, monitoring and enforcing the internal research and development to maintain and develop absorption capacity should also be provided as this enables a company to use the acquired results of research and development, known also as innovation capacity. Innovation capacity at the company level is the ability to implement significant improvements and changes to existing technologies in order to create new technologies (Albaladejo, Romijn, 2000) related to processes, products, and organization. Innovation capacity is affected by internal and external sources, as shown in Figure 1.

Figure 1. Sources of innovation capacity.



Source: Albaladejo, Romijn, 2000.

2.3. Results of innovation activities

In general, results of innovation activities are different products, services, and/or processes. In the literature, the analysis and understanding of this phenomenon are quite extensive. The literature (e.g., Stieglitz, Heine, 2007; Hill, Rothaermel, 2003; Van de Ven, 1986) distinguishes a wide range of innovation types within a company (product/process, radical/incremental, technological/managerial, market pull/technology push, or competence-enhancing/competence-destroying). The adoption of an innovation includes "generation, development, and implementation of new ideas or behaviours" (Damanpour, 1991).

Innovations are mostly developed in a structured process. Veugelers and Cassiman (1999) define the innovation process as a range of activities that have varying degrees of risk. However, even the definition of innovation and its types varies. The three most frequently cited typologies differentiate between administrative and technical innovation, product and process innovation, and radical and incremental innovation (Gopalakrishnan, Damanpour, 1997). Technical innovations include products, processes, and technologies used to produce products or services and are related to the basic activities in the company (Gopalakrishnan, Bierly, 2001), whereas administrative innovations are related to organizational structures and processes (Damanpour, 1996). Product innovations are products or services implemented for the benefit of customers, while process innovations are different tools, equipment, and expertise in manufacturing technology involved in the transformation of inputs into outputs (Ettlie, Reza, 1992). Each of these types of innovation can be developed by the company itself or in cooperation with other companies or institutions. Detailed definitions of concepts used in this paper are described in a later section, along with the methodology.

2.4. The importance of supporting innovation at the national level

The government at the national level can decide whether to get involved in innovation activities or not, with each approach impacting companies. In general, a government may want to participate in the innovation process for several reasons (Afuah, 2003, 307), including the nature of the knowledge underpinning innovations, the uncertainty bounded with the innovation process, the need for complementary assets, the nature of particular technologies, and the politics involved in many innovation-related regulations.

3. METHODOLOGY

This paper relied on the methodology and database of the *Community Innovation Survey 2008* (CIS) (CIS 2008 database). Although the database has been criticized in existing literature, it provides comprehensive insights into companies' innovation. The database's information allows for a comparative assessment of the innovation performance of EU member states and accession candidates. In 2008, the methodology was revised and combined into three categories—enablers, firm activities, and outputs—displaying seven dimensions and 29 indicators (Hollanders, van Cruysen, 2008). The current paper used only selected data, which were divided into four groups of indicators:

1) Enablers of innovation activities (acquisition of machinery, equipment, and software; acquisition of external knowledge; training for innovative activities).
2) Characteristics of performing innovation activities (in-house R&D, external R&D, market introduction of innovations, others).

3) Cooperation in innovation activities (with other companies within a company's group; suppliers of equipment, materials, components, or software; clients or customers; competitors or other companies in the same sector; consultants, commercial labs, or private R&D institutions; government or public research institutions) and valuable of these types of cooperation
4) Financial support for innovation activities (acquired from local or regional authorities, central governments, or the European Union).
5) Results of innovation activities (companies introducing new or improved technological innovation—products or processes; companies introducing new or improved non-technological innovation—organisational or market).

The population of the CIS 2008 is determined by the size of the company and its principal activity. All companies with 10 or more employees in any of the specified sectors were included in the statistical population. The reference period of the CIS 2008 was the year 2008. Definitions and descriptions of main indicators used in our research were summarized from different methodologies, including the Oslo Manual (OECD, 2005) and national statistical offices in Croatia (Croatian Bureau of Statistics, 2010) and Slovenia (Mervic, 2010). Companies in the survey were grouped according to their innovation activities. Active innovation companies were those that have introduced product innovation or process innovation, those that have not yet completed or abandoned the innovation activity during the observation period, and/or those that introduced organisational and/or marketing innovation. Meanwhile, non-innovative companies referred to those that, during the observation period (2006-2008), have not introduced any innovation and have had no innovation activity. Companies that introduced innovation/innovations within each type of innovation during the observed period were defined as innovators (product innovators, process innovators, organisational innovators, marketing innovators).

Innovation includes new goods, services, and processes or significantly improved goods, services, and processes. Innovation is implemented when it is introduced on the market (product innovation) or used in the process (process innovation). An innovative company has, during the observation period, introduced new or significantly improved products or processes. Innovation is based on the results of new technological development, new combinations of existing technologies, or the use of other knowledge used by the company. Innovation should be new to the company or the market. It is not relevant whether the innovation was developed by the company or not.

The methodology used included technological and non-technological types of innovations. Technological innovations include:

- Product (good or service) innovation (the market introduction of a new good or service or a significantly improved good or service with respect to its capabilities, such as improved software, user-friendliness, components, or sub-systems).
- Process innovation (the implementation of a new or significantly improved production process, distribution method, or support activity for goods or services).

Non-technological innovations include:

- Organisational innovation (the implementation of new business practices for organising procedures, new methods of organising work responsibilities and decision

making, and new methods of organising external relations with other companies or public institutions).

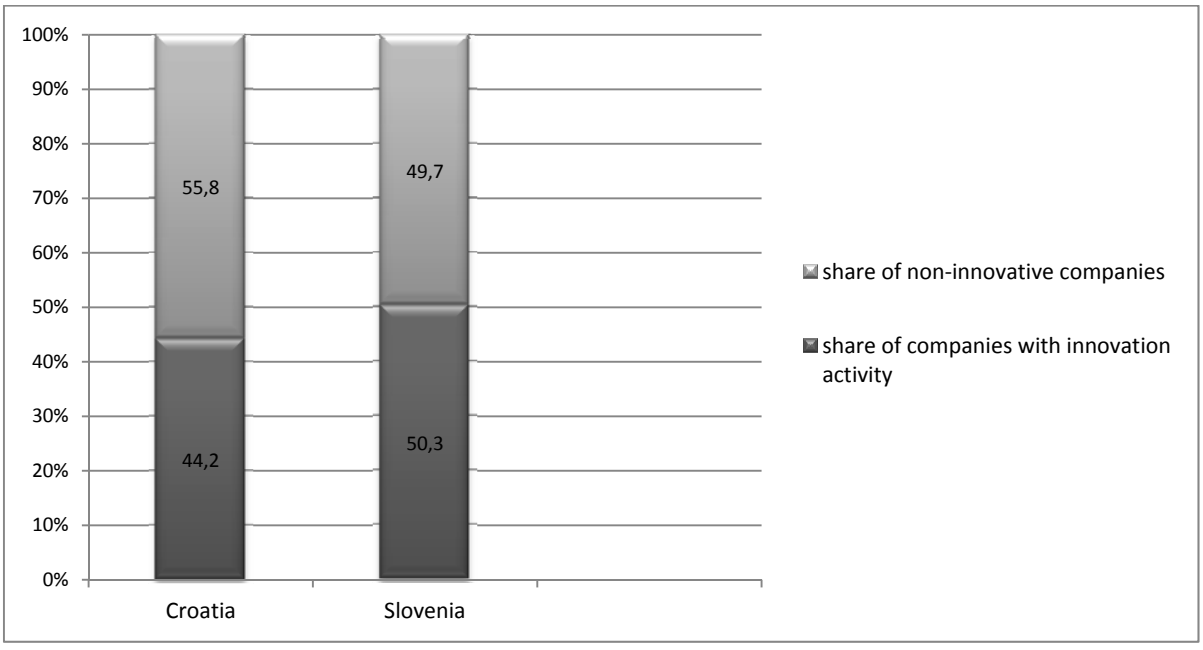
- Marketing innovation (implementation of significant changes to the aesthetic design or packaging of a good or a service, which also covers new media or techniques for product promotion, new methods for product placement or sales channels, and new methods of pricing goods or services).

Innovation activities include the acquisition of machinery, equipment, software, and licenses as well as engineering and development work, training, marketing, and R&D when they are specifically undertaken to develop and/or implement a product or process innovation. The following types of innovation activities were observed: research and development, procedures and technical preparations to implement new or significantly improved products and processes that are not covered elsewhere, and activities for the market introduction of new or significantly improved goods and services, including market research and launch advertising. In addition, three groups of acquisitions of results of knowledge were examined—namely (1) acquisition of advanced machinery, equipment, and computer software to produce new or significantly improved products and processes; (2) purchase or licensing of patents and non-patented inventions, know-how, and other types of knowledge from other companies or organisations; and (3) training of personnel specifically for the development and/or introduction of new or significantly improved products and processes.

4. RESULTS OF EMPIRICAL ANALYSIS

The survey on innovation engaged 7.374 companies from Croatia and 4.594 companies from Slovenia. As Figure 2 indicates, 44,2% of companies in Croatia and 50,3% of companies in Slovenia performed innovation activities.

Figure 2. Share of innovative and non-innovative companies in Croatia and Slovenia.



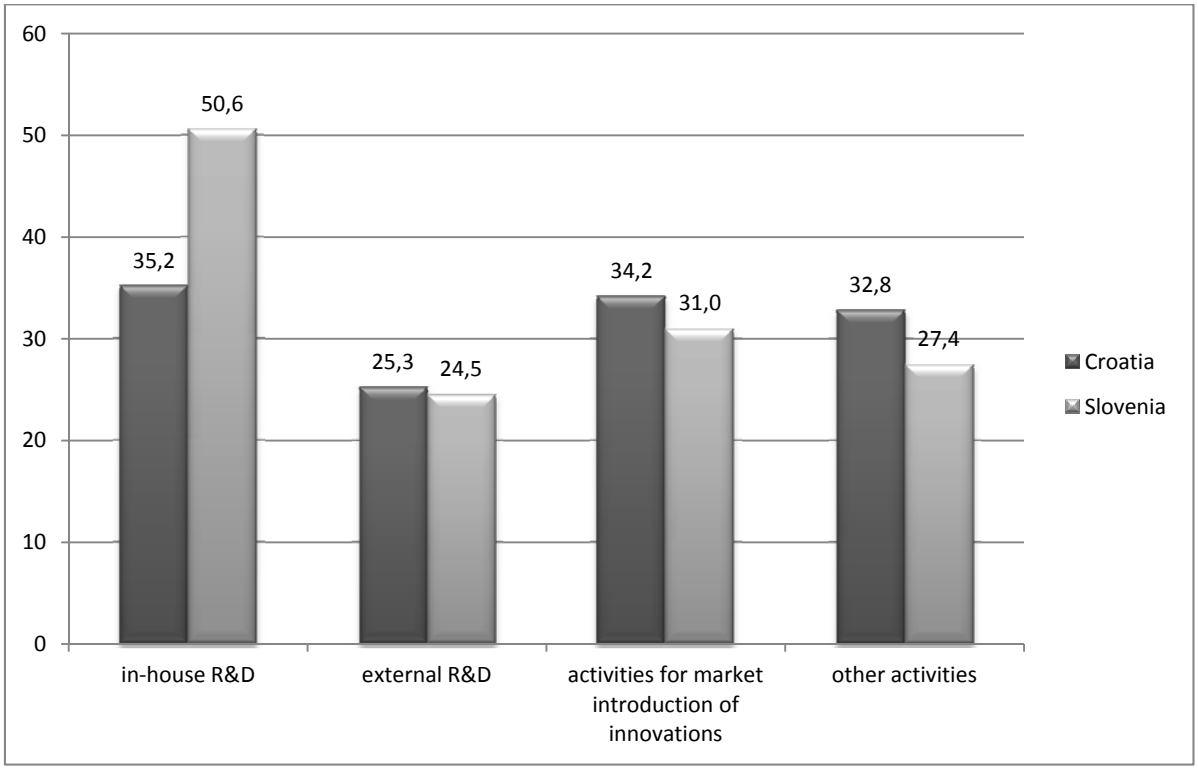
Source: CIS 2008 database (2010); author's own calculations.

Compared to EU27, where 51,6% of companies (408.964 of 793.049 companies) were involved in innovation activities, both analysed countries perform below the average. Thus, as a starting point, the share of companies with innovation activities should be increased in the future.

4.1. Engagement in innovation activities

Figure 3 provides an overview of innovation activities performed internally or externally by a given company. In-house R&D activities are defined as creative work undertaken within the company to increase the knowledge for developing new and improved products and processes (CIS 2008 methodology, 2010).

Figure 3. Engagement in innovation activities by type of activities.



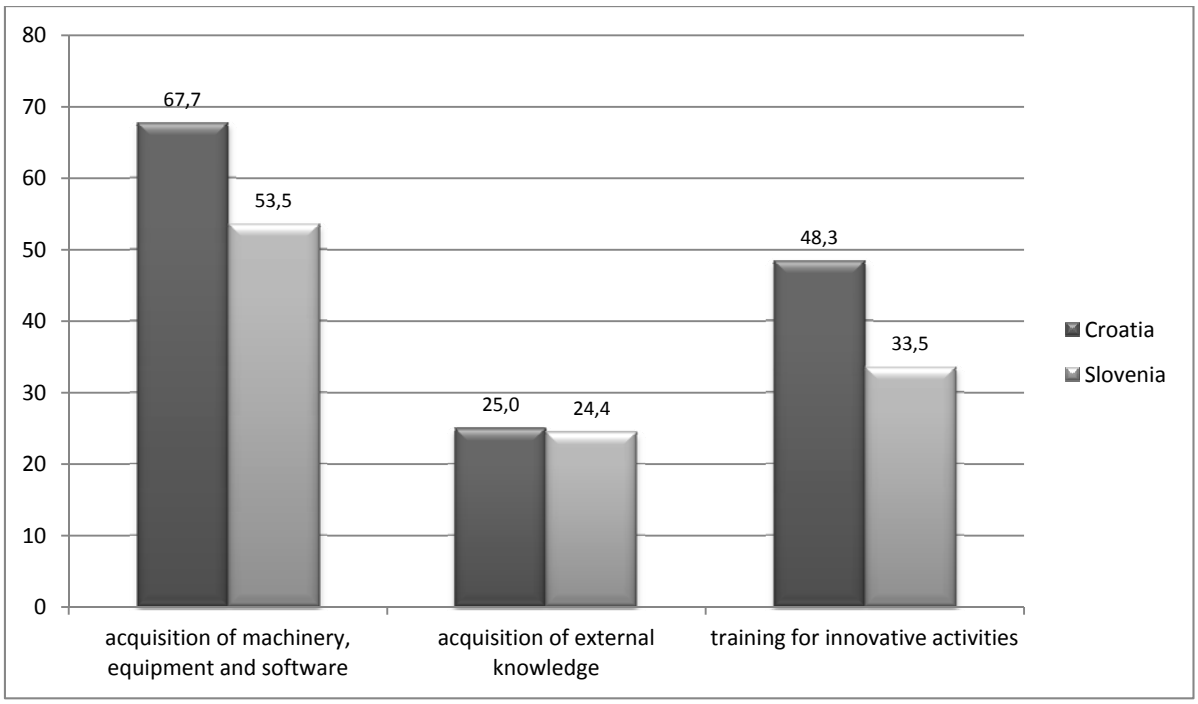
Source: CIS 2008 database (2010); author's own calculations.

The results indicate that more than a half of Slovenian companies with innovation activities perform their own R&D while only 35% of Croatian companies do so. The external R&D is defined in the same way as in-house R&D with the difference that it is performed by other companies or organisations and purchased by a given company (CIS 2008 methodology, 2010). The purchasing of external R&D activities shows a much smaller difference between Slovenian and Croatian companies; in both countries, approximately one quarter of companies acquire R&D externally on the market. The third element represents activities for the market introduction of new or improved products and services, including market research (CIS 2008 methodology, 2010). The last element comprises other activities for implementing improved products and processes, such as feasibility studies and testing (CIS 2008 methodology, 2010). In both countries, about one third of companies provide these two analysed elements.

4.2. Enablers of innovation activities

Figure 4 depicts the enablers of innovation activities in companies with innovation activities. As enablers of innovation, the activities included all of a company's actions and acquisitions to acquire different equipment and knowledge in trainings from its environment. Three indicators were defined: (1) acquisition of machinery, equipment, and software; (2) acquisition of external knowledge; and (3) training for innovative activities.

Figure 4. Enablers of innovation activities.



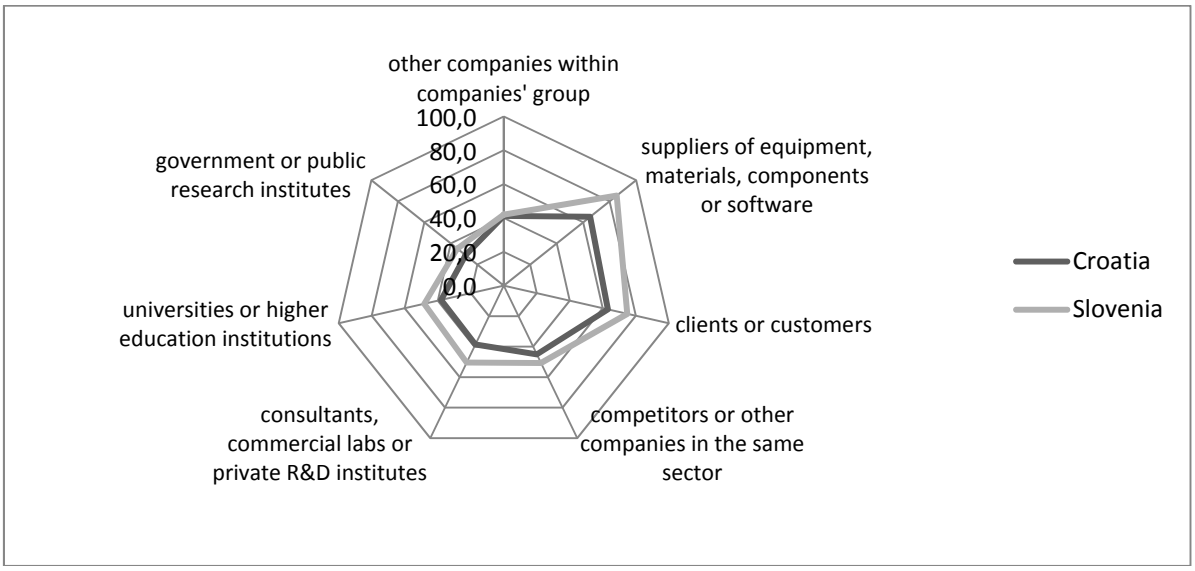
Source: CIS 2008 database (2010); author's own calculations.

In both countries, the majority of companies acquire machinery, equipment, and software, although in higher share do so in Croatia (67,7%) than in Slovenia (53,5%). However, only a quarter of companies in both countries acquire external knowledge, which is one of the important factors enabling internal innovation. Although training is used in almost half of Croatian companies, only one third of companies in Slovenia use it. All measured indicators occurred at a higher level in Croatian companies than in Slovenian ones. In general, this indicates that activities undertaken by companies to enable internal innovation activity are not used frequently enough. Acquiring external knowledge or its results is important for companies to broaden their knowledge and improve their absorptive capacity, which enables the application of acquired knowledge.

4.3. Cooperation in performing innovation activities

Cooperation in innovation activities may occur in different forms, and companies may cooperate with several different types of companies and institutions. In Croatia, 30% of the companies with innovation activities cooperated with other actors; 33% of companies in Slovenia did so. Figure 5 summarizes the results of cooperation with seven groups of actors.

Figure 5. Types of innovation cooperation.

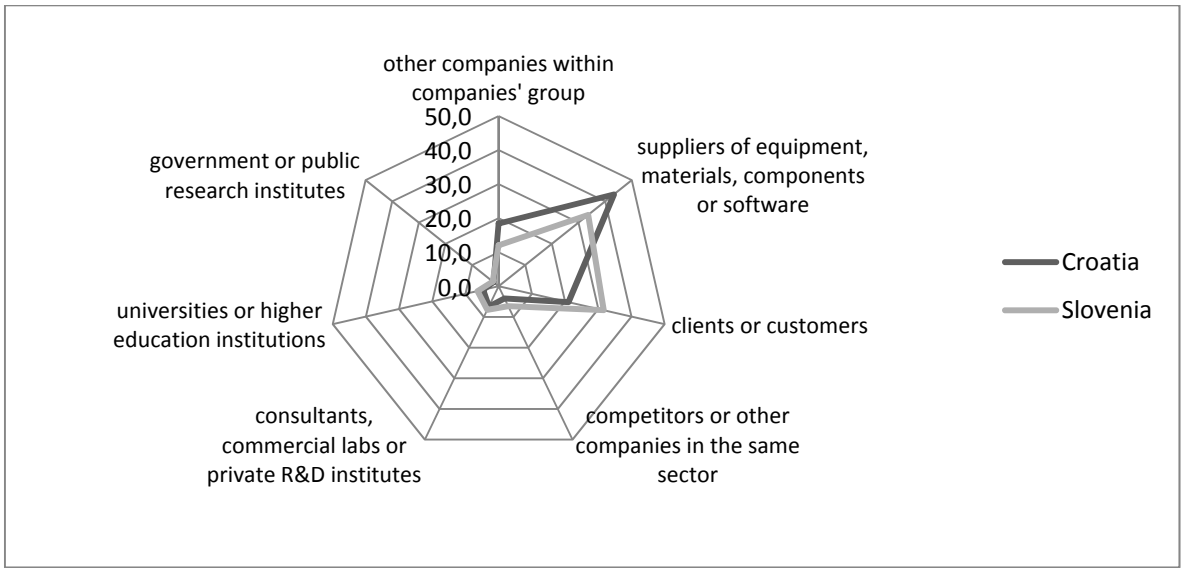


Source: CIS 2008 database (2010); author's own calculations.

Most companies cooperate with suppliers of equipment, materials, components, or software as well as with clients and customers. Both groups of co-operators are within the company's principal value-chain. However, all other types of cooperation occur at a much lower level. The least cooperating companies cooperate with government or public research institutes and universities. These results coincide with a low level of technology transfer from universities to the business sector. They further indicate that the triple helix is still not a practice in any of the compared countries.

The most valuable type of innovation cooperation is shown in Figure 6. In accordance with previous findings, cooperation with government or public research institutes as well as with universities was the least valuable, while cooperation with suppliers of equipment, materials, components, or software was the most valuable one.

Figure 6. The most valuable types of innovation cooperation.

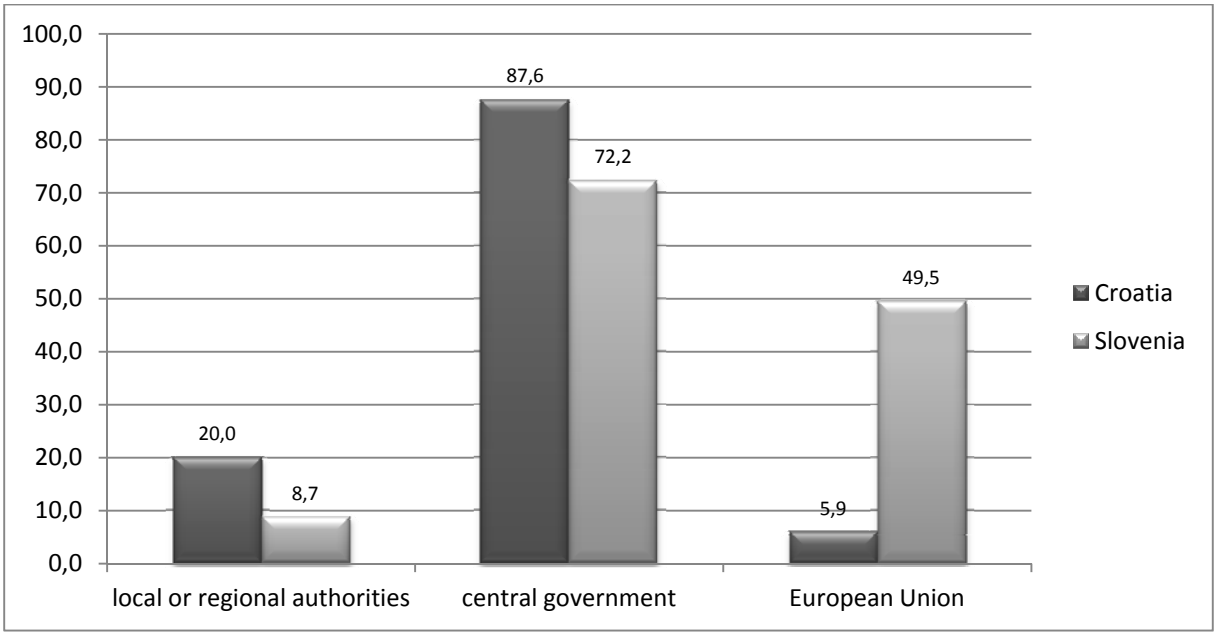


Source: CIS 2008 database (2010); author's own calculations.

4.4. Financial support for innovation activities

The majority of national or local governments provide some form of financial support for companies' innovation activities. Figure 7 provides results from the analysis of financial support provided by three groups of actors—namely, local or regional authorities, central or national government, and the European Union. Croatian companies received more support from local, regional, or central government than Slovenian ones. Slovenian companies received significantly more support from the European Union than Croatian companies due to the fact that Croatia is still an EU candidate country and is not entitled to as many financial support schemes or incentives as Slovenia (an EU country). Therefore, this indicator will be appropriate for comparison only after Croatia joins the European Union.

Figure 7. Companies receiving financial support for innovation activities.



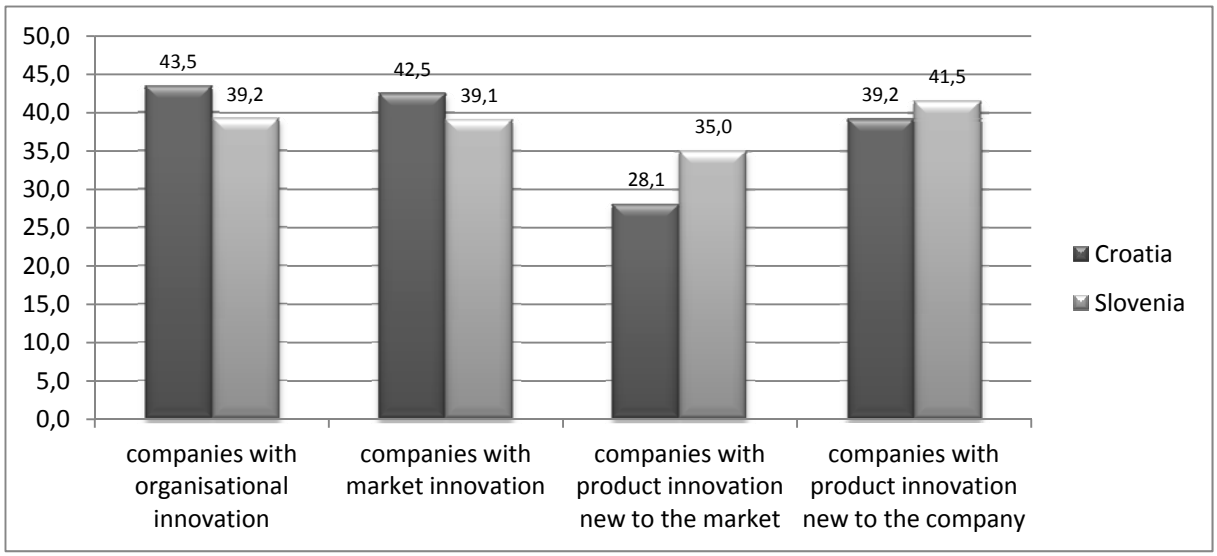
Source: CIS 2008 database (2010); author's own calculations.

Both compared countries face many challenges regarding innovation policy and innovation support. Croatia's main innovation policy challenges are providing access to capital for innovation projects, stimulating R&D expenditures, and facilitating intellectual property protection (European Commission, 2009a). Slovenia's main policy challenges are stimulating R&D investments, ensuring the transparency of innovation support institutions, and increasing innovation activities in particular groups of companies—namely, small companies (European Commission, 2009b). Innovation challenges facing both countries are comparable to supporting R&D, because too many companies rely on suppliers' innovations and improvements while the companies lack internal R&D. R&D comprises creative and systematic work intended to increase knowledge of human beings, culture, and society. The use of this knowledge for the development of new applications relates to three activities: basic research, applied research, and experimental development. The primary aim is not to develop new or improved products or processes, but rather new knowledge that is still not sellable. This is one of important reasons why companies do not perform R&D, as it represents only sunk costs that concentrate primarily on innovation activities.

4.5. Results of innovation activities

Innovation activities give rise to innovations. Research groups innovations into product innovations new to the company or new to the market, organisational innovations, and market innovations. Figure 8 presents shares of companies with different types of innovation in Croatia and Slovenia.

Figure 8. Companies with different types of innovation.



Source: CIS 2008 database (2010); author's own calculations.

The results show that between companies there are several differences by a type of innovation. Most Slovenian companies provided product innovation new to the company (41,5%) and the least product innovation new to the market (35%). In Croatia, the majority of companies provided organisational innovation (43,5%) and the least product innovation new to the market (28,1%). However, Slovenian companies provided more product innovation than Croatian companies while Croatian companies provided more organisational and market innovations than Slovenian ones. The most important and relevant innovations for customers are product innovations new to the market, which also have the highest level of risk; therefore, it is expected to be at the lowest level in both countries.

5. CONCLUSIONS

This paper sought to contribute to the understanding of innovation in two countries, Croatia and Slovenia. Empirical findings indicated that innovation performance is still not at a level that would provide a sustainable competitive advantage. The five determinants investigated were enablers of innovation activities, characteristics of performing innovation activities, cooperation of performing innovation activities, financial support for innovation activities, and results of innovation activities. Based on the analysis of these five areas, the most important issues for both countries are as follows:

- Only a third of Croatian companies provide internal R&D while a half of Slovenia companies do.

- The acquisition of various types of knowledge is better in Croatian companies than in Slovenian companies, particularly in terms of training and equipment acquisition.

- Innovation cooperation with different actors in a company's environment is higher in Slovenian companies than in Croatian companies; nevertheless, only approximately one third of them cooperate. Companies in both countries mostly cooperate with suppliers, clients, and customers. The level of cooperation with universities and government is very low.

- Croatian companies exploit financial support from the government more successfully than Slovenian companies.

- Comparing the innovations as results of innovation activities, Croatian companies provide more organisational and market innovations than Slovenian ones. On the other hand, Slovenian companies provide more product innovation (new to the company and to the market).

Such results underscore some important implications for innovation policy. The basic challenge is how to engage more companies in performing innovation activities and how to motivate them to engage in more internal innovation activities and R&D. As the level of cooperation is relatively low, policymakers should find mechanisms that would enable and support cooperation and at the same time prevent companies from possible opportunistic behaviour (Rebernik, Bradač 2006). Currently, only one third of companies cooperate in performing innovation activities, mostly with suppliers and customers. To acquire new knowledge, companies should cooperate with universities and research institutions more—not only because they have a lot of knowledge, but also because in the two countries compared this knowledge is created by public funding and should be more efficiently exploited. In both Croatia and Slovenia, technology transfer is at a very low level, and appropriate transfer routines should be created. This cooperation between the business and "science" sector represents the next challenge for policymakers in Croatia and Slovenia seeking to set effective measures to foster such creative cooperation.

BIBLIOGRAPHY

Afuah, A., (2003): **Innovation management**, New York: Oxford University Press.

Albaladejo, M., Romijn, H., (2000): **Determinants of innovation capability in small uk firms: an empirical analysis**, Working Paper 00.13, Eindhoven Centre for Innovation Studies, The Netherlands.

Andandre, C., Furtado, J., (2006): **Innovation and manufacturing in assembly industries: a comparative analysis of outsourcing approaches on automobiles and electronics**, GERPISA 14th International Colloquium, Paris.

Arora, A., Gambardella, A. (1990): **Complementarity and external linkages: the strategies of the large firms in biotechnology**, ***Journal of Industrial Economics***, 38, 361-379.

Cassiman, B., Veugelers, R. (2006): **In search of complementarity in innovation strategy: internal R&D and external knowledge acquisition,** ***Management Science***, 52(1), 68-82.

Chesbrough, H.W. (2003): **The era of open innovation**, ***MIT Sloan Management Review***, 44(3).

CIS 2008 database. (2010): **Community Innovation Survey**, http://epp.eurostat.ec.europa.eu/portal/page/portal/science_technology_innovation/data/database [Accessed 7.12.2002]

CIS 2008 methodology (2010): **Statistical presentation**, http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/en/inn_esms.htm [Accessed 7.12.2002]

Croatian Bureau of Statistics, (2010): **Innovation activities in Croatian enterprises**, http://www.dzs.hr/default_e.htm [Accessed 7.12.2002]

Damanpour, F., (1991): **Organizational innovation: a meta-analysis of effects of determinants and moderators**, ***Academy of Management Journal***, 34(3), 555-590.

Damanpour, F., (1996): **Organizational complexity and innovation: developing and testing multiple contingency models**, ***Management Science***, 42, 693-716.

Ettlie, J., Reza, E., (1992): **Organizational integration and process innovation**, ***Academy of Management Journal***, 34(4), 795-827.

European Commission, (2004): **Innovation Management and the Knowledge-Driven Economy**, Brussels: Directorate-general for Enterprise.

European Commission, (2009a): **INNO-Policy TrendChart – Innovation Policy Progress Report: Croatia**. Brussels: Enterprise Directorate General.

European Commission, (2009b): **INNO-Policy TrendChart – Innovation Policy Progress Report: Slovenia**. Brussels: Enterprise Directorate General.

European Commission, (2010): **European Innovation Scoreboard 2009: Comparative analysis of innovation performance**, Brussels: European Union.

Freeman, C., Soete, L., (1997): **The economics of industrial innovation, 3rd edition**, Great Britain: MIT Press.

Gopalakrishnan, S., Bierly, P., (2001): **Analyzing innovation adoption using a knowledge-based approach**, ***Journal Eng. Technol. Management***, 18,107-130.

Gopalakrishnan, S., Damanpour, F., (1997): **A review of innovation research in economics, sociology and technology management**, ***The International Journal of Management Science***, 25(1), 15-28.

Granstrand, O., Bohlin, E., Oskarsson, C., Sjoberg, N., (1992): **External technology acquisition in large multitechnology corporations**, ***R&D Management***, 22, 111-133.

Hill, C., Rothaermel, F., (2003): **The performance of incumbent firms in the face of radical technological innovation**, ***Academy of Management Review***, 28(2), 257-274.

Hollanders, H., van Cruysen, A., (2008): **Rethinking the European Innovation Scoreboard: A New Methodology for 2008-2010**, the Netherlands: UNU-MERIT.

Mervic, H., (2010): **Innovation activity in manufacturing and selected services: methodological explanations**, Statistical office of Republic of Slovenia, http://www.stat.si/doc/metod_pojasnila/23-059-ME.htm [Accessed 7.12.2002]

OECD, (2005): **Oslo Manual, guidelines for collecting and interpreting innovation data**. Paris: OECD and EUROSTAT.

Rebernik, M., Bradač, B. (2006): **Cooperation and opportunistic behaviour in transformational outsourcing.** ***Kybernetes***, 35 (7/8), 1005-1013.

Rigby, D., Zook, C., (2002): **Open-market innovation**, ***Harvard business review***, 80(10), 80-89.

Stieglitz, N., Heine, K., (2007): I**nnovations and the role of complementarities in a strategic theory of the firm**, ***Strategic Management Journal***, 28(1), 1-15.

Van de Ven, A., (1986): **Central problems in the management of innovation**, ***Management Science***, 32(5), 590-607.

Veugelers, R., Cassiman, B., (1999): **Make and Buy in Innovation Strategies: Evidence from Belgian Manufacturing Firms**, ***Research Policy***, 28, 63-80.

GROWTH PATTERN IN TRANSITION ECONOMIES: AN ANALYSIS AFTER THE CRISIS

Bozidar Cerovic
Faculty of Economics, Belgrade University
Kamenicka 6, 11000 Beograd
Phone: +381652758700 Fax: +381112639560
E-mail: cerovi@ekof.bg.ac.rs

Aleksandra Nojkovic
Faculty of Economics, Belgrade University
Kamenicka 6, 11000 Beograd
Phone: +381113021250 Fax: +381112639560
E-mail: nojkovic@gmail.com

Key words: *Transition, Growth, Reforms related breaks, Economic crisis, Croatian economy, Serbian economy*

ABSTRACT

The paper starts with an introspect of our basic analysis recently presented showing how transition progress can alter growth models during transition. We demonstrate that reforming process affects growth patterns along transition path and that there is no unique model that should be followed by transition economies. Although some analyses state that transition is ending in the countries that accessed the EU it is evident that even their growth is severely affected by the world economic crisis and moreover, that impact of the crisis is rather specific when compared with developed market economies. In analysing pooled panel regressions we find at least two important break points in reforming process that have urged for a growth model change. Our analysis can also better explain why some of the recent disputes insist on a new growth model for transition countries. For that reason we have augmented our primary specification with some typical variables connected with the recent discussion on the necessity of growth model change in transition countries. This extended analysis did not change and even has strengthened our initial findings. The analysis conducted shows that in the middle of transition there are obvious signs which suggest growth model change and also that a considerable period of time for the change was missed. Finally, using the results of our analyses we try to examine what were the right choices in the economies of Croatia and Serbia and find out that they basically have followed a common transition model based on reforms and their spontaneous outcomes regarding growth that proved unsustainable during the crisis.

1. INTRODUCTION

The basic economic objective of transition reforms was to improve performance of the former so called socialist and/or communist economies. It was thought that a fast reforming process based upon a market economy model would enhance efficiency and would drive economies in question to the road of a relatively fast growth and to catching up the developed market economies. However, the reality proved to be much more complicated. Transition recession and the subsequent recovery appeared to be slower than it had been predicted. The recent global crisis that emerged in 2008 has turned again attention to transition economies since many of them appeared exceptionally vulnerable after the crisis shocks. This was the reason why a dominant issue in analysing performance of transition economies has become a search for a new model of growth and even a new set of reforms (Berglöf, 2010).

The authors of this paper analyse growth problems under transition already for several years within a broader project. Some of our results are summarised in our recent paper (Cerovic and Nojkovic, 2009) which analyses the relationship between growth and initial conditions, macroeconomic stability and transition progress and further on, the behaviour of transition economies during around two decades of reforming processes as compared with standard long run growth models. We claimed that transition progress itself could not be taken as a primary force in improving economic performances. Moreover, it was dependent on initial conditions of each country as it was the growth rate itself. Since the analysis was basically supported by simple regression models for the entire set of transition economies in several points of time we have introduced a pooled panel analyses that did not change much of our findings but has identified certain break points related to the level of reforms implementation that alter growth models under transition (Nojkovic and Cerovic, 2010). The principal outcome of the analysis is that after the first wave of reforms there is a need for a new growth model that should be specified in each country since the reforms cease to be a significant factor of growth in that phase of transition[1].

In this paper we shall briefly re-present our analyses concerning reform related breaks and corresponding growth models and shall augment our research with several additional variables in order to better identify what type of growth model is dominant at different levels of transition progress. Using these results we shall try to analyse the growth history of the two Western Balkans countries – Croatia and Serbia – and shall try to identify what was missed in their policies and why they do relatively poorly perform in the present days.

The paper is organised in six sections. After an introductory note, we present our basic empirical findings regarding growth pattern change during transition. In the next section we extend our model introducing some new variables typically mentioned in discussions on the necessity of a new growth model for transition economies and amplify our analysis. The data that cover the period of global economic crisis are subsequently included so that the impact of crisis could be identified and studied. According to the results obtained we examine the experience of two Western Balkans countries – Croatia and Serbia – trying to apply our results to their case. Finally, we summarise our findings within concluding remarks.

[1] Both analyses, parts of which were presented during several conferences, have raised a vivid discussion which proved helpful for our further work. Therefore, we use this opportunity to thank all the participants that took part in commenting our papers during the conferences held in Bol, Croatia, in May 2009 (*University of Split, Challnges of Europe*), Tartu, Estonia, in August 2010 (*11th EACES bi-annual conference*) and Belgrade, Serbia, in December 2010 (*Scientific Society of Economists of Serbia, Conference on Economic Policies in 2011*).

2. REFORMS, INITIAL CONDITIONS AND POLICIES: BASIC EMPIRICAL FINDINGS

Literature on growth under transition is pretty specific. Since the primary objective of the entire reforming process was to enhance efficiency and economic performance the primary attention was directed towards explaining how reforms could add to growth. Although transition recession was anticipated it was claimed that faster reformers would more rapidly pass through recession and moreover, that fast reforms could diminish effects that adverse inherited initial conditions might produce. After less than a decade of transition reforms it was remarked that some of these claims were overstated. It appeared that the speed of reforms and the level of reforms were frequently mixed up, that the legacy of previous system as well as geographical and historical (therefore unchangeable) factors may affect both reforms and growth and that institutions could be of principal importance (see Godoy and Stiglitz, 2007 for a good survey of literature regarding the issues mentioned as well as for interesting and refined results; see also Mickiewicz, 2010, Chapter 6). Finally, it was remarked that some of the factors mentioned change their impact on growth over time (Falcetti et al., 2005; Fidrmuc and Tichit, 2007; Dragutinovic-Mitrovic and Ivancev, 2010) and how some of variables could produce confusing results (Babetskii and Campos, 2007).

In trying to identify what could be the role of reforms, initial conditions and macroeconomic stabilisation in supporting growth and what effects could be expected of these factors in the contribution previously mentioned (Nojkovic and Cerovic, 2010) we used a pooled panel specification to estimate growth for 25 countries between 1989 and 2007 (as well as between 1989 and 2009) and run regressions with annual data. We estimated the following baseline model:

$$GR_{i,t} = f\,(inflation_{\,i,t-1},\ initial\ conditions_{\,i},\ reform\ index_{\,i,t-1}), \qquad (1)$$

The dependent variable $GR_{i,t}$ is the growth rate in country i in the year t. The explanatory variables include: (a) *inflation rate* of a country i as a measure for macroeconomic stabilisation represented by the logarithm of CPI inflation rate lagged by one year to allow for some delay in the effects of stabilisation on growth; (b) *initial conditions* that are presented by two first principal components – *IC1* and *IC2* – that result from common factor analysis in a form of composite indices that are constructed after a list of 15 variables for initial conditions as used by de Melo (2001) and explain over 75 per cent of the variance of all variables analysed; (c) *reform index* as a measure for transition advancement of a country *i* lagged by one year (allowing again for some delayed effects of reforms on growth) that is represented by averages of the nine EBRD indices for transition progress[2].

By using the presented model, our principal objective was to explore how and to what extent transition reforms, macroeconomic stabilisation and initial (that is, inherited and therefore unchangeable) conditions affected growth rates of transition economies under the specified model; and further on, whether the patterns of growth in transition economies could change with respect to different stages in reform progress. The method we used should identify structural breaks at *a priori* unknown points in growth regressions estimated with available

[2] In the paper quoted we used three different reform indices: firstly, those that capture all the reforms measured by the EBRD; secondly, those that comprise indices for liberalisation and privatisation and finally, those that take into account deeper and more institutionally oriented reforms (restructuring, competition policy, finance and infrastructure). However, in this paper we shall present only the results that are based on the reform index for overall reforms i.e. on the average of all nine EBRD indicators.

data for 25 countries in the periods observed. The only prior assumption was that the breaks occur in relation to attained progress in establishing a desired market economy model. For identifying structural breaks in our model, we used modified Chow test in order to find *unknown structural breakpoint* in the sample for a specified equation[3].

The results for the period observed (1989-2007) are summarised in the Table 1. The testing procedure indicates that there are *two structural breaks* significant at the 5% level. These breaks occur at the EBRD indices average of 2.33 (or 2+) and at 2.81 (or >3-) or, if presented on a percentage point scale 0-100 (instead of the EBRD scale from 1 to 4.33 or 4+), at the level 44.33% and 60.33% regarding the entire transition reforms package completion. Moreover, as presented in *Table 1* below, the pattern of growth differs over the three periods defined and observed.

Table 1. Structural breaks in the growth model with overall reform index (Sample: 1989-2007)
Two break-points: 2.33 (39.9%) and 2.81 (54.3%)

A: Index range	Full sample (A1)			(Min; 2.33) (A2)			(2.33; 2.81) (A3)			(2.81; Max) (A4)		
Intercept	-9.814	***	(2.196)	-18.373	***	(3.023)	18.546		(12.172)	0.264		(2.411)
Inflation (log, lagged)	-2.950	***	(0.572)	-5.163	***	(0.793)	-4.554	***	(1.110)	-0.862	*	(0.481)
IC1	2.315	***	(0.352)	2.080	***	(0.784)	2.349	**	(1.100)	1.875	***	(0.245)
IC2	-1.844	***	(0.531)	-1.476		(0.981)	-1.554		(1.500)	0.127		(0.361)
Reform index (lagged)	**6.335**	***	(0.620)	**15.111**	***	(1.492)	**-3.651**		(4.782)	**2.069**	***	(0.696)
R^2	0.444			0.417			0.202			0.276		
F-stat (prob)	86.904		(0.000)	29.689		(0.000)	3.554		(0.012)	17.654		0.000
N	441			171			61			190		

Note: Standard errors are in parentheses. Significant levels are indicated as 1% (***), 5% (**) and 10% (*).

Looking at the *Table 1* we may distinguish the following principal results. The first column in *Table 1* (panel A1) reports the regression results obtained for a full sample. As said before we have identified *two structural breaks*: (a) when the value of the reform index equals 2.33 and another one at 2.81 finding our growth model to be unstable. In other words, observations follow *three different models of growth* – the resulting regressions are reported in columns A2, A3 and A4. The first and the third regressions collect 171 and 190 observations, respectively. The second regression collects relatively few observations that is, 61 because the average EBRD index narrows the range. Nonetheless, it is important to point out that the effect of the reforms is high and significant in the first regression (reform index below 2.33) and again in the third regression (reform index above 2.81) though the impact of reforms diminishes considerably after the second break point. In contrast to these findings the reform index appears to be *insignificant* in the second regression (reform index ranges from 2.33 and 2.81).

On the other hand, the impact of the inherited that is, *unchangeable* initial conditions – despite probable reforming enthusiasm of policymakers – remains significant (at least the first principal component) in all the three regressions estimated. Finally, one may easily remark that inflation depresses growth significantly in all sub-samples of our data set (negative sign), with a relatively weaker effect in the third regression.

[3] The approach is known as Quandt-Andrews test, which tests whether there is a structural change in all of the original equation parameters (see Andrews, 1993; and Hansen, 1997). The extension of this test to *more than one unknown break point* is developed by Bai (1997) and Bai and Perron (1998, 2003).

Our intuitive explanation of the results obtained was the following. After the first reforming achievements that appeared to be favourable regarding growth (as it was found in the first analyses in the mid-nineties[4]) there comes a period when macroeconomic stability and inherited circumstances become vital for further development of transition economies while reforms cease to be a driving force for economic growth. In other words, each transition economy in approaching the mid-level of reforming process needs a specific growth strategy that will be predominantly based on local circumstances (inherited conditions) and macroeconomic stability. In contrast, if they stay within a growth model that is predominantly based upon the reforming process and subsequent, spontaneous developments their growth could appear unsustainable and/or unstable.

The latter conclusion was particularly strengthened when we tried to prolong the period observed for another two years (2008-09). In some specifications and particularly in those when we used reform index for deeper reforms (that included firms restructuring, competition policies, finance institutions and infrastructure reforms) instead of the overall one, we got a surprising result that was pointing at reforms as an *adverse* factor of growth (negative sign) in the last panel with the most advanced countries regarding reforms.[5] Undoubtedly, this result expressed some of turbulences caused by the global crisis and we commented it (again intuitively) to be a sign of inappropriately chosen growth models, which were based primarily on the reforming process and its spontaneous effects on growth.

3. GROWTH PATTERN TRANSFORMATIONS: EMPIRICAL EVIDENCE

In order to check whether our intuitive explanations hold we have extended our specification (1). We have firstly extracted *IC2* since it appeared insignificant across the three growth models defined but introduced two other variables that include typical and frequently mentioned issues in discussions on the necessity of a new growth model for transition economies. The two added variables are the share of industrial output in the GDP that should represent a type of structural changes within these economies and trade balance relative to GDP that should indicate whether a country is more or less export oriented. The period observed stays almost the same as in the specification (1) covering period from 1991 to 2007 (this slight shortening of the period is due to the lack of necessary data for 1989-90). The number of economies remains identical to the previous analysis that is, 25. Our new baseline model is defined by the following specification:

$$GR_{i,t} = f\,(inflation_{\,i,t-1},\ IC1_{\,i},\ reform\ index_{\,i,t-1},\ industry_{\,i},\ trade\ balance_{\,i}) \qquad (2)$$

Explanatory variables include: (a) *inflation rate* as defined in the model (1); (b) *IC1* as defined in the model (1); (c) *reform index* as defined in the model (1); (d) *industry* is a share of the industrial sector output in the GDP of a country *i*; (e) *trade balance* is the ratio of a difference between imports and exports to the GDP of a country *i*.[6] We follow the same methodology as in the baseline model (1) trying to identify unknown breaks related to transition progress.

[4] See de Melo et al. 1996; Sachs, 1996; Fischer et al. 1996; Selowski and Martin, 1997 etc.
[5] For details, see: Nojkovic and Cerovic, 2010, pp. 7-10.
[6] All data except for the *IC1* are taken from the EBRD (2011) whereas the variable *trade deficit* is computed using the data from the same source but the GDP was defined as GDP *per capita* multiplied by population figure.

The results obtained were pretty similar to those obtained from specification (1). Firstly, we have identified again the *two break points* though within a somewhat broader range when compared with the points found in specification (1) but still covering the mid-phase of reforming process. New breaks emerge at the level of the reform index of 2.25 and 2.96 in terms of averaged EBRD indices values or 41.67% and 65.33% of total reforms completion in percentage points. All other results are presented in the *Table 2*.

Table 2. Structural breaks in the growth model with overall reform index (Sample: 1991-2007)
Two break-points: 2.25 (37.5%) and 2.96 (58.8%)

A: Index range	Full sample (A1)			(Min; 2.25) (A2)			(2.25; 2.96) (A3)			(2.96; Max) (A4)		
Intercept	-0.89		(2.381)	-13.557	**	(9.553)	-1.828		(7.638)	0.795		(3.124)
Inflation (log, lagged)	-4.113	***	(0.490)	-6.580	***	(1.501)	-4.666	***	(0.772)	-0.119		(0.540)
IC1	1.704	***	(0.342)	3.298	***	(1.310)	1.146	**	(0.495)	2.054	***	(0.298)
Reform index (lagged)	**2.336**	***	(0.586)	**12.820**	***	(4.128)	**3.229**		(2.471)	**1.939**	**	(0.854)
Industry	3.537		(0.042)	0.083		(0.135)	0.150	**	(0.071)	-0.026		(0.051)
Trade balance	0.032		(0.024)	-0.042		(0.037)	0.074	**	(0.038)	-0.031		(0.035)
R^2	0.4206			0.527			0.369			0.351		
F-stat (prob)	54.1626		(0.000)	22.285		(0.000)	14.715		(0.000)	14.624		(0.000)
N	379			106			132			141		

Note: Standard errors are in parentheses. Significant levels are indicated as 1% (***), 5% (**) and 10% (*).

Looking at the results we may realise (even in a more comprehensive way than before) how the one only model of growth that covers the entire period observed can be misleading (A1). It mixes up quite different growth patterns that emerge during the reforming process or more precisely, it mixes data from different models of growth. It is also remarkable that the regression for the entire sample (and period, panel A1) points out the three only significant factors that affect growth rate – inflation, initial conditions and reform index, just as in our specification (1). Moreover, the results contain a specific *caveat* that is in line with our intuitive reasoning: a structural issue like the share of industrial sector in country's output is insignificant that is, irrelevant for growth as it is the trade balance of a country. In other words, this clearly suggests that neither industrial policy nor development strategy is needed for transition economies, which was eventually found as a wrong proposition during the crisis.

However, looking at the panels (A2), (A3) and (A4) we may realise that the impact of various factors evidently *varies* in different periods of transition. The results are fairly similar to those obtained in our analysis of the specification (1). In the first period (EBRD index below 2.25; panel A2) inflation, initial conditions and reforms are highly significant. Expectedly, inflation strongly depresses while reforms do firmly support growth (relatively high corresponding coefficients). The absence of any significant effect related to industrial output share and trade balance could be understood as a result of initial restructuring of the economies observed.

Between the two breaks (2.25 < EBRD index > 2.96; panel A3) the pattern of growth considerably changes. As in the specification (1) *reforms become insignificant* while initial condition *continue* to affect growth. Macroeconomic stability as represented by a low inflation rate remains important (still with a high coefficient) and smaller trade deficits (or higher surpluses) related to the GDP appear to be an important and *positive* factor of growth. An essential new development is that the share of industrial output becomes significant and *positively* affects growth rates. In our view this fact could be understood in a broader sense as

if it emphasises the importance of tradable goods production which can be vital when a newly opened economy enters foreign markets.

The results presented contain an important message for further developments. It appears that the new growth pattern set up *in the middle of the reforming process* – that is based upon the results in international trade, industrial output, continued disinflation policies and/or macroeconomic stabilisation and yet affected by initial and inherited conditions specific for each country – undoubtedly requires a new policy approach. It seems self-evident that in this phase of transition reforms a new *development policy* and a suitable *growth strategy* for each country should be promoted.

However, this kind of reasoning was pretty neglected in transition schemes as were the changes in development patterns which occur within transition economies. It was broadly believed that spontaneous development driven by market oriented reforms should be sufficient and should lead these countries toward a desirable track of economic performance. The results of our last panel that includes more advanced reformers (EBRD index above 2.96; panel A4) show that in general they did not establish any specific growth strategies. The only significant growth factors are reform index adding to growth remarkably less than before (low coefficient) and non-expectedly, initial conditions with an increased effect (higher coefficient than in the preceding period). Inflation rate is non-significant though this could result from relatively low inflation rates and little differences across the sample. However, structural variable – industrial output share – and balance in international trade become insignificant and/or unimportant regarding growth. Moreover, the fact that the two variables have *negative sign* indicates a surprising outcome: higher industrial output share could be unfavourable for growth while import oriented trade might be encouraging.

These results resemble to a synthesised picture of a growth model – so frequently, though lately criticised during the global crisis – that is based upon imports, local consumption increase and correspondingly, on foreign savings inflows followed by a structural switch towards non-tradable services predominantly oriented at local markets (finance, retail, telecommunications and alike). In fact, such an outcome is not that unexpected but has been blurred by one-sided recommendations on transition speed, market forces and their optimising power. This was probably why the disappointing effects of such a model have been recognised lately that is, during the global crisis.

4. THE EFFECTS OF GLOBAL ECONOMIC CRISIS

In order to capture the effects of global crisis we have extended the period observed to 2009. Using again our specification (2) we wondered what could be changed in our findings when the critical period of 2008-09 came under consideration. The results are presented in *Table 3*.

Table 3. Structural breaks in the growth model with overall reform index (Sample: 1991-2009)
Two break-points: 2.33 (39.9 %) and 2.92 (57.6%)

A: Index range	Full sample (A1)			(Min; 2.33) (A2)			(2.33; 2.92) (A3)			(2.92; Max) (A4)		
Intercept	2.441		(2.448)	-11.444	**	(5.414)	-2.382		(8.965)	13.383	***	(4.528)
Inflation (log, lagged)	-4.732	***	(0.520)	-6.434	***	(0.891)	-4.574	***	(0.840)	-2.862	***	(0.903)
IC1	2.004	***	(0.353)	3.049	***	(0.832)	1.303	**	(0.557)	0.796	*	(0.424)
Reform index (lagged)	**2.011**	***	**(0.599)**	**11.662**	***	**(1.946)**	**3.185**		(3.025)	**-3.862**	***	(1.253)
Industry	0.045		(0.044)	0.064		(0.083)	0.163	**	(0.077)	0.234	***	(0.073)
Trade balance	0.014		(0.024)	-0.033		(0.040)	0.053		(0.040)	-0.100	**	(0.041)
R^2	0.335			0.519			0.353			0.153		
F-stat (verovatnoća)	41.083		(0.000)	23.553		(0.000)	11.797		(0.000)	6.4737		(0.000)
N	414			115			114			185		

Note: Standard errors are in parentheses. Significant levels are indicated as 1% (***), 5% (**) and 10% (*).

It is easy to conclude that the results obtained do not much differ when compared with those from *Table 2* except for the panel (A4). Again, we find the two break points which are very close to those identified before (the range is only slightly narrowed: 2.33 – 2.92) and only in the panel (A3) we get trade balance variable outside the confidence interval but with an expected sign.

On the other hand, the panel (A4) exhibits numerous alterations in regard to the growth pattern that was applicable until 2007. These changes have been dominantly influenced by the crisis.[7] It is important to point out that *all* variables from our specification (2) proved significant for the first time in our analyses but the impact of some variables has switched in an unexpected way.

Firstly, the reform index appears *negative* indicating that the most advanced economies in terms of reforms have suffered more concerning their growth. Moreover, the coefficient associated with the reform variable is twice as high as the corresponding (but positive) one from *Table 2*. This means that over-accelerated reforms that could have some positive impact in "normal" times were paid by rather high growth losses during the crisis.

Secondly, the growth rates in countries with higher industrial output shares appear to be more resistant under the crisis, which points at the importance of neglected industrial policy for transition economies. Further on, there is again a significant impact of disinflation policies and/or stable economic environment within a country that was missing in the reigning pattern until 2007.

Finally, there is a somewhat confusing result regarding trade balance indicating that countries with higher deficits (and/or lower surpluses) will have higher growth rates. However, this can be attributed to contractions of global aggregate demand that strike harder more exporting countries. Nonetheless, this can be also an effect of export and import structure, trade partners and overall openness of the countries with higher ratio of trade deficit to GDP which deserves a further study.

[7] The panel (A4) of *Table 3* captures more units of observation than in *Table 2*. This means that more countries have entered the sample provided they have passed the reform index of 2.92. Thus, their specific data could also change the result obtained. However, this change in the sample predominantly happens over the period 2008-09 indicating that the crisis effects are primarily responsible for the resulting pattern of growth.

At last one may remark that initial conditions still affect growth but for the first time their significance and impact are decreasing over time which is in line with the first predictions of transition analysts though under very specific and unpredicted conditions.

After the analyses conducted we may conclude that growth policies that predominantly rely on spontaneous effects of transition reforms themselves seem to be misleading. Moreover, they can deepen negative effects of external shocks in transition economies. Our analyses show that reforms do remarkably support economic growth, together with macroeconomic stabilisation, but primarily during the initial period of reform implementation. However, our further analyses, when translated from the cold logic of figures into common economic terms, do suggest an essential need of a country in the middle of transition to design and pursue its own development policy and a suitable growth strategy particularly in regard to its inherited conditions. These policies should comprise macro stabilisation and be followed by a corresponding industrial policy that would influence production, foreign trade and growth in a longer term. When this is missing the country will become extremely vulnerable if faced with economic turbulences and will suffer high costs in terms of lost growth.

5. CROATIA AND SERBIA: A COMPARATIVE VIEW

Following our empirical findings we shall try to apply our results to the two Western Balkans countries – Croatia and Serbia – and find out whether some of the factors identified could explain their unsatisfactory economic performance in recent years (particularly after the global crisis has emerged), which raised a notable public discontent. The issue could be particularly interesting since the two countries differ by their transition start and reforming progress achieved but still can exhibit similar approach regarding the growth models they employed.

Firstly, we define the period when the two countries have reached break points detected in the analyses of our baseline models. According to the specifications (1) and (2) the first reforms related break emerged in Croatia during 1994 while the second break was reached in the year 1996 but the period could be prolonged for specification (2) until 1998 due to a negligible increase of its reform index. The Serbian economy, after a decisive political change in October 2000, reached the first break in 2002 according to both specifications while came to the second point in 2008 according to the baseline model (1) and was just below the second break from the specification (2) by the end of 2009. In *Table 4* we present some relevant data for both countries. The data for the middle phase of reforms are lightly shaded whereas those from pre-reform period are darker shaded for better orientation[8].

[8] Note that transition policies were re-established in Serbia (after the year 1990) at the end of 2000.

Table 4. Transition and policy indicators for Croatia and Serbia (1989-2009)

	CROATIA						SERBIA					
year	GDPg	Inflation	log(inf)	EBRD	Industry	TB/GDP	GDPg	Inflation	log(inf)	EBRD	Industry	TB/GDP
1989	-1.6			1.555556			1.3			1.51889		
1990	-7.1	609.5	6.4126	1.666667		-4.70709	-7.9			1.63000		
1991	-21.1	123	4.8122	1.777778		-3.21733	-11.6			1.63000		
1992	-11.7	665.5	6.5005	1.925556		-3.18826	-27.9			1.66667		
1993	-8.0	1517.5	7.3248	2.147778		-6.93938	-30.8			1.66667		
1994	5.9	97.6	4.5809	2.593333		-8.69384	2.5	3.3	1.1939225	1.44444		
1995	6.8	2	0.6931	2.704444	21.46	-14.5898	6.1	78.6	4.3643717	1.44444		
1996	5.8	3.5	1.2528	2.963333	20.2	-14.9053	7.8	94.3	4.5464514	1.44444		-13.005
1997	6.8	3.6	1.2809	3.036667	20.39	-22.7689	10.1	18.3	2.9069011	1.48222	26.000	-10.531
1998	2.1	5.7	1.7405	3.036667	19.21	-16.11	1.9	30	3.4011974	1.44444	26.100	-11.594
1999	-1.5	4	1.3863	3.11	19.4	-14.2832	-18	41.1	3.7160081	1.44444	25.500	-8.7318
2000	3.0	4.6	1.5261	3.183333	19.62	-14.9755	5.2	70	4.2484952	1.48111	28.000	-22.598
2001	3.8	3.8	1.335	3.221111	19.05	-17.8946	5.1	91.8	4.5196123	1.85222	30.000	-20.243
2002	5.4	1.7	0.5306	3.296667	18.34	-21.3442	4.5	19.5	2.9704145	2.33333	24.253	-21.293
2003	5.0	1.8	0.5878	3.37	18.01	-23.3468	2.4	11.7	2.4595888	2.40667	23.199	-20.388
2004	4.2	2.1	0.7419	3.443333	18.55	-20.5097	9.3	10.1	2.3125354	2.44333	22.768	-27.424
2005	4.2	3.3	1.1939	3.443333	17.89	-21.0218	5.6	16.5	2.8033604	2.59222	21.809	-21.064
2006	4.7	3.2	1.1632	3.48	17.7	-21.3818	5.2	12.7	2.541602	2.70444	21.827	-21.152
2007	5.5	2.9	1.0647	3.517778	17.59	-22.0635	6.9	6.5	1.8718022	2.74111	21.389	-22.575
2008	2.4	6.1	1.8083	3.517778	17.5	-23.0137	5.5	12.4	2.5176965	2.85556	20.732	-23.04
2009	-5.8	2.5	0.9163	3.554444	16.7	-16.297	-3.1	8.1	2.0918641	2.88889	18.598	-15.493

Source: EBRD, 2011 and authors' calculations

Studying the data presented one may remark that both countries exhibit many similar features vis-à-vis variables studied in our previous analyses. However, similar moves of these indicators are also well known from other transition schemes. In general, both countries have followed recommended patterns relying upon spontaneous effects of reforms and demonstrate no remarkable changes in growth patterns all over the reforming process.

In the middle phase of reforms Croatia exhibited rising inflation (after sharp disinflation in 1995), trade deficit relative to GDP was increasing (until 1999) and the share of industrial output was decreasing (until 1998). All these indicators moved contrary to the growth pattern identified in *Table 2*, panel (A3). A positive switch in trade balance was apparently a temporary phenomenon rather than an establishment of a new policy (after the year 2000 trade deficit to GDP ratio was steadily increasing). On the other hand reform index was increasing but – as have been explained above – it should have no significant effect on growth in that phase of reforming process..

In the following period it is remarkable that reform index (EBRD average) was moderately developing which is in line with the model from *Table 2*, panel (A4). The other indicators, which looked as irrelevant for growth in the panel, moved in the following way: inflation was kept at a relatively low level (below 4% in the period 2001-07) but industrial output share was steadily *decreasing* and trade deficit to GDP ratio *increasing* all over the period until 2007 (particularly from 2000 onwards, except for 2004). This is a sign of no specific development policy and is pointing at an unfavourable outcome that will become evident in later years. Actually, this kind of policy indicates harder effects under the global crisis when compared with the growth pattern detected in *Table 3*, panel (A4).

Regarding Serbian case it is remarkable that after a bright re-start of reforms in 2001-02 and disinflation in 2001-04 in the initial phase of renewed transition – that corresponds to the pattern from *Table 2*, panel (A2) – there were less favourable developments. Firstly, Serbian economy exhibited a variable but predominantly high, two-digit inflation rate; secondly, industrial output share was persistently *declining* and finally, trade deficit to GDP ratio was *high* with an *increasing tendency*. Similarly to Croatian experience there were no signs of any specific policy or change in the growth pattern that could meet the identified growth requirements at this stage of reforms. On the other hand, the reform index was rising but surprisingly slowly which prolonged this mid-reform period in Serbia even until 2009-10.

The depicted performance and economic practices of the two countries have produced fairly predictable reaction to the impact of global crisis. Examining these reactions in light of the findings presented in *Table 3*, panel (A4), we may confirm that Croatia as a faster reformer and a country with smaller share of industrial output suffered harder decline in growth rates. On the other hand, Serbian growth decline was somewhat smaller in line with poorer transition progress and higher industrial share in country's output but was additionally deepened due to higher inflation (trade deficits to GDP ratio of the two countries were approximately equal). Hence, both outcomes stay in full correspondence with the growth patterns detected throughout our analyses and in particular when effects of the crisis were included.

Naturally, there can be many other factors that have added to the present state of the two economies but stayed outside our analysis. However, the principal objective of our work was to draw attention to the fact that inappropriate growth patterns or no specified policies in regard to development and growth in a transition economy could produce upsetting effects and unstable economic structure. From that standpoint the example of the two neighbouring countries may only confirm how transition economies or at least their major part, were omitting a proper time for policy change and reform adjustments to their own specific conditions. Consequently, this may explain why overall results of transition were poorer than expected in terms of economic performance and why a search for a new growth model has suddenly emerged during the crisis.

6. CONCLUSIONS

In the analyses conducted it was found that development of transition economies cannot be founded on one and unique model of growth. At the various levels of reforming process the corresponding pattern of growth differs and needs policy adjustments. Definitely it cannot exclusively and/or predominantly rely on fast reforms implementation and its spontaneous effects. Moreover, it was demonstrated that a model of growth for the entire period of transition, even when statistically could seem significant, might be misleading since it mixes up data from different growth patterns.

By identifying and analysing reforms related breaks it was shown that a particularly appealing period for policy adjustment emerges at the medium level of transition completion. At this stage the inherited conditions and policy variables overpower the initial positive impact on growth that reforms could provide. Consequently, a comprehensive analysis of policy choices should be recommended and new development policies and proper industrial policy need to be designed. These policies should certainly be in accordance with local circumstances thus, positively affecting production, trade and growth in a longer run.

When data that comprise the global crisis period were included in the analysis it appeared that many important factors of growth were neglected in previously reigning transition policies. This can explain why the idea about the necessity of a new growth model and even new reforms for transition economies has emerged only recently but also points at the time missed for proper action and subsequent costs in terms of growth losses and suppressed prospects for transition economies.

Finally, studying examples of Croatia and Serbia it was shown that both countries failed to establish their own development policies and were following only the accustomed patterns albeit broadly recommended ones for transition countries. Moreover, it was shown that the consequences of the global crisis in the two countries were highly correspondent with the analyses conducted and therefore predictable.

BIBLIOGRAPHY

Andrews, D. (1993): **Tests for Parameter Instability and Structural Change with Unknown Change Point**, ***Econometrica***, 61(4): 821-856.

Babetskii, I. and N. F. Campos (2007): **Does reform work? An econometric examination of the reform-growth puzzle**, Bank of Finland, Institute for Economies in Transition,

BOFIT Discussion Papers no. 13

Bai, J. (1997): **Estimation of a Change Point in Multiple Regression Models,** ***Review of Economics and Statistics*** 79 (4): 551-563.

Bai, J. and P. Perron (1998): **Estimating and Testing Linear Models with Multiple Structural Changes**, ***Econometrica***, 66 (1): 47-78.

Bai, J. and P. Perron (2003): **Critical values for multiple structural change models,** ***Econometrics Journal***, 6: 72-78.

Berglöf, E. (2010): **Foreword**, in: EBRD, ***Transition Report 2010***, EBRD, London.

Cerovic, B. and A. Nojkovic (2009): **Transition and Growth: What Was Taught and What Happened,** ***Economic Annals***, LIV (183): 7-31.

De Melo, M., C. Denizer, A. Gelb and S. Tenev (2001): **Circumstances and choice: the role of initial conditions and policies in transition economies,** ***World Bank Economic Review***, 15 (1): 1-31.

Dragutinovic Mitrovic, R. and O. Ivancev (2010): **Driving Forces of Economic Growth in the Second Decade of transition,** ***Economic Annals***, LV (185): 7-32.

EBRD (2011), **Macroeconomic indicators**, http://www.ebrd.com/pages/research/economics/data/macro.shtml; [Accessed 12.4.2011]

Falcetti, E., T. Lysenko and P. Sanfey, (2006): **Reforms and growth in transition: Re-examining the evidence, *Journal of Comparative Economics***, 34 (3): 421-445.

Fidrmuc, J. and A. Tichit (2007): **Mind the Break! Accounting for Changing Patterns of Growth during Transition**, Centre for Economic Development and Institutions (CEDI), Brunel University, CEDI Discussion Paper, Series 07-06

Fischer, S. Sahay, R. and Vegh, C.A. (1996): **Stabilization and Growth in Transition Economies: The Early Experience, *The Journal of Economic Perspectives***, 10 (2): 45-66

Godoy, S. and J. E. Stiglitz (2007): **Growth, Initial Conditions, Law and Speed of Privatization in Transition Countries: 11 Years Later**, in Estrin, S; G. W. Kolodko, M. Uvalic, eds. ***Transition and Beyond***, Palgrave Macmillan, Basingstoke, New York.

Hansen, B. E. (1997) **Approximate asymptotic P values for structural change tests, *Journal of Economics and Business Statistics,*** 15: 60–67

Mickiewicz, T. (2010): ***Economics of Institutional Change***, Second edition, Palgrave Macmillan, Basingstoke, New York.

Nojkovic, A. and B. Cerovic (2010): **Growth models and reforms related breaks in transition economies**, 11th bi-annual EACES conference: *Comparing Responses To Global Instability*, Tartu, Estonia, 26-28 Aug. 2010 http://ec.ut.ee/eaces2010/artiklid/Nojkovic%20Cerovic-%20Growth%20models%20and%20reforms.pdf

Sachs, J. D. (1996): **The Transition at Mid Decade, *American. Economic Review, Papers & Proceedings*** 86**,** 2 May: 128 –133

Selowski, M. and R. Martin (1997): **Policy Performance and Output Growth in Transition Economies, *American Economic Review***, 87 (2): 349-353

MACROECONOMIC STRESS TESTING OF CROATIAN BANKING SYSTEM

Boris Cota
Faculty of Economics, University of Zagreb
J.F. Kennedy Sq. 6, 10 000 Zagreb, Croatia
E-mail: bcota@efzg.hr

Željko Bogdan
Faculty of Economics, University of Zagreb
J.F. Kennedy Sq. 6, 10 000 Zagreb, Croatia
E-mail: zbogdan@efzg.hr

Lucija Rogić
Faculty of Economics, University of Zagreb
J.F. Kennedy Sq. 6, 10 000 Zagreb, Croatia
E-mail: lrogic@efzg.hr

Keywords: *stress testing, nonperforming loans ratio, VEC model,*
JEL classification: C32, E44

ABSTRACT

Many macroeconomic researches have focused on assessing the strengths and vulnerabilities of financial systems since financial crises in the 1990s and 2000s. Nowadays, macroeconomic stress tests have become an important tool for financial stability analysis in many central banks. The most extensive appliance of macroeconomic stress testing was provided by the IMF as a part of its Financial System Assessment Programs. In addition, in our research we try to find out how the Croatian banking sector reacts to macroeconomic shocks. We present an application of macro stress testing to the Croatian banking system.

Following the basic assumption that the deterioration of macroeconomic environment, which makes the single banks fail and cause chain reactions, will be expressed in a general worsening of balance sheet of the aggregated banking sector, we use nonperforming loans ratio as a measure for credit risk.

The empirical analysis is based on VEC model using quarterly data for period between 2002Q2 and 2010Q2. Variables used in mode are nonperforming loans ratio, economic growth, exchange rate and interest rate. Results confirm that both GDP growth and HC (Kuna – Swiss franc exchange rate) explain the variations in nonperforming loans ratio, although (as expected) the variations in variables are mainly explained by their own shocks. Other variables (interest rate, kuna – euro exchange rate) explain small share of variations in nonperforming loans ratio.

1. INTRODUCTION

At the end of 1980s and the beginning of 1990s there were problems with high inflation in Croatia. Stabilization program in first half of 1990s was successful in achieving price stability. When hyperinflation is eliminated, in Croatia is introduced a new own currency – kuna which is successful only in first money's task – means of payments, but it isn't in other two (measure of value and reserve of value) probably as a consequence of high inflation in recent history. So many deposits in Croatian banks are held in foreign currency (firstly in German mark, and then in Euros).

As a transition economy and EU member candidate, Croatia tries to achieve convergence with other EU countries. Since the domestic savings is insufficient, from late 1990s there is necessitate for foreign funds to finance domestic investments. Expectations about higher future economic growth as well as higher interest rate than in EU created interest among investors for investments in Croatian banking system (CNB, 2006). At another side banking system in Croatia was inefficient, so there were want for links with foreign strategic partners to achieve efficiency, technological development and better corporate governance (Gardó & Martin, 2010). During 1999 and 2000 Croatian banking system is almost all privatized. After 2002 banks increase their credit activity using cheaper foreign funds, especially funds from their foreign owners which strongly and continuously increase external debt – GDP ratio. Another explanation for credits in foreign currency is fact that main part of their liabilities is deposits denominated in foreign currency. It creates interest and foreign exchange risk which is transferred to clients by banks in stable period.

Recent financial and economic crisis create factors which could disturb stability of Croatian banking system. Higher world interest rate and less foreign demand for Croatian export decreases domestic production and deteriorate labor market conditions. Both of them contribute to the increasing nonperforming loans ratio, which is used as indicator of credit risk in this paper. Also unfavorable movements of exchange rates increase possibility of loan defaults since about 2/3 of total loans are denominated or indexed in foreign currencies. The main aim of this paper is to analyze how these factors influence vulnerability of banking system in Croatia. We estimated vector error correction (VEC) model which confirms that both GDP growth and HC (Kuna – Swiss franc exchange rate) explain the variations in nonperforming loans ratio, although (as expected) the variations in variables are mainly explained by their own shocks. Other variables (interest rate, HE – kuna – euro exchange rate) have very small effect on nonperforming loans ratio.

The paper contributes to the existing macro stress testing in Croatia in its methodology. To our information, it is the first one to implement VEC models in stress testing of Croatian banking system. Organization of the paper is as follows: the next section summarizes the stress testing approaches and section 3 briefly reviews recent literature. In section 4 is described current situation in Croatian banking system. Section 5 presents the empirical model and obtained results regarding the Croatian banking system. Section 6 summarizes and concludes our findings.

2. STRESS TESTING APPROACHES

Financial stability is usually defined as stability of financial system of one country. Developed and stabile financial system is precondition for efficient transmission of monetary policy measures on all economic sectors. Important tools in financial stability assessment are

macroeconomic stress tests which are implemented using two approaches: top down, and bottom-up[1].

The top-down approach is used in the analysis of the shock effects on the banking system as a whole. This can be done using individual bank data or aggregated banking system portfolio. The advantage of this approach is that the aggregation of the results is more meaningful as the individual components are more comparable and the methodology is the same, but the disadvantage is that it could overlook the concentration of exposures at the level of individual institutions and linkages among the institutions[2]. On the other hand, the bottom–up approach estimates the impact of macroeconomic shocks on individual portfolios.

In this paper we employed the top-down approach and performed stress testing on data which were aggregated by Croatian National Bank using aggregation of portfolio and balance sheet data from individual financial institutions. The financial soundness indicator used in this paper is the ratio of nonperforming loans to total gross loans (NPL ratio) as an indicator of asset quality. The stress testing of the banking system in Croatia to macroeconomic shocks is applied using vector error correction model (VEC). Similar methodology is also used by many of authors namely: Hoggarth, Logan and Zicchino (2005), Hoggarth, Sørensen and Zicchino (2005), Filosa (2008), Canakci (2008), Jakubík and Heřmánek (2008), Zeman and Jurča (2008), Dovern, Meier and Vilsmeier (2010). In next part of this paper the results of these articles are shortly presented.

3. EMPIRICAL LITERATURE REVIEW

Hoggarth, Logan, and Zicchino (2005) performed stress testing using VAR approach in analyzing the resilience of the UK banking system as the part of the IMF Financial Sector Assessment Program (FSAP). Using bottom–up and top–down approach they obtained that the estimated macroeconomic shocks effects on UK banks were quite small. The VAR model for UK banks estimated by Hoggarth, Sørensen and Zicchino (2005) shows a significant and negative relation between variables output gap and write-offs on aggregate loans, and between inflation and write-offs on aggregate loans. Authors found out that aggregate write-offs increase significantly within six quarters after unexpected adverse shocks to the output gap, but only six to twelve quarters after an unexpected increase in inflation.

Filosa (2008) explored the sensitivity of Italian banking system to macroeconomic shocks applying VAR methodology. His results showed default rate rises with a decrease in real activity, although the solidity of Italian banks could be disturbed only in a very strong recession.

Canakci (2008) concludes using historical decomposition, Monte Carlo techniques and Cholesky decomposition that the measures of banking sector distress (z-score and return on equity) provide very good prediction in assessing the Turkish banking system as a whole.

Zeman and Jurča (2008) showed significant influence of economic growth, interest rate on nonperforming loans ratio using least ordinary squares. They confirm using VEC model that a

[1] More about stress testing approaches see in: (Čihák, 2004; Čihák, 2007; Quagliariello, 2009).
[2] Another approach uses individual stress tests conducted by financial institutions' risk management teams and adds up the results to obtain an aggregate stress test results which are sometimes difficult to implement (Kalirai & Schleicher, 2002).

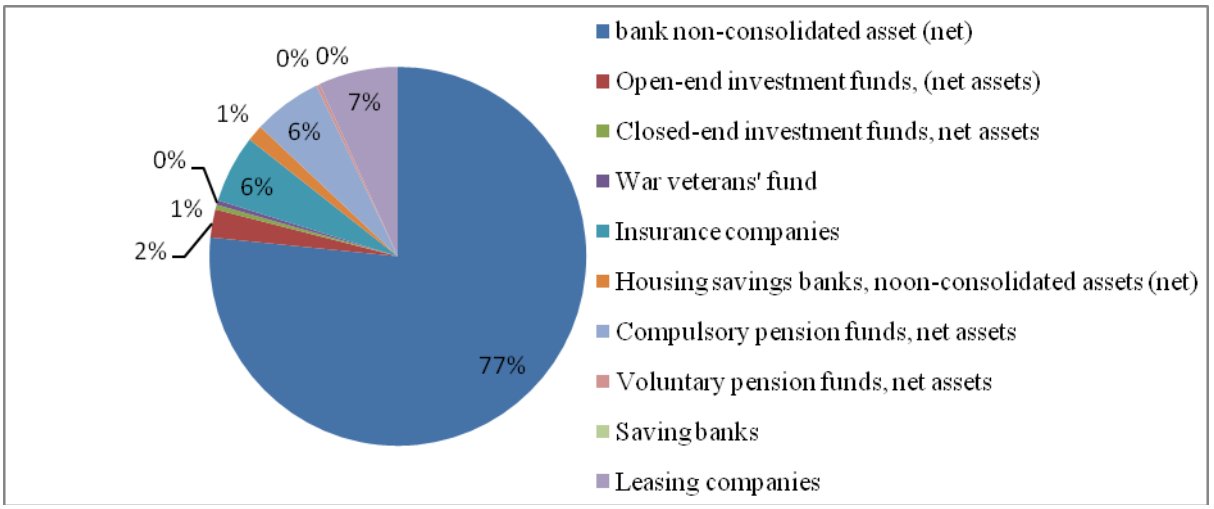
temporary and significant slowdown of the GDP growth would not substantially threaten the Slovak banking system when monetary policy is adequate. Monetary policy would have positive impact on banking sector through interest rate channel. Results also show that shocks in GDP growth without relevant response in other factors could be more dangerous.

Jakubík and Heřmánek (2008) suggest that previous tests of aggregate credit portfolios be supplemented with credit growth model. Credit growth is modeled applying VEC model while one-factor Merton models are implemented in default rates modeling. Czech National Bank used this framework for scenarios as: external and internal demand shock as well sudden appreciation of the exchange rate with negative supply shock. These shocks have a stronger effect on credit growth than on nonperforming loans. The results show that the banking system as a whole is resilient to the effects of macroeconomic tests under consideration including the alternative credit risk tests.

Dovern, Meier and Vilsmeier (2010) analyzed the impact of three structural shocks (restrictive monetary policy shock, negative demand shock and negative supply shock) to the real economy and the banking system in Germany applying VAR methodology. Their results suggest that the stability of the German banking system is strongly affected by monetary policy shocks which can be explained by the fact that adverse monetary shocks move interest rates up, loans for investment and consumption become expensive, GDP is lower and inflation decreases. Negative demand shocks do not have clear-cut effect on the German banking system and adverse supply shock effects on return on equity and write-offs are insignificant for all horizons.

4. MACROECONOMIC ENVIRONMENT OF CROATIAN FINANCIAL SYSTEM

Figure 1: Structure of Financial Sector in Croatia 2009



Source: Data are from: (IRC_expert, 2010).

Figure 1 shows that banks have dominant role in the Croatian financial system. Ratio of banks' net non-consolidated asset in total asset of financial sector in 2009 is 77 %. Leasing companies (7 %), obligatory pension funds and insurance companies (both about 6%) have much lesser portion of total asset of overall financial sector. Therefore financial stability in Croatia depends at much extent about stability of banking sector. So we firstly explain current situation in Croatian banking system.

About half of all Croatian banks have been in foreign ownership in 2009, but foreign owners have about 90% of assets of overall banking system. That is not only characteristic in the case of Croatia since there were inefficiencies and distortions in banking systems in majority of Central, Eastern and South Eastern European Countries which created a need for more radical reform approach (Gardó & Martin, 2010). So authorities in most countries took the decision to open up their banking sectors to foreign strategic investors to attract missing know-how, technology and capital, as well as to raise banks' corporate governance, efficiency and competitiveness. Financial stability in region benefited of presence foreign banks given the fact that credit markets are stabilized since their lending activities are more resilient to local stocks than those of domestic banks' and they have easier access to cross-border lending which stabilizes credit market (IRC_expert, 2010). At another side it also increased a risk of exchange rate changes and risk of financial contagion from potential crises from maternal countries of Croatian banks' owners.

In table 1 are main indicators of Croatian banking system. Some of them are indicators activity (commercial bank asset to GDP ratio), profitability (ROA, ROE), solvency (capital adequacy ratio) and vulnerability (gross external debt, nonperforming loans ratio, foreign currency credit) which could be influenced by macroeconomic factors and will be explained in this chapter. Main aim of this part of paper is an explanation of macroeconomic effects on financial stability in Republic of Croatia during the current economic crisis[3].

Activity of Croatian banks (measured by commercial bank asset –row 1) rises between 2002 and 2007. At the same time this is also a period of higher economic activity and ratio of credit to GDP continuously rises. Croatia as a transition country and EU candidate had higher rate of economic growth and higher interest rate than EU countries and domestic banks with new owner influence increases credit volume as a result of interest rate differential and expected higher growth (CNB, 2006). But during observed period the highest share of loans is denominated in foreign currency (more than 70% as table 1 shows – row 11). The highest share of credit is related to households and domestic enterprises (2009 about 57% of total asset). At the same time these sectors are the main owners of deposits (about 50% of total liabilities, but with downsizing trend). While the ratio of households' and enterprises' deposits decreases, loans to deposits ratio increases, indicating that banks are more focused in accumulating funds as debtors on world financial markets, than accumulating deposits by household and enterprises. As a consequence banks became the main creator of short-term external debt, and one of main creators of overall external debt.

Since overall external debt (as a percentage of GDP- row 2) rises, Croatian economy is vulnerable to external factors. During 2008 there is falling of demand for risk placements among foreign investors which increased costs of indebtedness for emerging economies including Croatia too. In according with economic theory that must imply increasing of domestic interest rate, decreasing of demand for credit by companies and households, less external indebtedness for banks and companies, and less a reduced amount of overall external debt. After a transmission of financial crisis into the foreign real sector, there is also decreasing of demand for domestic export which reduces domestic income and consumption. As a consequence domestic production, employment, wages, import of intermediary goods, and investments also must be reduced.

[3] Our focus is to explain current financial and economic crisis and presentation of monetary policy reaction in Croatia. The earliest period of monetary policy (1994 - 2003) is clarified in (Lang & Krznar, 2004).

Table 1: Some financial indicators of Croatian Banking System

Indicator	Interpretation	Measure	2002	2003	2004	2005	2006	2007	2008	2009
Commercial bank asset	Activity of banking sector	% of GDP	83.6	89.9	93.4	98.5	106.4	109.8	108.1	114.2
Current account balance	Balance of payments pressure	% of GDP		-6.4	-4.5	-5.6	-7.0	-7.6	-9.3	-5.3
Gross external debt	Capacity to repay external liabilities	% of GDP		66.3	70	72.1	74.9	76.9	85.1	98.2
Claims on domestic household and enterprises sector		% of total assets	49.2	49.2	49.8	52.4	56.4	57.3	59.9	57.4
Deposits of households and enterprises		% of total liabilities	57.7	54.8	53	51.1	51	51.7	50.9	49.9
ROA	Profitability of banking sector	% before tax	1.58	1.6	1.7	1.6	1.5	1.6	1.6	1.2
ROE	Profitability of banking sector	% after tax	13.73	14.1	16.1	15	12.4	10.9	9.9	6.7
Net interest margin	Efficiency of banking sector	% of average interest bearing assets	4.9	4.9	4.5	4.2	3.8	3.7	3.8	3.4
Loan to deposit ratio	whether credit grows faster than deposits	%	74.2	76.7	80.7	88.5	92.5	92.8	99.5	98.3
Nonperforming loans ratio	Pressure nonperforming loan on banking sector balances	% of total loans	10.2	8.9	7.5	6.2	5.2	4.8	4.9	7.8
Foreign currency credit	Currency mismatch of bank clients and potential non-performing ratio if kuna depreciate	% of total credit	79.8	74.2	75.7	77.4	71.5	61.4	65.4	72.7
Foreign currency deposit			88.4	87.5	87.3	86.4	76.3	66.8	68.5	76.1
Capital adequacy ratio	Solvency of banking system	%	16.6	15.7	14.1	13.5	13.2	15.4	14.2	15.8
Net interest income		% of average assets	3.30	3.4	3.0	2.9	2.7	2.6	2.8	2.5

Source: CNB

Although theory assumes decreasing of overall external debt, reality shows that external indebtedness of companies (as a percentage of GDP) is rising, but in lesser extent, since there is also increasing of fiscal demand for external funds keep in mind that government consumption remains high although fiscal revenues decreased as a result of lesser economic activity. As a consequence external debt – GDP ratio is higher considering that GDP decreases too. Today external debt is approximately equal Croatian GDP.

Since domestic deposits are primarily denominated in foreign currency (row 12 – more than 2/3 of overall deposits are denominated or indexed in foreign currency), in small open economy like Croatia with higher portion of foreign currency credits, and high gross external debt, monetary policy must be based on nominal exchange rate (kuna – euro) as a nominal anchor since[4]. High percent of credits denominated or indexed in foreign currency increases vulnerability of Croatian economy in case of downward pressure on kuna. However, that risk is relaxed by the fact that ratio of deposits in foreign currency to total deposits is mainly also higher than 70%. During pre-crisis period CNB restrained credit activity with set of instruments. In the base of CNB's regulatory framework are four different instruments: reserve requirement, Minimum Required Amount of Foreign Currency Claims, Marginal reserve requirement and Obligatory CNB Bills (Bokan, Grgurić, Krznar, & Lang, 2010). In pre-crisis times obligatory reserve rate was very high (about 17%). Minimum Required Amount of Foreign Currency Claims is applied since commercial banks must have portion of foreign currency liabilities as liquid foreign currency funds since CNB cannot create foreign currency. Marginal reserve requirement is introduced and applied by CNB between 2005 and 2008 to burden foreign indebtedness of commercial banks[5]. Last instrument are Obligatory CNB Bills (or bank credit growth reserve) which are used by CNB to slow credit growth in Croatia. Galac (2010) finds that "tightening of prudential measures in conjunction with the marginal reserve requirement on banks' foreign borrowing to have been particularly useful for building capital buffers". Also he finds that "introduction of foreign currency liquid reserve requirement was not particular instrumental in boosting the level of foreign currency liquid reserves but it shifted composition of these reserves to a more liquid form and at the same time allowed a more autonomous conduct of monetary policy along the path". Some of measures which are unimportant for liquidity buffer according Galac (2010) are Obligatory CNB Bills, and marginal reserve requirement[6].

Keep in mind that lesser economic activity in 2008 and 2009 decreases pressure to inflation, CNB's priorities could be changed to safeguarding exchange rate and financial stability. Reaction of monetary policy on financial crisis was restricted with constrained CNB's ability for countercyclical action and keeping stability of exchange rate at the same time (Bokan, Grgurić, Krznar, & Lang, 2010)[7]. At the beginning of crises there were rumors about problems of Italian banks which are owners of Croatian the most famous banks. As a result there is a savers' decreasing confidence into the Croatian banks and the withdrawing of their deposits. Broz, Buturac, Pavuna, Rašić- Bakarić, Slijepčević and Smilaj (2008) emphasize that this is first decreasing of money supply after September 1999 on year-to-year basis. It could be also since economy activity slowed during second part of 2008. So CNB initially decided to abolish marginal obligatory reserve to ease capital inflow into banking sector, and

[4] Some economies apply monetary policy of inflation targeting, but this is not feasible in Croatia since there financial market is undeveloped, and high level of eurisation (Žigman & Lovrinčević, 2005).
[5] History of this instrument is described in (CNB, 2006).
[6] As Galac (2010) states, marginal reserve requirement was more instrumental for building banks' capital buffers than in achieving its stated objective of reducing the rate growth of banks' foreign liabilities.
[7] In that paper are indentified eight actions taken by CNB between May 2008 and February 2010.

then (December 2008) decreased obligatory reserve rate from 17 to 14%. Last quarter in 2008 and first quarter in 2009 are period of high instability of interest rate and pressures on exchange rate. Since the decreased confidence of customers and enterprises and increasing demand of government and corporation to pay off their debt (IRC_expert, 2010), CNB had to prevent depreciation of kuna in January 2009 using inverted repo auctions and foreign exchange reserve selling, but overnight ZIBOR firstly increased to 25 percent and then decreased approximately to 10 percent. Also kuna share of maintenance of reserve requirement on foreign liabilities increased from 50 to 75 percent which also tightened liquidity of money market. Exchange rate depreciated again in February 2009 and CNB had to sell about 184.7 million euros which increased interest rates. Overnight ZIBOR was about 40 percent at the end of February (Broz, Buturac, Rašić-Bakarić, Slijepčević, Pavuna, & Smilaj, 2009). After that value of ZIBOR mainly wasn't higher than 10 percent. In February 2009 CNB decreased minimum required foreign exchange claims rate from 28.5 to 25, and soon from 25 to 20. This rate was 32% before May 2008, but then it is reduced to 28.5%. Its decreasing is important to enable foreign exchange liquidity for banks.

Decreasing inflow of foreign capital for Croatian banks and companies slowed investments in Croatia in second part of 2008. At same time Croatian export also decreases as a result of reducing foreign demand. As a consequence GDP falls in 2009 which also reduced employment and wages. Especially high slump in Croatian GDP growth was in first quarter of 2009 caused by investments decreasing as well as lack of consumer confidence and reduction of export. Crisis increased debt burden for households and enterprises which increases nonperforming loans as a percent of total loans (nonperforming loans ratio) since 2007, but it is important to emphasize that nonperforming loans (in absolute value) increases since 2006 (table 1 – row 10). Given the fact that credit activity of banks' raised before crisis, nonperforming loans ratio still diminishes between 2006 and 2008 (IRC_expert, 2010). As a consequence banks could apply credit rationing or increase interest rate. They decided to intensify credit conditions in addition to improve loan quality and grant loans to the clients with better loan ability. At the same time decreasing confidence of households and enterprises with unfavorable conditions on labor market cut loan demand (see: CNB (2010a, 2010b)). However, Čeh, Dumičić and Krznar (2011) confirmed that slumping of credit activity of banks between the end of 2008 and the end of 2009 cannot be explained by credit demand deficit, but with decreasing of credit supply. During the recession banks used credit rationing instead of higher interest rates. That credit market disequilibrium is corrected by decreasing of credit demand at the end of 2009 and the beginning of 2010.

While liabilities structure motivates banks to grant loans in foreign currency, it exhibits them to exchange rate risk. Moreover Croatian banking system is specific because banks overall credit exchange rate and interest rate risk transferred to clients when there are stable times (CNB, 2006). Between 2005 and 2007 credits in Swiss franc (CHF) were popular which increased its ratio from 5 (2005) to 27% (2008). Higher volatility of HRK/CHF than HRK/EURO made loans in franc less acceptable and in addition with and simplified conversion to credits in euro since CHF deposits are not available to banks decreases the ratio of credit in Swiss franc in total credits to 20% with decreasing trend (CNB, 2010a).

Although credit and currency risk for Croatian banking system remains high, its stability is satisfactory. Profitability of banks is less since interest revenue rises slowly given that credit conditions are intensified and credit demand is less (IRC_expert, 2010). At another side banks substitute more expensive foreign funds with cheaper domestic funds by increasing deposit rate (Bokan, Grgurić, Krznar, & Lang, 2010). As a result interest income decreases in

absolute and relative terms (table 1 – row 14). Other indicators of bank profitability (return on asset, return on equity) also decrease between 2004 and 2009 (rows 6 and 7). Despite that Croatian banking system is well capitalized with capital adequacy ratio of 15% (row 13), minimum required adequacy ratio is 12% which is determined by Croatian National Bank and enables to banks confrontation with operative and foreign exchange risk and higher shock absorption.

During the crisis CNB few times eased liquidity into the banking system. High liquidity as well as decreasing active interest rates and government's stimulations for enterprises financing enables higher activity of banks, but very high increasing of credit activity is unable because of unfavorable macroeconomic conditions (Broz, Buturac, Bakarić, Slijepčević, Pavuna, & Smilaj, 2010b). It also enables to government to get funds for financing its deficits (Broz, Buturac, Bakarić, Slijepčević, Pavuna, & Smilaj, 2010a)[8] but would also enable decreasing of external debt burden of banks and enterprises[9].

5. EMPIRICAL MODEL AND RESULTS

5.1 Methodology

In order to analyze the impact of macroeconomic variables on the banking sector in Croatia the VEC methodology is applied. The basic idea is that if there are economic time series that are integrated and of the same order (which means they are non-stationary), which are related (mainly through a theoretical framework), then to try to check whether it can be found the way to combine them together into a single series. If this is possible, then the series that exhibits this property is called co integrated. Consider the case of two variables Y_t and X_t which are integrated of the same order, for example order one. The general case is that every linear combination of those two variables will be again an I(1) process and therefore the results obtained by regressing Y_t on X_t will be spurious. However, there may be a case that these two variables are connected with a valid long-run relationship, and that the regression results are not spurious.

The results of stationarity tests showed that series are non-stationary, and that are integrated of order one. Taking that into consideration, econometric theory suggests use of VEC methodology. After determination of lag length, using Johansen (1998) procedure, we tested co integration to see number of co integration equations. After estimated VEC, long-run dynamic can be analyzed. Besides that, we are also interested in short run dynamics, i.e. how the one-period shock in amount of one standard deviation affects the financial system. According to given results, we are able to see the proportion of the variations in a variable of interest when it comes to its own shock and when it comes to shocking the other variables. Due to that, we did decomposition of variance. For determination the order of variables, we used Cholesky factorization (the most variance is attributed to the variable that is the first in the ordering)[10]. Variance decomposition was done for non-performed loan ratio, since we are interested in analysis of macroeconomics shocks to banking system in Croatia. Also, variance

[8] See comments about Croatian fiscal policy during financial crisis in: Mihaljek (2009).
[9] This short model is provided by Bokan, Grgurić, Krznar and Lang (2010).
[10] The importance of ordering depends on the magnitude of correlations among the various innovations. If the correlations are small, the ordering problem is not so important.

decomposition for Croatian GDP growth is interesting to analyze since higher nonperforming loans can cause credit rationing which can have negative impact to GDP growth.[11]

Concerning the variables in model, we included real GDP growth in Croatia as endogenous variable, but also GDP growth in EU27 was included as exogenous variable. Croatia is open economy which is vulnerable to shocks which happens in EU27. Besides gross domestic product growth rate in Croatia and EU27, variables used in models are interest rate and foreign exchange rate (for Croatian Kuna against Euro and for Croatian Kuna against Swiss Franc). First idea was to put all the variables in the same VEC model (one model with foreign exchange rate for Croatian Kuna against Euro and second model with foreign exchange rate for Croatian Kuna against Swiss Franc). The results of such models suggested two or more co integration equations. In spite of imposing restrictions, number of co integration couldn't be reduced to one. So we separated models into 3 of them as explained in next section.

5.2 Empirical results

In this study, the analysis was done with following variables: Croatian GDP-growth denoted as GDPRH, GDP-growth in EU27 denoted as GDPEU, 3-months interest rate denoted as IR, HE foreign exchange rate for Croatian Kuna against Euro, denoted as HE, and HC standing for foreign exchange rate for Croatian Kuna against Swiss Franc and last variable which is included in model is nonperforming loans ratio (NPLR) which represents a credit risk. Time series data are given quarterly and analyzed for period between second quarter of 2000 and second quarter of 2010. Data source for growth rate of GDP for Croatia and EU27 were collected from Eurostat, nonperforming loans ratio and foreign exchange rate were taken from Croatian National Bank, 3-months interest rate is gathered from Money Market – Zagreb.

After seasonal adjustment of represented series, the point of departure is simply to start with descriptive statistics. Therefore, hereafter the series are presented by Figure 2.

[11] The results are available upon request. Variation in non-performing loans ratio explains 27.35% of variations in Croatian GDP growth in model 1., 36,80% in model 2a and 22.49% in model 2b.

Figure 2: Macroeconomic and financial variables (from 2000Q2 to 2010Q2)

Looking at the raw data (i.e. the actual numbers), we may notice that GDP growth has a large fall in the value at the first quarter of 2009. Although recession in Croatia started in second half of 2008 as a result of export and consumption decrease, it is intensify in first quarter of 2009 as a consequence of slump of investments. In other words, GDP growth has obvious structural break, so a dummy variable (with value of one for first quarter of 2009, and zero otherwise) was included in the model at first quarter of 2009 – variable DUMMY. Importance of doing so lies in a fact that those outliers may have a substantial impact on regression results, and must therefore be kept in mind when formulating the model and interpreting the result.

Figure 2 implies that variables are not stationary, i.e. taking the first look at graph, it does not appear that series has a long-turn mean into which the series returns, and that variance depends on time. Therefore before choosing an adequate model, one must test the series to see if they obtain unit root. To identify non-stationarity, formal tests are used. Since the analysis is done over relatively small sample, in this work two tests will be performed, one is ADF test (Dickey & Fuller, 1979), and other is KPSS (Kwiatkowski, Phiillips, Schmidt, & Shin, 1992). Usually, two tests are needed because these tests have low power in relatively small samples. The results are given in Appendix 1. According to ADF test, all variables have unit root, and therefore are not stationary at level of significance of 1%. But, after differencing, all of variables are stationary, so series are integrated of order one. On the other hand, results of

KPSS test vary from those given by ADF test for three out of six variables (i.e. GDPEU, IR and HE). It was already mentioned that those tests have low power when it comes to small samples, so the results of such tests cannot be relied on in strong degree. Due to this, we will assume that all series are not stationary in levels, but are stationary in first differences. For making sure our assumption is excusable, correlogram was done for confirmation[12].

Considering the results of unit root test, econometric analysis suggests estimation of VEC model. In this paper two models are represented to save number of degrees of freedom since date period in our study is relatively short. Both models include the same exogenous variable, GDPEU. Also, as it was mentioned earlier, in models are included dummy variable for first quarter of 2009 due to recession. Common endogenous variables in models are GDPHR and NPLR. Extra endogenous variable in model 1 is IR, and in model 2 foreign exchange rate. Due the fact that in Croatia is about 20% of total loan are denominated in Swiss franc, and all the rest in the euro, model 2 is divided into two sections. *(Models 2a* and *2b*). *Model 2a* includes foreign exchange rate for Croatian Kuna against Euro (HE), and *Model 2b* takes foreign exchange rate for Croatian Kuna against Swiss Franc (HC) as additional endogenous variable.

5.2.1 Results of Model 1

After analyzing the stationarity, we proceed by analyzing co integration of variables we choose in model. Firstly, it is needed to determinate the optimal lag length. This is done by standard likelihood tests and information criteria (Akaike, Schwartz, Hannan-Quinn). The results of test can be found in Appendix 2. According to Akaike, VAR lag length in Model 1 should be three. This means that lag length in VEC model should be two. Now we can test co integration by using Johansen approach (model with constant and trend component[13]).

Trace test indicates 1 co integration equation at the level of 5%. The same result was obtained according to Max-eigenvalue test, at the same level of significance[14] (Appendix 3).

Long run dynamics (estimated VEC) is given in Appendix 4. For variable nonperforming loans ratio, error correction term is estimated to be -0.019420, that implies following: the negative sign implies reduction of disequilibrium in every period for about 1.9%. But the goal of this paper is to investigate short run dynamics of nonperforming loans ratio. Due to that, we proceed with decomposition of variance for NPLR to see how that variable responses to macroeconomic shocks. Results are given in Table 2.

[12] Correlograms are available upon request. The results confirm autocorrelation of order 1.
[13] Although this model is rarely implemented in practice (Bahovec & Erjavec, 2009) other models which could be implemented suggest more co integration vectors. In that case restrictions on VEC model must be imposed, but all are rejected using statistical tests.
[14] Lütkepohl, Saikkonen and Trenkler (2001) suggest that in small samples the trace tests are superior to that of the maximum eigenvalue tests.

Table 2: Decomposition of variance for nonperforming loans ratio

Period	S.E.	GDPHR	NPLR	IR
1	0.263440	8.580739	91.41926	0.000000
2	0.473666	7.977384	89.22442	2.798193
3	0.718480	7.089357	87.45746	5.453185
4	0.983419	9.633861	83.47300	6.893143
5	1.260115	10.38976	81.29713	8.313109
6	1.566800	11.22951	79.34685	9.423638
7	1.879888	11.61016	78.21736	10.17248
8	2.208316	11.88169	77.30719	10.81112
Cholesky Ordering: GDPHR NPLR IR				

Results suggest that variations in growth rate of gross domestic product explains the variations in nonperforming loans ratio better than variations in interest rate. As it was expected, the variation in nonperforming loans ratio is explained in the highest degree by its own shocks. If we look at the period of 2 years, the proportion of variance explained by growth rate of gross domestic product reaches almost 12%. On the other hand, the interest rate in the same period explains 10% proportion of variation in nonperforming loans ratio.

5.2.2 Results of Model 2

As we already analyzed, all variables used in Model 2 are not stationary in levels, but were stationary in first differences. Recall, in model 2 we are investigating how shock in foreign exchange rate influences fluctuations in nonperforming loans ratio. Model is divided in two parts, depending on which variable is included in model. *Model 2a* includes foreign exchange rate for Croatian Kuna against euro (HE), and *Model 2b* takes foreign exchange rate for Croatian Kuna against Swiss Franc (HC) as additional endogenous variable. Same as in Model 1., we proceed by finding the optimal lag length. In this model according to likelihood tests and information criteria (Appendix 5.) the optimal VAR lag length is 3, and VEC lag length is due to that 2. The results are the same in both models

In next part of study, we analyze co integration by using Johansen approach (model with constant and trend component). Trace test indicates 1 co integration equation at the level of 5%. The same result was obtained according to Max-eigenvalue test, at the same level of significance (Appendix 6).

Estimated VEC parameters for models 2a and 2b are given in Appendix 7. For variable nonperforming loans ratio in model 2a, error correction term is estimated to be -0.05, that implies following: the negative sign implies reduction of disequilibrium in every period for about 5%. The same interpretation can be used in model 2b where estimated parameter is -0.08. Now we concentrate on short run dynamics of nonperforming loan ratio. Due to that, we proceed with decomposition of variance for NPLR to see how that variable responses to macroeconomic shocks. Results are given in Table 3 for *Model 2a*, and in Table 4 for *Model 2b*.

Table 3: Decomposition of variance for nonperforming loans ratio – model 2a

Period	S.E.	GDPHR	NPLR	HE
1	2.065942	15.55860	84.44140	0.000000
2	2.161404	17.99060	81.21628	0.793121
3	2.583472	17.80729	80.11294	2.079764
4	2.719604	22.86836	74.32778	2.803856
5	2.915266	25.29759	71.24232	3.460089
6	3.054040	27.74147	68.61686	3.641670
7	3.213174	28.99667	67.16028	3.843047
8	3.368712	30.01769	66.01491	3.967394
Cholesky Ordering: GDPHR NPLR HE				

Table 4: Decomposition of variance for nonperforming loans ratio – model 2b

Period	S.E.	GDPHR	NPLR	HC
1	2.008154	18.58882	81.41118	0.000000
2	2.294495	25.00281	74.12399	0.873201
3	2.644035	24.48150	66.26755	9.250947
4	2.803474	29.79072	57.65763	12.55164
5	3.058586	32.73654	52.26274	15.00073
6	3.222840	35.25018	48.89596	15.85386
7	3.376892	36.80188	46.76193	16.43620
8	3.510140	37.77195	45.25470	16.97335
Cholesky Ordering: GDPHR NPLR HC				

According to results presented in Table 2 and Table 3 we came up with the following conclusions. As it was expected, in both models variable nonperforming loans ratio explains itself in the highest percentage. During the time, the influence decreases. Variation in foreign exchange rate for Croatian Kuna against Euro explains in a small degree variation in nonperforming loans ratio, i.e. after period of 2 years it only explains about 4% of variation. Contrary, variations in foreign exchange rate for Croatian Kuna against Swiss Franc seem to explain a high proportion of variation in nonperforming loans ratio. The proportion grows during the time, and after two years reaches almost 17% of variation. In both models, variations in gross domestic product explain high proportion in nonperforming loans ratio (30 and 38%).

Results for both models confirm the fact that NPLR are mainly caused by itself, and by GDPHR. IR and HE explain very low part of variance of forecast error for variable NPLR. In model 2b decomposition of variance showed that HC has the weakest influence, but higher in comparison with HE. It is interesting that effects of changes in HC are more significant than effects of HE although credits are primarily denominated in euros. So the ordinary error correction model (EC) is also done. The results showed positive influence and co integration of HC with NPLR. As opposite same co integration didn't confirm between variables HE and NPLR[15]. Possible explanation of small effect of HE to NPLR is the fact that foreign exchange between euro and kuna had appreciation pressure which could decrease debt burden for households and companies.

[15] All results of EC model are available upon request. Results show that depreciation of CHF for 1 kuna per franc increases nonperforming loans in average for 1.7%. At the same time residuals in regression between NPLR and HE are not statitonary which means that these variables are not co integrated.

6. CONCLUSION

Banking system stability has become a dominant aim for the central banks during the period of financial globalization with macroeconomic stress tests as important tools in analysis. They can be implemented using two possible approaches: top-down and bottom-up approach. The first is used on the aggregated banking system portfolio and the second uses data on individual portfolio. In this paper we applied the top-down approach and performed stress testing on data which are aggregated by Croatian National Bank using aggregation of portfolio and balance sheet data from individual financial institutions The advantage of this approach is that the aggregation of the results is more meaningful as the individual components are more comparable.

The vulnerability of the Croatian banking sector to macroeconomic shocks was analyzed using VEC methodology. Quarterly data covers the period of 2000Q2 to 2010Q2. The empirical analysis is performed using two VEC models each using nonperforming loans ratio as indicator of asset quality. One model uses interest rate (IR), and another exchange rate while other variables (Croatian GDP growth (GDPHR), GDP growth in EU-27 (GDPEU)) are commonly used. Since about 20% of total loans are denominated in Swiss francs, in model 2 are used variables HE (kuna against euro), and HC (kuna against Swiss franc) separately.

Results in Model 1 indicate that variations in growth rate of Croatian GDP explain the variations in nonperforming loans ratio better than variations in interest rate. Similar results are obtained by using Model 2 where variations in foreign exchange rate for Croatian kuna against Swiss franc explain a high proportion in nonperforming loans ratio. Our finding from both models is that the variations in nonperforming loan ratio are significantly explained by Croatian GDP growth and foreign exchange (kuna versus Swiss franc – HC), although (as expected) they are mainly explained by their own shocks.

BIBLIOGRAPHY

Bahovec, V., Erjavec, N. (2009): **Uvod u ekonometrijsku analizu,** Element, Zagreb.

Bokan, N., Grgurić, L., Krznar, I., & Lang, M. (February 2010):**Utjecaj financijske krize i reakcija monetarne politike u Hrvatskoj**, *Istraživanja,* No. I-25, pp. 1-49.

Broz, T., Buturac, G., Bakarić, I. R., Slijepčević, S., Pavuna, D., & Smilaj, D. (2010a): **Još uvijek u recesiji**, ***Privredna kretanja i ekonomska politika,*** Vol. *20,* No.25, pp. 9-27.

Broz, T., Buturac, G., Bakarić, I. R., Slijepčević, S., Pavuna, D., & Smilaj, D. (2010b): **Mješoviti signali o stanju gospodarstva, *Privredna kretanja i ekonomska politika,*** Vol. *20*, No. 126, pp. 7-25.

Broz, T., Buturac, G., Pavuna, D., Rašić- Bakarić, I., Slijepčević, S., & Smilaj, D. (2008): **Najava recesije, *Privredna kretanja i ekonomska politika,*** Vol.18, No. 117, pp. 7-26.

Broz, T., Buturac, G., Rašić-Bakarić, I., Slijepčević, S., Pavuna, D., & Smilaj, D. (2009): **Nepovoljni trendovi**, ***Privredna kretanja i ekonomska politika,*** Vol.19, No118, pp. 9-29.

Canakci, D. (2008): **Implications of Macro Stress testing for Financial Stability: The Case of Turkey**, *available at SSRN: http//ssrn.com/abstract=1157499*.[Accessed 7.09.2010].

CNB. (2006): **Analiza inozemne zaduženosti Republike Hrvatske,** Zagreb: Croatian National Bank .

CNB. (2010a): **Financijska stabilnost,** No. 4, Zagreb: Croatian National Bank.

CNB. (2010b): **Financijska stabilnost,** No. 5, Zagreb: Croatian National Bank.

Čeh, A. M., Dumičić, M., & Krznar, I. (2011): **Model neravnoteže na tržištu kredita i razdoblje kreditnog loma**, ***CNB Istraživanja,*** No. I-30 , pp. 1-17.

Čihák, M. (2007): **Introduction to Applied Stress Testing, *IMF Working Paper***, No. 07-59, pp. 1-76.

Čihák, M. (2004): **Stress Testing: A Review of key Concepts**. *CNB Internal Research and Policy Note* , No.2004/2, pp. 1-34.

Dickey, D., & Fuller, W. (1979): **Distribution of the Estimators for Autoregressive Time Series with a Unit Root, *Journal of the American Statistical Association,*** Vol. 74, No. 366, pp. 427-431.

Dovern, J., Meier, C.-P., & Vilsmeier, J. (2010): **How Resilient is the German Banking System to Macroeconomic Shocks? *Journal of Banking and Finance,*** Vol 34, No.8, pp. 1839-1848.

Filosa, R. (2008): **Stress Testing of the Stability of the Italian Banking System: A VAR Approach**, ***The Icfai University Journal of Monetary Economics,*** Vol. 6, No. 4, pp. 18-62.

Galac, T. (2010): **The Central Bank as Crisis-Manager in Croatia - A Counterfactual Analysis, *CNB Working Papers,*** No. W-27, pp. 1-25.

Gardó, S., & Martin, R. (2010): **The Impact of the Global Economic and Financial Crisis on Central, Eastern and South-Eastern Europe: A Stock-taking Exercise, *ECB Occcasional Paper Series,*** No 114., pp. 1-64.

Hoggarth, G., Logan, A., & Zicchino, L. (2005): **Macro stress tests of UK banks**. U Bank of Settlements(ed): ***Investigating the relationship between the financial and real economy*** Vol. 22, pp. 392-408.

Hoggarth, G., Sørensen, S., & Zicchino, L. (2005): **Stress tests of UK banks using VAR approach, *Bank of England Working Papers*,** No. 282, pp. 1-44.

IRC_expert. (2010): **Financial Stability Challenges in EU Candidate Countries: Financial Systems in the Aftermath of the Global Crisis**, ***ECB Occasional Paper Series,*** No. 115, pp. 1-83.

Jakubík, P., & Heřmánek, J. (2008): **Stress testing of the Czech banking sector, *IES Working Paper,*** No.2, pp. 1-14.

Johansen, S. (1998): **Statistical Analysis of Cointegration Vectors, *Journal of Economic Dynamics and Control ,*** Vol. 59, No 2-3, pp. 231-254.

Kalirai, H., & Schleicher, M. (2002): **Macroeconomic Stress Testing: Preliminary Evidence for Austria**, ***Financial Stability Report,*** No. 3, pp. 58-74.

Kwiatkowski, D., Phiillips, P. C., Schmidt, P., & Shin, Y. (1992): **Testing the Null Hypothesis of Stationarity against the Alternative of a Unit Root**, ***Journal of Econometrics,*** Vol. 54, No. 1-3, pp. 159-178.

Lang, M., & Krznar, I. (2004): **Transmission Mechanism of Monetary Policy in Croatia, *The Tenth Dubrovnik Economic Conference,*** Croatian National Bank, Dubrovnik, June 23 - 26, 2004, pp. 1-43.

Lütkepohl, H., Saikkonen, P., & Trenkler, C. (2001): **Maximum eigenvalue versus trace tests for the co integrating rank of a VAR process**, ***Econometrics Journal,*** Vol. *4,* No. 2, pp. 287-310.

MacKinnon, J. (1996): **Numerical Distribution Functions for Unit Root and Cointegration Tests**, ***Journal of Applied Econometrics,*** Vol. 11, No. 6, pp. 601-618.

MacKinnon, J., Haug, A., & Michelis, L. (1999): **Numerical Distribution Functions of Likelihood Ratio Tests for Cointegration**, ***Journal of Applied Econometrics,*** Vol. 14, No. 5, pp. 563-577.

Mihaljek, D. (2009): **Globalna financijska kriza i fiskalna politika u središnjoj i istočnoj Europi: Hrvatska proračunska Odiseja u 2009. godini**, ***Privredna kretanja i ekonomska politika,*** Vol. 33, No.3, pp. 241-276.

Quagliariello, M. (2009): **Macroeconomic stress-testing: definitions and main components**, in M. Quagliariello(ed): ***Stress testing the Banking System: methodologies and applications,*** Cambridge: Cambridge University Press, pp. 18 - 36.

Zeman, J., & Jurča, P. (2008): **Macro Stress Testing of the Slovak Banking Sector**, ***National Bank of Slovakia Working Paper,*** No. 1, pp. 1-26.

Žigman, A., & Lovrinčević, Ž. (2005). **Monetarna politika ciljane inflacije i transmisijski mehanizam, *Ekonomski pregled,*** Vol. 56, No. 7-8, pp. 433-457.

APPENDIX 1: UNIT ROOT TESTS RESULTS

ADF test

Variable in levels

Variable	k	ADF value		
		No constant and trend	Constant included	Constant and trend included
NPLR (nonperforming loans ratio)	2	-0,009995 (0,6731)	-1,918643 (0,3205)	2,209782 (1,000)
GDPHR (Croatian GDP-growth)	1	-1,605472 (0,1012)	-1,600856 (0,4726)	-2,467465 (0,3415)
GDPEU (EU27 GDP-growth)	0	-2,213535 (0,0275)	-2,515783 (0,1194)	-2,371439 (0,3881)
IR (3-months interest rate)	0	-2,141430 (0,0326)	-3,462892 (0,0144)	-3,647559 (0,0382)
HE (exchange rate (HRK/EUR))	0	-1,276429 (0,1826)	-2,258187 (0,1901)	-2,919655 (0,1674)
HC (exchange rate (HRK/CHF))	1	0,466834 (0,8110)	-1,036054 (0,7307)	-0,095655 (0,9932)

MacKinnon (1996) critical values: MacKinnon (1996) one-sided p-values - in brackets

*** denotes rejecting H_0 at 1% level.

Optimal number of lags k is determined by Schwarz Info Criterion.

KPSS test

Variable in levels

Variable	KPSS value	
	KPSS (constant and trend) H_0 trend stationary	**KPSS (constant)** H_0 stationary around a level
NPLR (nonperforming loans ratio)	0,204117	0,612214
GDPHR (Croatian GDP-growth)	0,156077	0,515869
GDPEU (EU27 GDP-growth)	0,088317	0,197539
IR (3-months interest rate)	0,077080	0,186704
HE (exchange rate (HRK/EUR))	0,057432	0,669771
HC (exchange rate (HRK/CHF))	0,123023	0,357749

* denotes rejecting H_0 at 1% level.

The critical values for KPSS test are from Kwiatkowski, Phillips, Schmidt, & Shin, (1992).

Constant and trend: 0,216 (1% level), 0,146 (5% level), 0,119 (10% level)

Constant: 0,739 (1% level), 0,463 (5% level), 0,347 (10% level)

APPENDIX 2: LAG ORDER SELECTION CRITERIA FOR MODEL 1

Lag	LogL	LR	FPE	AIC	SC	HQ
0	269.3091	NA	461.8322	14.64785	15.03569	14.78584
1	168.5214	169.7476	3.710915	9.816917	10.59262*	10.09290
2	154.4330	21.50333	2.894981	9.549107	10.71266	9.963088
3	138.7322	21.48535*	2.116667*	9.196431*	10.74783	9.748407*

* indicates lag order selected by the criterion
LR: sequential modified LR test statistics (each test at 5% level)
FPE: Final predictor error
AIC: Akaike information criteria
SC: Schwartz information criteria
HQ: Hannan-Quinn information criteria

APPENDIX 3: COINTEGRATION RANK TEST – MODEL 1

No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.759199	75.83606	42.91525	0.0000
At most 1	0.389045	21.73224	25.87211	0.1504
At most 2	0.076117	3.008434	12.51798	0.8755

Trace test indicates 1 co integrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon, Haug and Michelis (1999) p-values

No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.759199	54.10383	25.82321	0.0000
At most 1	0.389045	18.72380	19.38704	0.0622
At most 2	0.076117	3.008434	12.51798	0.8755

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon, Haug and Michelis (1999) p-values

APPENDIX 4: VEC MODEL RESULTS – MODEL 1

Error Correction:	D(NPLR)	D(GDPHR)	D(IR)
CointEq1	-0.019420 [-2.64856]	-0.384938 [-7.01638]	0.192745 [3.14854]
D(NPLR(-1))	0.433484 [2.96989]	-1.414087 [-1.29484]	0.515646 [0.42315]
D(NPLR(-2))	[1.95517] 0.299139	-3.728989 [-3.25744]	0.998887 [0.78200]
D(GDPHR(-1))	0.044823 [2.51349]	-0.214085 [-1.60450]	-0.274200 [-1.84172]
D(GDPHR(-2))	0.044220 [2.87267]	-0.010766 [-0.09348]	-0.218593 [-1.70090]
D(IR(-1))	0.024966 [1.01802]	-0.289784 [-1.57928]	-0.321551 [-1.57049]
D(IR(-2))	0.020971 [0.94110]	-0.318904 [-1.91270]	-0.045913 [-0.24679]
C	0.027493 [0.36215]	-2.649530 [-4.66452]	0.779059 [1.22917]
GDPEU	-0.008817 [-0.37322]	0.784775 [4.43995]	-0.488901 [-2.47889]
DUMMY	-0.280360 [-0.67004]	-7.569796 [-2.41792]	1.769319 [0.50649]
R-squared	0.844570	0.843488	0.455671
Adj. R-squared	0.794610	0.793181	0.280707
Sum sq. resides	1.943219	108.7863	135.4465
S.E. equation	0.263440	1.971097	2.199403
F-statistic	16.90503	16.76673	2.604382
Log likelihood	2.571906	-73.90384	-78.06848
Akaike AIC	0.390952	4.415992	4.635183
Schwarz SC	0.821896	4.846935	5.066127
Mean dependent	-0.216490	-0.223684	-0.101553
S.D. dependent	0.581289	4.334240	2.593296

t - Statistics is in brackets.

APPENDIX 5: LAG ORDER SELECTION CRITERIA FOR MODELS 2A AND 2B

Model 2a

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-152.6687	NA	0.996241	8.508877	8.896727	8.646871
1	-31.48089	204.1057	0.002736	2.604257	3.379956*	2.880245
2	-16.54093	22.80310	0.002041	2.291628	3.455176	2.705609
3	-1.158171	21.05009*	0.001517*	1.955693*	3.507091	2.507669*

* indicates lag order selected by the criterion
LR: sequential modified LR test statistics (each test at 5% level)
FPE: Final predictor error
AIC: Akaike information criteria
SC: Schwartz information criteria
HQ: Hannan-Quinn information criteria

Model 2b

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-171.5737	NA	2.694560	9.503878	9.891727	9.641872
1	-41.66811	218.7883	0.004676	3.140427	3.916125	3.416414
2	-25.90392	24.06112	0.003340	2.784417	3.947965	3.198399
3	-8.280768	24.11590*	0.002207*	2.330567*	3.881964*	2.882542*

* indicates lag order selected by the criterion
LR: sequential modified LR test statistics (each test at 5% level)
FPE: Final predictor error
AIC: Akaike information criteria
SC: Schwartz information criteria
HQ: Hannan-Quinn information criteria

APPENDIX 6: COINTEGRATION RANK TEST – MODEL 2A AND 2B

Model 2a

No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.703656	52.65523	29.79707	0.0000
At most 1	0.095204	6.438323	15.49471	0.6437
At most 2	0.067031	2.636585	3.841466	0.1044

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon, Haug and Michelis (1999) p-values

No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.703656	46.21690	21.13162	0.0000
At most 1	0.095204	3.801738	14.26460	0.8797
At most 2	0.067031	2.636585	3.841466	0.1044

Max-eigenvalue test indicates 1 co integrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon, Haug and Michelis (1999) p-values

Model 2b.

No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.749414	61.06048	29.79707	0.0000
At most 1	0.195933	8.470314	15.49471	0.4166
At most 2	0.004818	0.183534	3.841466	0.6684

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon, Haug and Michelis (1999) p-values

No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.749414	52.59017	21.13162	0.0000
At most 1	0.195933	8.286780	14.26460	0.3503
At most 2	0.004818	0.183534	3.841466	0.6684

Max-eigenvalue test indicates 1 co integrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

APPENDIX 7: VEC MODEL – MODELS 2A AND 2B

Model 2a

Error Correction:	**D(GDPHR)**	**D(NPLR)**	**D(HE)**
CointEq1	-0.922443 [-5.96600]	-0.049930 [-2.54020]	[0.24734] 0.000985
D(GDPHR(-1))	-0.112141 [-0.79119]	0.038547 [2.13930]	-0.000484 [-0.13250]
D(GDPHR(-2))	[0.93815] 0.102663	0.040713 [2.92657]	-0.002039 [-0.72366]
D(NPLR(-1))	-1.939473 [-1.66440]	0.359424 [2.42630]	-0.025698 [-0.85640]
D(NPLR(-2))	-3.506719 [-2.83937]	0.284364 [1.81117]	0.020375 [0.64065]
D(HE(-1))	-4.851897 [-0.68086]	0.669962 [0.73954]	0.023933 [0.13042]
D(HE(-2))	4.003237 [0.57825]	0.494257 [0.56159]	-0.013235 [-0.07424]
C	-2.499916 [-4.13581]	-0.004648 [-0.06049]	-0.015759 [-1.01241]
GDPEU	0.721709 [3.91998]	-0.005501 [-0.23502]	0.001057 [0.22291]
DUMMY	-8.665465 [-3.05297]	0.032325 [0.08959]	0.197234 [2.69842]
R-squared	0.828064	0.845517	0.330685
Adj. R-squared	0.772799	0.795861	0.115548
Sum sq. resides	119.5073	1.931382	0.079250
S.E. equation	2.065942	0.262637	0.053201
F-statistic	14.98349	17.02769	1.537090
Log likelihood	-75.68969	2.687988	63.36228
Akaike AIC	4.509984	0.384843	-2.808541
Schwarz SC	4.940928	0.815786	-2.377597
Mean dependent	-0.223684	-0.216490	-0.008171
S.D. dependent	4.334240	0.581289	0.056570

t - statistics is in brackets.

Model 2b.

Error Correction:	D(GDPHR)	D(NPLR)	D(HC)
CointEq1	-0.838701 [-5.26935]	-0.081970 [-4.28430]	0.002171 [0.37399]
D(GDPHR(-1))	-0.082727 [-0.57879]	0.055950 [3.25652]	-0.003670 [-0.70404]
D(GDPHR(-2))	0.102087 [0.96009]	[3.16655] 0.040474	-0.000435 [-0.11208]
D(NPLR(-1))	-1.922664 [-1.62086]	0.261528 [1.83414]	0.002169 [0.05014]
D(NPLR(-2))	-3.143140 [-2.81484]	0.199960 [1.48973]	0.051047 [1.25338]
D(HC(-1))	9.827844 [1.56987]	-0.711336 [-0.94527]	0.127163 [0.55691]
D(HC(-2))	-2.767120 [-0.42703]	-1.749390 [-2.24589]	-0.105113 [-0.44474]
C	-2.364288 [-4.34396]	-0.052471 [-0.80201]	0.033611 [1.69312]
GDPEU	0.740520 [4.09471]	-0.013508 [-0.62135]	-0.010788 [-1.63542]
DUMMY	-10.34255 [-3.56610]	-0.145092 [-0.41618]	0.015980 [0.15107]
R-squared	0.837548	0.869498	0.328214
Adj. R-squared	0.785332	0.827551	0.112283
Sum sq. resides	112.9151	1.631560	0.150215
S.E. equation	2.008154	0.241392	0.073245
F-statistic	16.03988	20.72848	1.519992
Log likelihood	-74.61161	5.893277	51.21257
Akaike AIC	4.453243	0.216143	-2.169083
Schwarz SC	4.884187	0.647087	-1.738139
Mean dependent	-0.223684	-0.216490	0.005708
S.D. dependent	4.334240	0.581289	0.077739

t - statistics is in brackets.

PRIVATISATION OF THE OIL AND GAS INDUSTRY IN CROATIA AND SEE: ASSESSMENT OF IMPACTS

Nevenka Čučković, Ph.D
Institute for International Relations (IMO), Zagreb
Phone: ++ 385-1-4877-475; Fax: ++ 385-1-4828-361
E-mail: nena@irmo.hr

Krešimir Jurlin, Ph.D.
Institute for International Relations (IMO), Zagreb
Phone: ++ 385-1-4877-479; Fax: ++ 385-1-4828-361
E-mail: kreso@irmo.hr

Valentina Vučković, B.A.
Institute for International Relations (IMO), Zagreb
Phone: ++ 385-1-4877-474; Fax: ++ 385-1-4828-361
E-mail: valentina@irmo.hr

Key words: *Privatisation, Regulation, Competition, Performance indicators, Oil and Gas Industry*

ABSTRACT

In the last twenty years, many mature western market economies as well as post-socialist countries have pursued privatisation of the enterprises in the public utilities and service sectors (telecommunications, oil and gas industry, electricity, water supply, railways etc) that were traditionally in the state ownership and whose goods and services were generally provided by the state for many decades. The countries of South East Europe, including Croatia have also followed that path but with considerable time-lag. In these sectors which are often characterised by monopolistic market structure careful regulation prior to privatization proved to be crucial in order to protect consumers and prevent market abuse by the new private owners. Introduction of well regulated market framework was necessary even in the markets without monopoly but with oligopolistic or limited competitive market structures. More reliance on private companies in provision of goods and services in the utilities and public service sectors have brought different beneficial effects and some economic and social gains, however accompanied at the same time with some costs and social repercussions. The cost-benefit balance sheet nevertheless seems uneven and the costs and benefits differ for different categories of beneficiaries (consumers, employees, state, private owners, shareholders and stakeholders)

The paper aims at identifying underlying economic and social impacts of privatisation within the oil and gas industry on the business performance and corporate efficiency, the quality of the management, quality of services delivery, prices; equity, investment and employment. In establishing these impacts, the research strives to assess and identify the general economic and social gains of privatization transactions in the public sector in Croatia so far.

The text will focus on experiences of privatisation of the Croatian INA oil and gas industry and analyse if expected benefits and improvements in company performance were accomplished in the post-privatisation period. The results would be analysed also in comparison to the selected countries of Western Balkans and new EU member states.

The analyses would attempt to find out if bringing in the strategic foreign investor MOL (Hungarian Oil and Gas Company) into the INA's ownership and management structures resulted in visible

improvements of company's business performance to the benefit of the consumers, employers as well as the Government as a residual owner of the company.

We examine selected performance indicators in several areas of company post-privatisation business performance, including revenues, investment rates, profit rates, earnings per employee, level of employment, quality of services and prices.

The period under review is the immediate period after privatisation of the initial government stake of 25% plus one share and gradual acquiring of control by MOL i.e. the power to exercise decisive influence on INA (2004-2009), but whenever possible the data horizon is expanded to better perceive the starting position. Apart from the quantification of the effects, the assessment of the impacts would also be based on the range of qualitative indicators collected through field research.[1]

1. INTRODUCTION

In the last two and a half decades, the industries that have been traditionally in the state ownership such as telecommunications, oil & gas industry, transport and many other network industries and utilities have witnessed a tremendous scope of privatisations throughout the world[2], with an aim of improving market performance and global competitiveness of such enterprises, but also of changing a set of incentives that could guide improvement of their corporate governance and management performance.

Why privatize public services and utilities at all? Is the ownership change of these enterprises, which are often natural monopolies really necessary and could we accomplish the improvements of their business performance by introduction of competition in the sector and through better management? The motivation for selling the public utilities for the government was mainly twofold: badly needed privatization revenues for the budget and improving market competition. The crucial economic motivation behind it was the expectation that by improving efficiency of public companies a significant cascading impact on the other sectors would be achieved in terms of lowering production input costs, thus improving total factor productivity and increasing competition in the whole economy. Empirical evidence in many countries shows that organizational restructuring of state-owned enterprises, their privatization, corporatization and deregulation of markets have made network industries and utilities more efficient both in terms of business performance and delivery of services.[3] Moreover, a key argument that guided widespread privatization in these sectors in the last twenty years is that, relative to state-owned utilities, private owners and service providers who face competition have stronger incentives to better control operational costs; adopt new technologies and innovation in business processes and services, as well as have more efficient management practices, accounting standards etc. Although the most visible gains have been found in more commercial utilities such as telecom and oil industry, other infrastructure sectors have also made substantial although uneven advances in various areas of corporate performance when faced with an increased competition.

[1] This paper is based on the results of the study „*The privatization of public services sector in Croatia and SEE: Assessment of major pains and gains*", which was financed by LSE Programme on South Eastern Europe and Latsis Public Benefit Foundation.

[2] The scope of privatization transactions in 2000-2007 related to companies in the public utilities and network industries in OECD countries measured by the privatisation proceeds are estimated to close to US$ 487 billion, scaling down only during the financial and economic crisis. The largest share relate to countries such as France, Italy and Germany with traditional dominance of state ownership in the public sectors.

[3] For a comprehensive overview of experiences based on examination of about 300 empirical studies on privatization effects in 125 countries over the last 15 years see Megginson, 2005, Megginson and Netter, 2001; Djankov et Pohl, 1998; Wallsten, 2002; World Bank, 2004b; OECD, 2009, etc.

One of the other main motivations behind the public infrastructure and services' privatization is the expectation that it will make price reform a policy priority and that competition among providers would initiate much needed products and services' prices downtrend. Examination of theoretical and practical arguments on the debate "privatization versus competition" in public utilities and services seem to present more arguments in favour of the position that that these two processes should not be substitutes but complements, i.e. "privatization and competition" (Megginson, 2005; OECD, 2009).

The intention of this paper is to analyse to what extent the expected gains were materialised and mirrored in the post-privatization performance indicators in the case of the Croatian oil and gas industry INA.

The structure of the paper is organized as follows. Following the introduction, in the second chapter we deal with importance of regulation and introduction of competition into public services and utilities sectors. The third chapter tackles the legislative framework and stages of privatization of Croatian oil and gas industry INA. The core of the analyses is placed in the fourth chapter, which tackles the main post-privatization performance indicators of INA as well as selected comparisons with the new EU members and SEE countries. The final, fifth chapter brings concluding remarks and identifies the questions and areas for future research.

2. "VISIBLE HANDS" OF REGULATING STATE IN PUBLIC UTILITIES AND SERVICES

While the process of privatization in other industrial sectors has been based on a quite a substantial process of liberalisation and deregulation to introduce contestable markets, the "visible hand" of regulatory state was however, quite oppositely, very much needed for sectors that were traditionally experiencing the market failure in providing services, i.e. where they could not serve the needs of public based exclusively on competitive market conditions. This is particularly needed for sectors where competition is limited or absent (such as electricity, telecommunications, postal services, oil, gas and water supply etc.) and there regulation should make a desirable degree of competition actually viable.

Significant institutional preconditions and safeguards should be met if privatization shall lead to achieving the public interest objectives (World Bank, 2004b). Replacing state monopoly with the private one would not be economically and socially very meaningful. The regulatory intervention is the first necessary step when privatising state-owned monopolies in order to prevent the possible market abuse of the private monopoly especially in periods when competition of new entrants to the market is not strong enough to successfully limit dominant market position of the privatised monopoly. The regulative framework is set up with an aim to encourage competition and ensure equal opportunities for all entrants to the market and prevent and discourage monopolisation. It also aims to ensure that the dominant player, which often happens to be ex-state monopoly, does not abuse its dominant market position at the expense of consumers, but also at expense of other providers of the services at the market. This does not relate only to one monopoly or a sector, as the cumulative non-competitive practices usually have negative spill-over effects in other sectors too. Therefore prior to privatisation two separate but closely related regulatory frameworks should be in place: competition agency (anti-trust agency) and independent sectoral regulators which deals with specifics of each public monopoly.

The key benefits sought from independent regulators are to shield market interventions from short-term political interventions in order to ensure long-term market stability and economic

objectives, and to avoid the influence of particular interests, either by the entities being regulated or other non-governmental groups. Such economic regulators are expected to ensure market discipline while protecting consumer interests, to facilitate open access to the core infrastructure of the network and to preserve social objectives (OECD, 2003). However, creating regulatory institutions that render decisions legitimate to citizens and credible to investors has proven to be the most challenging issue of every infrastructure reform program (World Bank, 2004a). Effective design of regulatory agencies as well as implementation of key regulatory principles are crucial for the success of market reform in these sectors – they should primarily be independent, properly staffed and with technical and legal expertise.

If these regulative frameworks are in place, privatizing the enterprises with natural monopoly status can lead to higher economic welfare than the one which could stem from unregulated markets (Lopez de Silanes, 2005). As many experiences have shown, especially in developing countries (Saha and Parker, 2002) replacing the public monopolies with private ones would lead to no beneficial welfare impacts without regulation. On the contrary, consumers would be most likely exposed to the so called "monopoly abuse" costs with an increase of poverty for the lower-income population. Hence, wider diffusion and distribution of the economic and social benefits of privatising these sectors may not reach its purpose in the initial period if there is no regulation. It may even increase instead of decreasing the poverty of poorest households and population segments. "It is not self-evident that private markets decrease poverty; on the contrary it may even exacerbate it" (Cook et al, 2003, p.11).

The careful regulation in these sectors acts than as a sort of "surrogate" for competition especially in early stages of introduction to ensure that "market failures" are corrected to the benefit of all consumers and citizens (Cook et al, 2003).

The regulative role of state to ensure competition and the equal footing for all the market players has therefore been central in all the countries which embarked into the process. The state, however, has an ambivalent position that often poses potential "regulatory trap" if the regulative functions of state are not carefully separated from its own ownership interests (World Bank, 2004b; OECD, 2009) [4] Therefore, the separation of ownership and regulatory functions of the state deserves special attention when establishing regulatory framework. While being beneficial for introducing competition and business efficiency in the public sector, at the same time the regulation may have also adverse effects on the employment level of regulated industry. In other words, for the state as an owner - there are disincentives to regulate effectively in order not to harm its own interests. For that reason, it is of crucial importance that regulatory agencies have as independent status as possible from entrenched political and government interests that could be realized at the expense of other market actors and enterprises, leading towards the short term political gains but reducing economic benefits from regulation and increasing economic costs for an economy as a whole (Vickers and Yarrow, 1989; Galal et al, 1994, Cook et al, 2003). The regulative agencies thus should ensure the fair conditions for business for all subjects in the industry in question. Regulatory state sometimes could be "captured" by its own or public enterprise interests, be it political or economic (for instance by economic and political elite: members of government, influential members of political parties, etc.). As Cook at al. (2003) rightfully note, regulatory bodies may be staffed from the members of these elites and influence its decisions substantially.

[4] In practice though, the separation of the ownership and regulatory function by the government is far from being perfect and often the interests of competitors, consumers and minority shareholders in the partly privatized entity may be endangered, especially in the early stages of privatisation (OECD, 2009). The solution is therefore to have from government independent sectoral regulator to ensure that regulatory functions do not lean towards ownership interests of the state.

These are all issues that should be kept in mind when developing efficient regulatory framework for introducing competition and privatisation of public services and utilities.

3. PRIVATISATION OF PUBLIC MONOPOLIES IN CROATIA: INITIAL LEGISLATIVE FRAMEWORK FOR INA

Croatia has started to privatise the state owned public services and utilities relatively late as compared to the most advanced transition economies from Central and Eastern Europe (CEE) which joined the EU in 2004. For instance, Hungary privatised the first 8% of MOL shares already in 1993, thus being the first oil and gas industry in the Central and Eastern Europe to be privatised (Buzady, 2010; Antal-Mokos and Toth, 2006)). The privatisation in CEE was to a large extent driven by the integration process with the EU, and in Croatia such motivation was mostly absent since it stayed outside the mainstream integration process for the whole decade of 1990s. Later on however, the privatisation of the large public enterprises became also vital for the Croatian reform agenda, particularly after signing Stabilisation and Association Agreement with EU in 2001 and especially after becoming a candidate country in 2004.

The possibility for privatisation of the public utilities and services in Croatia was for the first time shyly opened by the adoption of the Privatization Law (1996) which replaced the previous Law on Transformation of Socially Owned Enterprises (1991)[5] that guided privatization transactions in the initial period. The new 1996 law for the first time has mentioned the horizon for process of privatization of public utilities (oil and gas company, energy production and distribution, rail and road transportation, water and forestry management etc.), which remained outside of the mainstream process on the basis of governmental decree from 1991 by which they were nationalized (declared 100% state-owned) due to their strategic importance. By the 1996 law the need for restructuring of these companies through privatization was acknowledged and legislator also took the attitude that these enterprises would not be held indefinitely in state hands. However, it was stipulated that each company in these strategic sectors would be privatized by the separate legislation approved by the national parliament.

As for the energy sector, after a long preparations and discussions, the Parliament has finally reached agreement on its initial privatization and in April 2002 passed the Law on privatization of INA[6], the state oil and gas monopoly (allowing the sale of the first 25% plus one share to strategic foreign investor), and the Law on privatization of HEP[7] (energy production and distribution), opting for sale through the initial public offering. The portions to be sold on stock exchange were determined by the government later. Both laws on privatization of INA and HEP have been prepared with substantial assistance of foreign advisor (Price Waterhouse) which was selected through international public tendering process.

After long bidding and selection process[8], in 2003 the Government approved the sale of the initial 25 per cent plus one share stake to MOL, the Hungarian oil and gas company for US$ 505 million, thus exceeding the planned privatisation revenues.

[5] Zakon o pretvorbi drustvenih poduzeca /Law on Transformation of Socially Owned Enterprises/, *Narodne novine /Official Gazette*/ 19/91, April 1991.
[6] Zakon o privatizaciji INA - Industrija nafte d.d., Narodne novine /Official Gazette/, No. 32, 2002.
[7] Zakon o privatizaciji Hrvatske elektroprivrede d.d. (HEP), Narodne novine /Official Gazette/, No. 32, 2002
[8] MOL outbid the Austrian OMV and other 10 competitors including Russians, thus confirming its plans for regional expansion and becoming leading regional MNC in petrochemical industry.

3.1. The motivations for privatisation of INA oil and gas industry

For the whole decade of 1990s INA stayed outside of the privatisation process as the Government of Croatia declared it an enterprise of strategic importance for the economy and therefore kept it 100% owned by state.[9] However, the plans for integration with the EU which became realistic after the year 2000 pushed ahead also the privatisation process in the public enterprises sector.

The actual privatisation of the oil and gas industry was postponed until 2003 and adoption of INA Privatization Act (2002). At the time of privatisation INA was by far the most valuable public sector company in Croatia and leading regional petrochemical company. Being among largest companies in Croatia in terms of total revenues and employment, it remained very important for the Croatian economy also after privatisation especially in terms of its contribution to the GDP and generating the Budget income via different taxes. To illustrate, with EUR 3.8 billion of total sales revenues INA in 2008 represented 9.5% of GDP of Croatia. Due to impact of crisis the share dropped in 2009 to about 7% of GDP. The total VAT, excises and other taxes that INA Group[10] paid in 2009 amounted to HRK 1.7 billion, which represents a share of 4.6% in total VAT revenues of the Consolidated General Government Budget.

The company was however traditionally under high influence of politics which especially had an impact on the selection of the top management through the political appointments, thus easy to control by leading political nomenclature. Although such position could indeed offer company a powerful shield, it was not all the time in the company's best interests as it was often used as a "cash machine" for different government appetites. Such situation of course affected the privatisation plans which were delayed when looked comparatively to the CEE countries.

The motivation for privatisation was somewhat different at the company level and at the level of Government as an owner. The search for strategic partner within INA was motivated by need of intensive commercial restructuring of state-owned company; the need for introduction of modern corporate governance and improvement of cost-efficiency and product factor efficiency; new capital investments especially for technological modernisation and advancement of company - all to improve the possibilities to better compete with other major market players in the region of SEE. In particularly competitive pressures were coming from the Austrian OMV and MOL which started to expand, acquire stakes in other companies and reposition their market shares as well as production capacities especially in the region of SEE and neighbouring CEE countries (Slovakia, Slovenia, Romania, Croatia). For comparison, the Table 1 brings overview of the main acquisitions and main investors in the CEE and SEE.

[9] INA became a joint stock company in full state ownership in 1993.

[10] Calculated by the authors on the basis of data from INA Annual Report 2009 (http://www.ina.hr/UserDocsImages/g_izvjesca_pdf/gi_2009_eng.pdf)

Table 1. Privatization of national oil and gas companies in selected SEE and CEE countries

Country	**% of shares acquired**	**Foreign investor**	**Year of privatization of initial tranche**
Croatia	47.16 of INA	MOL Hungary	2003
Hungary	21.2% of MOL 25.8% of MOL 7.3%	Surgutneftegas Russia Different foreign institutional investors Czech Energy CEZ	1993
Macedonia	100% of OKTA	Hellenic Petroleum Greece	1999
Slovakia	98.4% of Slovnaft	MOL Hungary	1999
Romania	51% of PETROM	OMV Austria	2004
Bosnia and Herzegovina	67% of Energopetrol	INA/Mol consortium	2005
Montenegro	54,53% of Jugopetrol	Hellenic Petroleum Greece	2002
Serbia	51% of NIS	Gazprom Neft Russia	2008
Bulgaria	58% of Neftochim Burgas AD	LUKOIL Russia	1999

Source: Compilation from company's official web pages

In case of INA it was considered that entry of strategic partner in the ownership structure would be not only most profitable for the company on the longer run, but also for the state Budget, both in terms of net proceeds from privatisation as well as earnings via dividends, notwithstanding the overall gain for the national economy if the company becomes more efficient.

The main push and momentum for privatization of INA was however built by the immediate need for increased Budget income as some of the substantial cost items (such as return of debt to pensioners by the rule of Supreme Court[11]) could not be covered by ordinary Budget income and without increasing proceeds from privatization. As elsewhere, both in the mature market economies and transition economies, many governments have enthusiastically embraced privatization of large public utilities and services, mostly because they bring large revenues without having to increase taxes.

[11] Such a debt was accumulated during the 1991-1995 war in Croatia as the Government kept the pension levels lower then accumulated in State Pension Fund in order to finance defence of the country. Later on after the rule of the Supreme Court in 1998 the debt was fully acknowledged and it was agreed that this should be returned to the pensioners in several tranches.

3.2. The privatization of INA oil and gas industry: snapshot on stages

The privatisation of INA was implemented in several stages. The process started under stipulated conditions of a separate Law on Privatization of INA that was enacted by Croatian Government in 2002 (Official Gazette 32/02). Under this legislation 25% plus one share was to be sold to a strategic partner; 15% of shares is to be sold by a public auction at the stock exchange; 7% of the total stock was assigned for war veterans and members of their families; while additional 7% is to be sold to present and former employees on discounted prices. The Law on Privatisation of INA with its Amendments in 2006 has envisaged that the Government would decrease its ownership stake towards retaining only about a 25% plus one share after Croatia joins the European Union. This would enable the Government to veto any major strategic change without its consent.[12]

In the first instance on 10th November 2003, the 25% plus one share was sold to Hungarian MOL for about 505 million USD. MOL (Hungarian Oil and Gas Company) was considered as the best option for strategic partner and in this process MOL acquired 2.5 million of originally issued INA's shares. At that time it was one of the largest foreign investments coming from the another transition economy, followed by the OTP bank acquiring of Nova Banka in 2004 for Euro 236 Million.[13]

In the second instance, in 2005 another 7% of the value all INA shares was transferred to the Croatian War Veterans and their family members without compensation.

The Croatian Parliament on 22 July 2005 adopted a decision to continue with the privatization process of INA and formed a Commission which would take care of the process. The third stage of privatization process started in 2006 and it was marked by initial public offer of 15% of ordinary INA shares to the Croatian citizens on preferential terms.

The fourth stage was implemented in 2007 and involved the privatisation of further 7% of INA's shares to the present and former employees on a discount to the nominal price of 1% for each working year. As a result of this the Croatian Government reduced its share below 50%.

The next stage of the privatization process came on 5th September 2008 when MOL gave a voluntary public takeover offer to acquire additional shares of INA, which resulted with rise of its share in INA ownership to 47.16%.[14] Finally, the Croatian Government share after five privatization stages reduced to only 44.84% thus becoming a second largest shareholder in the company.

MOL's operative control over INA, including control of majority of management board members, regardless of the fact it does not own over 50% of the company by the First Annex to the Contract on mutual relationship between shareholders, dated 30 January 2009, whereby MOL has the right to appoint five out of nine members of the Supervisory Board and 3 out of 6 members of the Managing Board, with a veto vote of the CEO, appointed by MOL. Consequently, MOL, under the contract, has a prevailing influence on the business conduct of

[12] The concept of Law on Privatization of INA seems strikingly similar to the Privatization Act of MOL in 1993. See Antal-Mokos and Toth, 2006.

[13] Sass, M. (2009) Services OFDI: the case of Hungary, Version of 30th August, 2009. Institute f Economics, Budapest. p. 13

[14] MOL has invested in total USD million 1,167.48 to acquire 47.16% of INA, according to Sass, M et al. (2010): "The dominance of virtual indirect investors: the case of Hungary". KTI, Budapest. The more detailed data on "Survey of Hungarian Outward Investments", ICEG and Vale Columbia Centre on Sustainable International Investment, January 21, 2011, available at: http://www.icegec.hu/download/EMGP-Hungary-Report-2010-Final19jan.pdf

INA. This topic has provoked hot political debate in Croatia[15], which further escalated since 10 December 2010 when MOL issued yet another offer for takeover of a majority ownership. It is interesting to note that the Government of Croatia considered the last offer as a hostile takeover and complained that it was not notified about this business move of MOL thus considering this situation as endangering of mutual strategic partnership of two largest single shareholders of INA. At the end of January 2011 it was evident that MOL intentions failed as it managed to overtake only 0.1% of the shares to reach a total of 47.26%, while the Croatian pension funds bought 4.15%. However, one investment fund originating in Cyprus allegedly acquired further 1.44% of shares, following which on March 15, Croatia's stock market regulator HANFA suspended trade in INA shares trying to identify the investors, after the share price reached the all-time high.

The possibility remains that this 1.44% of unknown Cyprus Fund, together with the remaining 2.31% still held by other private investors could be sold to MOL, eventually reaching the 50% plus one share target. All that implies that the situation without majority owner will likely continue until Croatia enters to the EU, when the government stakes might be for sale again. Unless, of course, the initial privatization legislation would not be entirely altered, as it was recently announced by the Government.[16]

4. SELECTED INDICATORS OF THE POST-PRIVATISATION BUSINESS PERFORMANCE

In this section, we would attempt appraise evidence and find out if bringing in the strategic foreign investor MOL into the INA's ownership and management structures, has eventually resulted with visible improvements of company's business performance to the benefit of the consumers, employers as well as the Government as a residual owner of the company.

We examine qualitative and quantitative indicators in several areas of company post-privatisation performance, starting from revenues, investment rates, profit rates, earnings per employee, level of employment, quality of services, prices, etc.

The period under special review is the period after privatisation of the initial government stake (25%), and bringing in the MOL management into the company i.e. 2004-2009, but whenever possible the data horizon is expanded to better see the starting position and developments in performance of INA thereafter.

4.1. Net revenues in the post-privatisation period

Although new entrants came to Croatian retail market of oil even prior to privatization, INA continued to exploit its "close to monopoly" position at the Croatian market also after MOL bought the initial 25% plus one share of its capital and its revenues continued to grow and almost doubled from 2002 to 2008. The significant fall of net revenues was registered in 2009, due to combined influence of economic crisis, high oil prices and low gas prices at domestic market. However, from the Figure 1 below it is evident that the growth of MOL revenues was significantly more dynamic than the growth of INA, enabling MOL to overtake

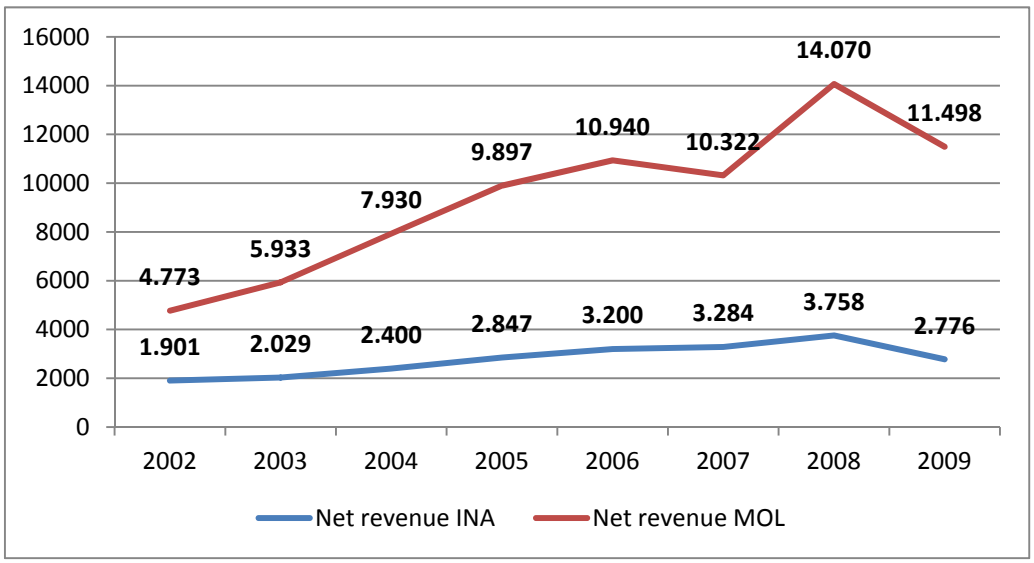
[15] The Parliament even formed a special Parliamentary Commission to investigate the privatization process of INA, after the arrest of Mr. Damir Polancec, ex- Minister of Economy and Vice-President of the Croatian Government.

[16] This option however which was announced recently in the attempt of the Government of Croatia to block MOL from acquiring the majority ownership of INA, would undermine the legitimacy of the legislative framework for investments in Croatia and would most likely bring more harm than benefits in the long run.

some of the INA's market position in the region. While in 2002 MOL had net revenue 2.5 times larger than INA, the ratio grew to 3.75 until 2009.

The reasons for the widening of the revenues gap between INA and MOL Group could be found in rather low prices of domestically produced gas (when compared to the European prices) which were heavily regulated and determined by the Croatian Energy Regulatory Agency (HERA) and controlled by the Croatian Government having in mind more social then market logic. Additional reason is that INA continued to import oil at higher prices dominated at the Mediterranean market, while MOL as a larger market player had better access to both Russian oil and gas at much lower prices. Furthermore, by expanding its activities across the region of SEE and intensively acquiring stakes of other companies with a vision of becoming a regional leader on the market, the MOL Group has exploited its chances for increasing both revenues and profits on this market within the period examined.

Figure 1. INA Net Revenues, 2002-2009 (€ mln)



Source: Annual Financial Reports of INA and MOL, 2002-2009

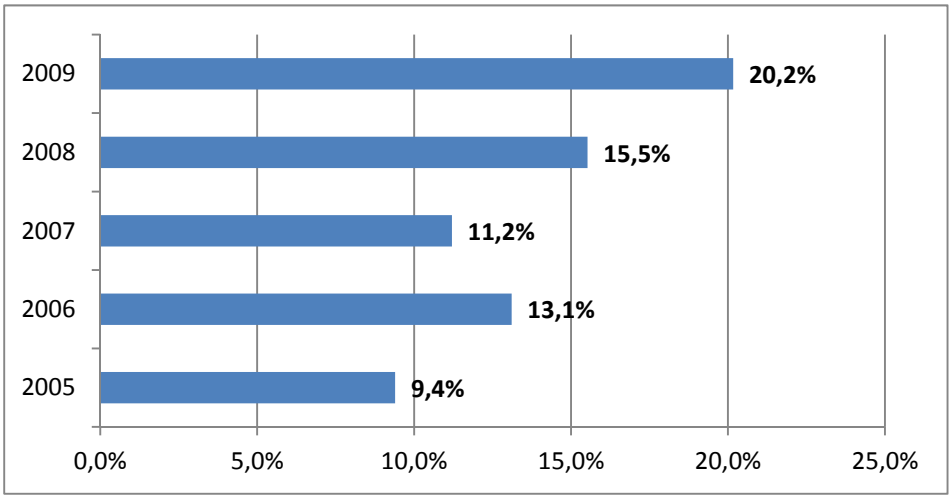
4.2. Capital investments

One of the important motivations for privatisation and bringing in the strategic foreign investor into INA was the need for advancing capital investments in technology modernisation for both exploiting and production of gas and oil in order to keep up with the competition at the market. The scope of long-term investment activities is also an important indicator of expanded business performance in the post-privatisation period.

The company's financial reports indicate that contrary to the widespread public perceptions in Croatia, there were quite some investments into the exploitation and production facilities especially in gas production and exploration projects in North Adriatic of INA with Italian partners. Total capital expenditures in the 2005-2009 were at the level of €2.3 billion, while the investments into the long term assets totalled around €500 million. Within the period examined there were also significant investments into the modernisation of two refineries in Rijeka and Sisak, Modernisation of refineries especially intensified during 2008-2009,

resulting in the doubling investment rate from 11% of net sales revenues in 2007 to 20.2% in 2009.[17]

Figure 2. Total investments in the long-term assets, 2005-2009 (% net sales)



Source: INA Annual reports 2003-2009.

The quite opposite perception was echoed in some of the interviews conducted for this study[18] in which the average ratings point out to a rather low to moderate levels of investments increase in INA in post-privatization period. According to the assessments expressed in interviews, the possible reasons for the pretty low capital investment rate in the first years after privatisation could be found in "wait and see" attitude from both sides until the majority ownership of MOL is to be achieved. Additional reason was the lack of sufficient revenues and profits to be reinvested, as the price policy of Croatian government was lead by social prices for gas, which led INA into losses on this segment of market. Also, for the last couple of years (2008 -2010) the impact of global financial crisis and high oil prices was substantial what also resulted with a more cautious approach towards investing into long-term assets.

Interview Question: What has been the impact of privatisation on **capital investments** of INA?

4.2.1.1 AVERAGE RATINGS				
1 ***Decrease in capital investments***	2 ***No further investments***	3 ***very small increase of capital investments***	4 ***moderately increased capital investments***	5 ***substantially increased capital investments***

Source: In-depth interviews with the selected experts and stakeholders.

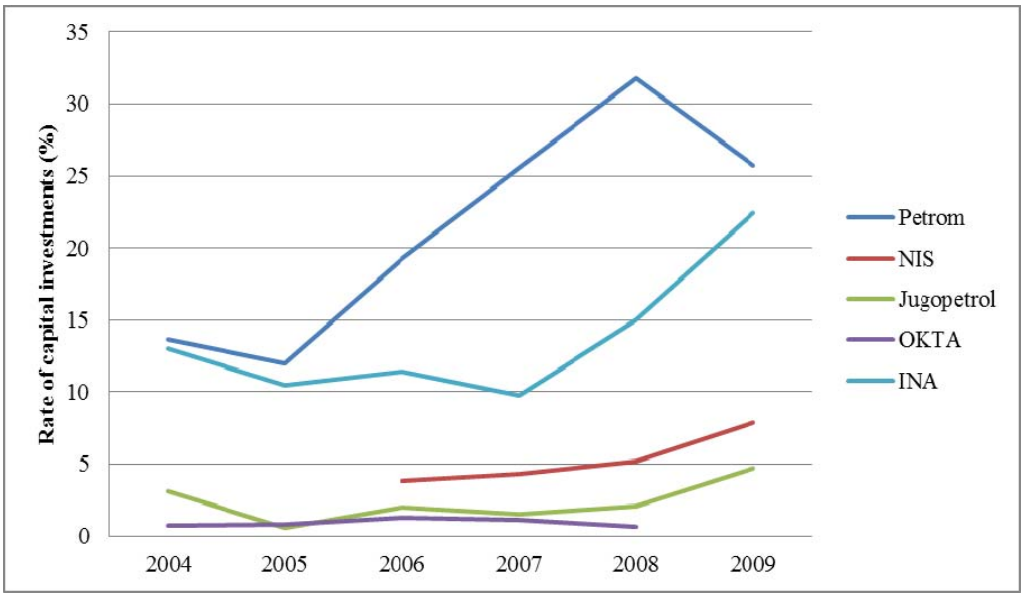
In comparison with other SEE countries, only Romanian oil and gas company Petrom had higher rate of capital investments (% of total revenues) than INA; although in 2008 its rate exhibited sharp fall while the one of INA continued to grow (see Figure 3). Other companies

[17] Privatisation agreement from 2003 obliged MOL to invest $1.5 billion in R&D and modernisation of Rijeka and Sisak refineries in the 5 years.

[18] In 2010 the authors of the paper conducted several interviews with independent experts, members of the present and ex- management and supervisory boards and other stakeholders such as trade unions, consumers associations etc for the study "The privatization of public services sector in Croatia and SEE: Assessment of major pains and gains", which was financed by LSE and Latsis Public Benefit Foundation.

– Serbian NIS, Montenegrin Jugopetrol and Macedonian OKTA) – also exhibited increase in their capital investments, however, at a much slower pace (with the rate below 10%).

Figure 3. Rate of capital investments of INA compared to companies in SEE region, 2004-2009



Source: Company's Annual Reports, 2004-2009

4.3. The level of indebtedness measured in debt/equity ratio

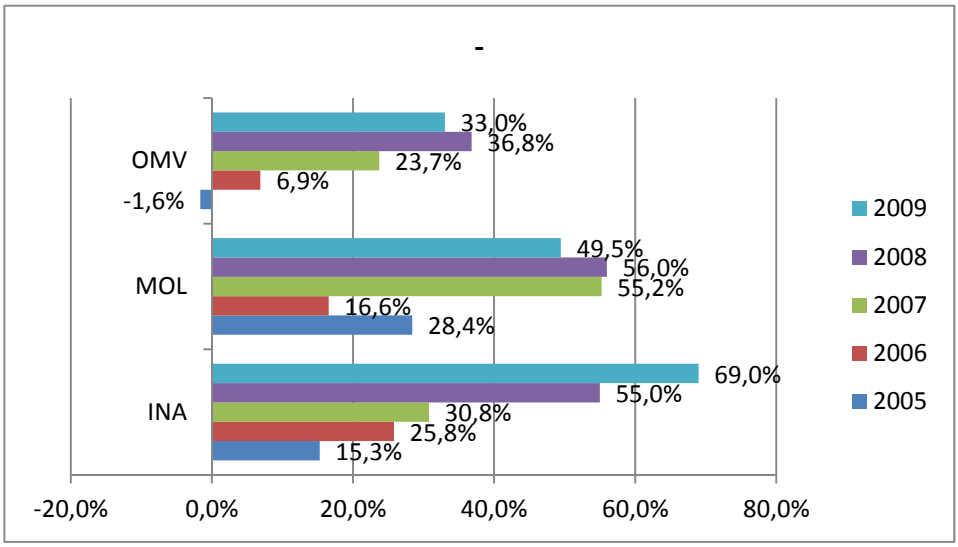
However, since the intensive capital investments have been mostly financed by loans and not by own funds, this had worsen a financial position of company and caused the steep surge of debt/equity ratio. Following the slow growth of net revenues and stagnating value of equity, INA showed a substantial surge of net debt to equity ratio throughout the period under review as a result of increased investment activities and substantial a fall of profits due to controlled prices of natural gas and fuels. However, without having perception of some political economy factors, it would be hard to understand and precisely isolate the factors behind increase of INA's debt throughout the period under review. Some of the in-depth interviews held shed some more lights on possible reasons for that.[19]

A part of increased debt was used to finance investment in long-term assets, which increased from 9.4% of net sales in 2005 to a very high 20.2% in 2009. Total capital expenditure in the 2005-2009 was € 2.3 bin and increased indebtedness is by large to be attributed to extensive capital expenditures within period

The comparison with main competitors in the neighbouring area also shows the surge of debt to equity ratio especially in 2009, which was especially tough year for INA.

[19] The rate of capital investments almost doubled when MOL overtook the lead in terms of ownership in 2008, after gaining additional 22.7% of total INA's equity capital. Such situation, according to opinion of several interviewed experts, opened the doors towards MOL gaining majority ownership and thus investing into improving capacities for production was a more sensible business decision as compared to situation when the majority ownership was in hands of Croatian Government.

Figure 4. Debt/equity capital ratio of INA, Mol and OMV, 2005-2009



Source: INA, MOL and OMV Annual Reports 2003-2009

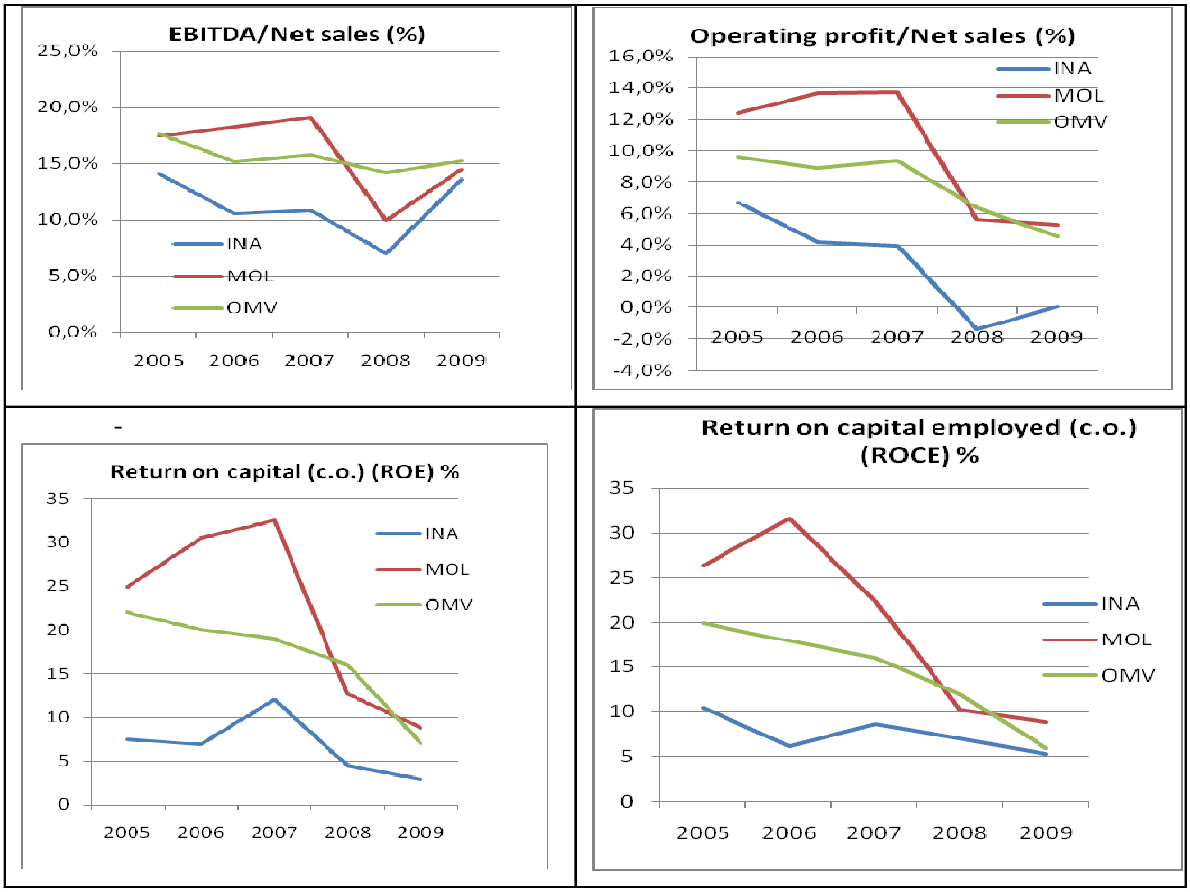
4.4. Profit rates and investment

Delayed restructuring, large investment in production facilities, together with subdued prices of natural gas, controlled by the Croatian Government, resulted in worsening of the main business performance indicators. In 2008, ratio of EBITDA to net sales for INA fell to only 7%, with a significant recovery in 2009. The company went into red with the 1.4% operating loss ratio to net sales in 2008 to only slightly recover in 2009, and more significantly during 2010 when it managed to return to profitability path at both operating and net profit levels[20]. Other two companies also recorded significant worsening of EBITDA and operating profit, although the figures remained relatively high.

As for return on capital, all 3 companies converged at a low level and MOL and OMV lost most of its advantage in these indicators compared to INA, especially in the 2008-2009 due to impact of economic crisis.

[20] According to unaudited and consolidated 2010 Financial Report INA reported a net profit of US$283 million (available at: http://www.ina.hr/UserDocsImages/investitori/objave/2011/Q4_i_2010_eng.pdf)

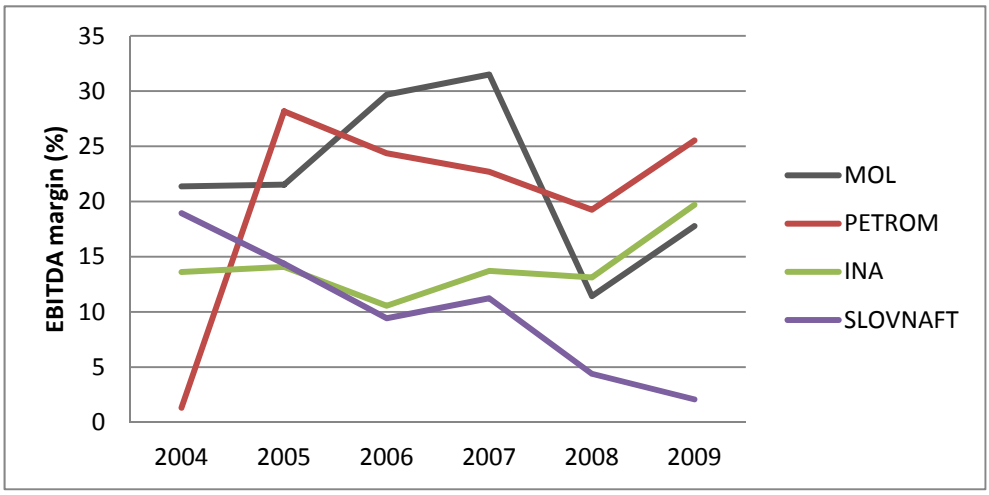
Figure 5. EBITDA, operating profit, ROE and ROCE of INA, MOL and OMV, 2005-2009



Source: Annual Reports of INA, MOL and OMV, 2005-2009

When compared to the performance of the oil companies in the selected new EU member states (NMS) Hungary, Slovakia and Romania, it is evident that all 4 companies under review experienced a downward trend in earnings in 2008 following the effects of the economic crisis, to recover notably in 2009 (apart from Slovnaft).

Figure.6. EBITDA of INA compared with selected oil companies in EU NMS – MOL (Hungary), Petrom (Romania), Slovnaft (Slovak Republic)



Source: Annual Reports of Mol, INA, Petrom, Slovnaft, 2004-2009

Several interviewed independent experts and ex-management board members when asked to elaborate on that have stressed:

"*INA has entered into difficult and downtrend business performance precisely due to profound impact of the state administration and politics on its top management. Namely, by insisting on the low levels of gas prices, the losses for the company were unavoidable. It is unfair to expect from the commercial company to implement the social policies that should be in the state domain and solved within the other state bodies*".

Couple of other interviewed experts argued:

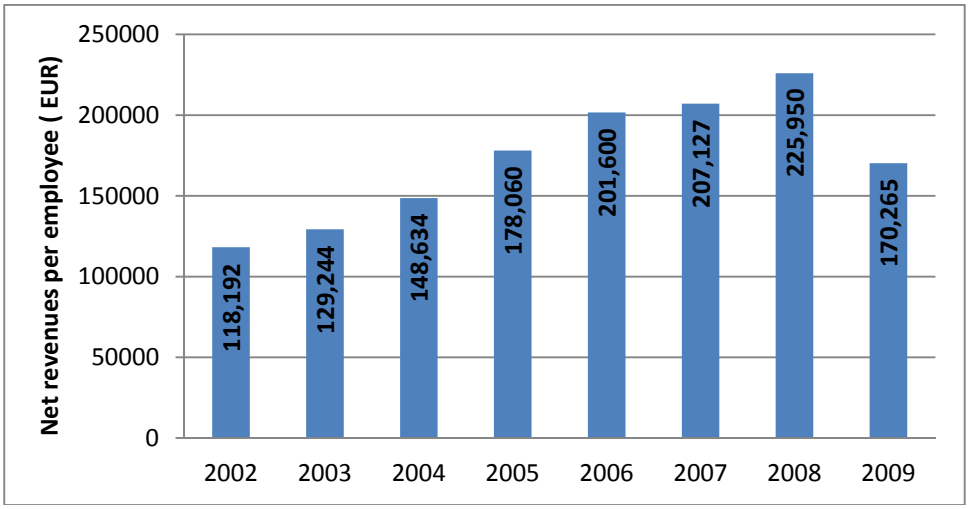
"*There is misconception in the wider Croatian public that the responsibility for bad performance leis on the shoulder of INA's strategic partner MOL. On the contrary the responsibility lies in the management and supervisory board members selected by the Government mainly as political appointees. They did not invest enough in the future of company as they were led by "wait and see" logic which considered that it would be unwise to invest into the company with uncertain majority ownership"*.

4.5. Employment and productivity of labour after privatisation

Throughout the post-privatization period under review (2005-2009) INA (but also MOL) has not decreased the number of persons employed that stayed around 16,000. In autumn 2010, INA announced a plan to restructure and reduce employment by 9% i.e. by some 1.500 employees. This is a first plan for reduction of the redundant workers since the company was privatized and therefore the privatization process itself had a little influence on that area. However, it should be emphasised that such a situation was not a voluntarily process. Namely, there was a clause within Privatization Agreement with the MOL, according to which INA would not lay-off workers within a 5-year period after the privatisation. Therefore, the productivity gains in this period have not been achieved at the expense of decreasing the number of employed in the company.

Nevertheless, despite that the labour productivity of INA measured by net revenues per employee doubled in 2004-2008 period, from €118,999 in 2004 to €225,950 in 2008, dropping only in 2009 to 170,265 per employee.

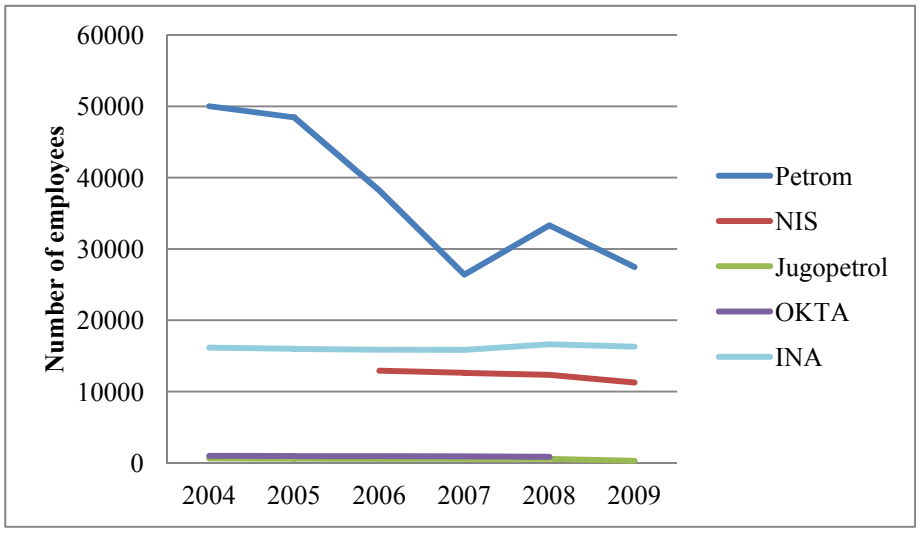
Figure 7. Net revenues per employee for INA Group, 2002-2009, in EUR



Source: Annual reports of INA, 2002-2009

Comparisons with the privatised oil and gas companies in the SEE shows that such an agreement was not the case for their national oil and gas industries when they were privatised, as they experienced an extensive reduction of number of employed, especially for instance in Romanian Petrom after it was bought by Austrian OMV, which reduced the number of employed from initial 50,010 in 2004 to 27,470 in 2009. Namely, to obtain short-term improvements in company performance, rather severe cuts in the number of employees took place around privatised industries both in mature and emerging market economies.

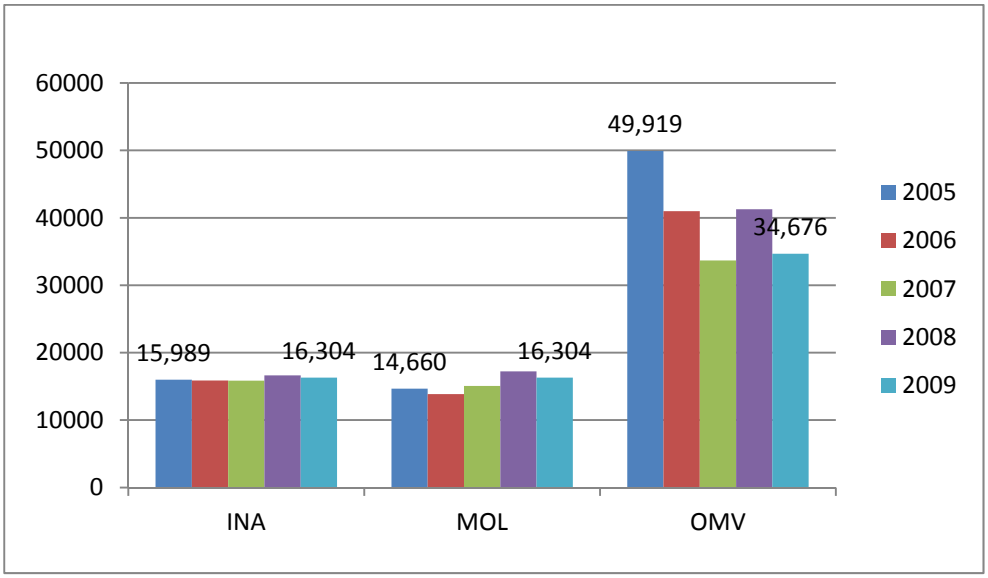
Figure 8: Decrease of number of employed in selected SEE, 2004-2009



Source: Companies' Annual Reports, 2004-2009

The comparisons of INA and MOL with the OMV group show a significant difference in policy towards the reduction of number of employed. Namely OMV Group dramatically reduced the number of employed in the companies it acquired during their privatisation process, as it was struggling to reduce costs instantly to keep competitive. As a consequence, labour productivity in INA remained at a level significantly lower than in the OMV, which cut the operational costs and increased productivity through laying-off a significant number of redundant employees in the companies it bought.

Figure 9. Number of employed persons in INA, MOL and OMV, 2005-2009



Source: Compiled by the authors from INA, MOL and OMV Annual Reports, 2005-2009.

4.6. Increased competition at retail market: impact on market shares and prices

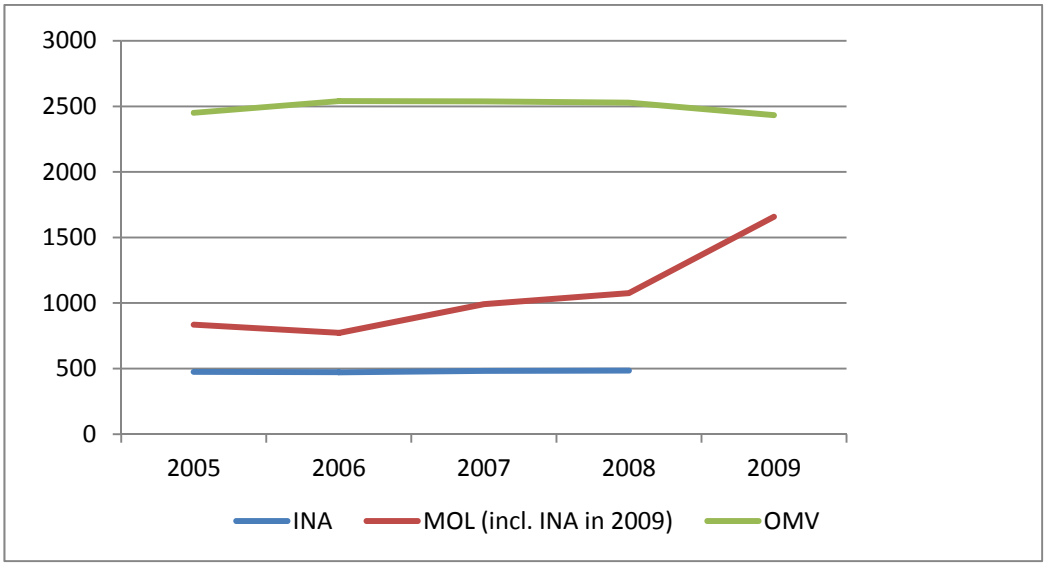
While the other segments of the business benefited from involvement of MOL as strategic partner, in terms of retail services at domestic market, INA seems to be stagnating after privatisation especially when compared to the main competitors. This area is now

acknowledged to be somewhat neglected and management board often emphasise that more efforts would be put into developing this area in the immediate future.[21]

Several interviewed experts for this study have singled out this area as the one where INA lost competitive advantage at the domestic market in the last 4-5 years. The reasons specifically mentioned include very low investment in the retail network, loss of the strategic locations of the filing stations as the traffic shifted to a large extent towards newly built highways, where INA did not invest enough in opening new petrol stations.

INA has been facing increased competition in the retail market in Croatia, especially in the retail of oil derivates, losing the former exclusive position in oil refining, wholesale and retail. Although no new refineries built in Croatia, opening to imports and activities of the competitors in building new petrol filling stations led to increased competition in retail. While MOL was rather successful in increasing its position in the region, as measured by the worldwide number of filling stations, the number of stations owned or operated by INA in Croatia and abroad stagnated.

Figure 10. Number of filing stations of INA at home and abroad in comparison to the main competitors in the region

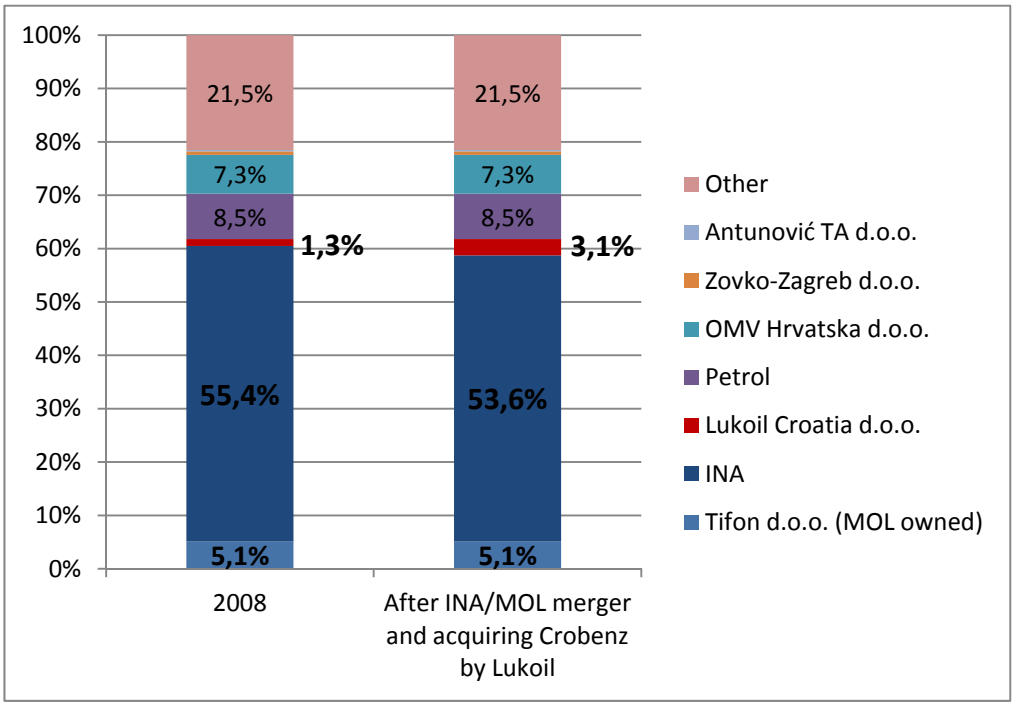


Source: Compiled by the authors from companies' Annual Reports, 2005-2009.

After privatisation of INA it was expected however that for the petrol and gasoil retail market, the MOL's market share should have increased in Croatia from 5-10%, i.e. to 55-65%, with the higher margin for the highways stations relevant market and also higher margin if calculated through turnover. The Agency for Protection of Market Competition however did not allow that development and imposed the sale of Crobenz, an INA subsidiary with 14 petrol stations countrywide, while the MOL was allowed to retain its subsidiary Tifon, with 40 petrol stations. In May 2010 the agency rejected the application of Croatian Petrol Station to buy Crobenz, and finally Crobenz was sold to the Russian Lukoil. The following figure shows the market shares (by the number of petrol stations) in 2008, prior and (supposedly) after merger and sale of Crobenz. The market share of market leader INA has supposedly increased from 55.4% to 58.7% (INA and Tifon combined), while the share of Lukoil increased from 1.3% to 3.1% by acquiring Crobenz from INA.

[21] "INA in 2009", presentation of Mr. Bojan Milkovic, Chief Executive Officer of INA, available at: http://www.ina.hr/UserDocsImages/investitori/objave/prezentacije/agm_prezentacija_eng_180510.pdf

Figure 11. Retail market shares by number of petrol stations



Source: Mol/INA decision, class: UP/I 030-02/2009-02/05 of June 9 2009, *Official Gazette* 113/2009

According to the INA Annual Report, in 2009, despite lower sales, INA Group`s share in the Croatian derivates retail market share was 54.47% and the domestic network share was estimated at 55.04%.

Regarding retail prices for oil derivates, the Agency concluded that the differences in the price level for particular companies are insignificant due to effective regulation of the highest prices of diesel, petrol and LPG by defining reference price (Mediterranean CIF – Genoa) and limiting price margins and additional costs. Apart from that, overall tax on fuels is as high as 55%, and it is decreasing the difference in the final retail prices.

For the natural gas wholesale and retail, the Agency found no threat to competition while MOL was not competitor in the market before the merger, and therefore there was no change in market shares following the merger. Apart from that, MOL expressed its intentions to separate and sell the gas trade and retail business. Although Croatian Government negotiated with MOL on buying the „gas business" i.e. „Prirodni plin" company. Gas Master Agreement, signed in January 2009 by the two largest shareholders of INA, the Croatian Government and MOL, provided for a gradual increase in gas prices and selling the whole „gas trading business" back to the Croatian state. However, INA sold the regulated gas storage business „Podzemno skladište plina d.o.o." to the state-owned Plinacro, for €68 million, while in December 2009, a new Amendment to the Gas Master Agreement was signed with postponement of the takeover until December 1, 2010 and in November 2010 the Government announced a decision not to proceed with the takeover yet.

Therefore gas trading business remained with INA, although as a separate business („discontinued operation" in reports) and, despite of the agreement provisions of regarding natural gas pricing policies, generated a loss of € 136 million in 2009, while the „continued operations" recorded a net profit of € 84 million, which represents an increase of 75% above the 2008 figure. The main reason for the loss is that the wholesale prices of natural gas were kept subdued at a level significantly lower than the import prices.

However, in 2010 the company returned into positive trends with € 131 million net profit, due to (according to the financial statement of the company) increased production, effects of investment in production, increased prices and significantly lowered loss in gas trading business (€ 46 million), due to increased prices of natural gas.

Having in mind that „Plinacro", 100% owned by Croatian Government has taken over the transport and storage business, although INA is the sole wholesale distributor of natural gas in Croatia, and gas price is fully regulated by state until August 2011 there is no immediate threat for consumers in a way that MOL would be in position to exploit its market position. Joining the EU would bring access to the gas market also to other competitors what would be beneficial for the further liberalization of the market.

In market of storage of processed oil products, the Agency found that the existing market share of INA (70-80%) would further increase by adding the capacities controlled by MOL (0-5%), however, the increase is not very significant and while there are low barriers of entry, there would be no negative impact in the relevant market.

As for the wholesale of oil derivates, the Agency concluded that, in spite of high combined market share of INA and MOL, there is no threat to market competition while tariffs are eliminated for imports from the EU countries and the barriers to entry for new competitors are rather low i.e. market is contestable.

4.7. Corporate governance effects

The post-privatisation business performance of INA also mirrors the effects of the process on corporate governance and on the management of the company. The agreement of selling initial tranche of INA (25% plus one share) to MOL also contained the MOLs participation in the management and supervisory boards, as INA had two tier corporate management structure. By this agreement MOL's participation in company management by acquiring two leading management positions in the Board of Directors (finance and corporate services) was not proportional to the ownership acquired in INA at that time. That remained a source of controversy to present days as according to widespread public and media perceptions, the initial agreement was poorly designed and resulted in far too weak Government's influence on the operational performance of INA and its future business development to protect vital national interests.

In October 2008, the new Contract on mutual relationship between shareholders was signed and by the Annex to the Contract signed in January 2009 and becoming the largest shareholder MOL gained the right to appoint a majority, i.e. five out of nine of Supervisory board members, while the Croatian Government appoints two of them one of which is the Chairman of the Supervisory Board, whereas employees appoint one member. By becoming the largest shareholder, MOL also has the right to appoint the President of Management board and half of the six Management board members. In the case of balanced number of the votes on decisions made by the Management Board, dominant voice is that of the President of the Management Board appointed by the MOL. To conclude, under the new strategic partnership contract January 2009, MOL has obtained prevailing influence on the business operations of INA

The change made it easier to manage the company on a daily basis what was reflected already in performance indicators in 2009 and especially in 2010.

Interview Question: How would you assess the political influence of the state administration on the management decisions of INA after privatization?

4.7.1.1 AVERAGE RATINGS				
1 ***No impact***	2 ***Little impact***	3 ***Moderate***	4 ***High impact***	5 ***Dominant impact***

Source: In-depth interviews with the selected experts and stakeholders.

Some of the interviewed experts however have quite different opinion and note that:

"*One could speak about profound impact of the state on management of INA for the whole period until MOL actually became the largest shareholder when it actually took the leading role in management board. Since the actual privatisation of the first instalment of 25% plus one share the Government actually continued to manage INA as it actually stayed a public enterprise."*

Blocking efficient corporate governance by the opposing interests of two strong shareholders in INA was reflected in higher costs of capital and increase of indebtedness.

In analyses of the stages of MOL becoming a leading regional multinational company Buzady (2010) and Antal-Mokos and Toth (2006) stressed that MOL's corporate governance strategy in the acquired companies in the region was to build up synergy and common interests stressing partnership/mutual benefits and eliminating "*we – they*" attitudes. However, this strategy was not an easy one in INA, as due to absence of clear ownership majority, the decision-making process was sometimes difficult due to conflicting objectives of two sides. For instance, achieving faster cost-efficiency and improved retail competitiveness was not possible due to impossibility to reduce the redundant labour. Also, further liberalizing the prices of oil and especially the gas has been introduced only rather gradually as social objectives outweighed the goals of improving the business performance, etc. The situation become a bit easier for MOL after taking a lead in the management board in 2009, after becoming a major shareholder (47.16%). However, having two major shareholders without a clear ownership majority would continue to pose difficulties in decision making process which is based on consensus. "*We and they*" divisions in the management and supervisory boards still exists in practice as it was demonstrated by the last developments in December 2010 when MOL gave another voluntary takeover offer to the small shareholders of INA.

4.8. Regulation, competition and market performance

In Croatia the regulation of energy activities are implemented by the Croatian Energy Regulatory Agency (Hrvatska energetska regulatorna agencija- HERA) which has been founded in 2004 as an autonomous, independent and non-profit public institution based on the Act on the Regulation of Energy Activities ("Official Gazette" 177/04 and 76/07). HERA is responsible for its work to the Croatian Parliament. Nevertheless, HERA is not fully independent yet in its decisions from the Government. While the first EU regulatory independence principle i.e. separation of the national regulatory authority (NRA) from the regulated firms is fully respected the second one i.e. efficient isolation of the NRA from political intervention is not fully met, although regulatory framework is in preparation.

Namely, while the market of oil products is more liberalized but controlled in terms of formation of market prices by defining reference price (Mediterranean CIF – Genoa) formula

and limiting price margins and additional costs, the prices of natural gas are still almost completely regulated and very much influenced by the Government interests and its social considerations. Any increase of gas prices should be approved not only by HERA but also by the Ministry of Economy and Government itself, thus indicating that there were no complete separation of powers between the regulator and the government bodies in Croatia. This has led towards having significantly lower prices of natural gas for households if compared to the EU countries, but also subsidized prices for industry. Such a policy has indeed harmed business performance of INA, which was mentioned in the earlier chapters of the analyses.

While being beneficial for the lowest income population, it was at the same time benefiting also higher income households as the prices were not sensitive to income census.

One other point was also singled out by number of interviewees:

"*It seems not logical that the state should subsidize the prices of gas for higher income population. Even less logical is to provide preferential prices for some industrial enterprises which are very profitable and completely privately owned. Even more, what logic could Government have to provide subsidized gas prices to shopping molls (all private) or retail chains?*"

The changes in legislation enabled the liberalisation of prices in 2010 for industrial and other customers, except for households which still enjoy subsidized prices of natural gas.

The liberalization of gas prices is an important task for Government prior to joining the European Union. So far the gradual approach has been applied in order to avoid steep increase of prices which as a consequence would have a negative cascading impact on competitiveness of the industry as well as on well being of the citizens, especially poor. In the course of 2010 the Government has prepared legislative framework for strengthening the electricity and gas market by application of third package of the EU energy legislation[22], By this package HERA would become more independent from government in regulative decision making as well as in regulating the formation of prices and tariffs of gas and oil derivates, for which no final approval by the Government would be necessary. All the required lows are expected to be adopted in 2011 which would enable the implementation of the III package of the EU energy legislation.[23]

The regulation in the energy sector is complemented with the work of Croatian Competition Agency (CCA) which takes care about respecting the principles of the Competition Act (Official Gazette, no.79/09) and provides assessments of the market concentrations in the oil

[22] 2010 Pre-Accession Economic Programme, Government of Republic of Croatia, January 2011.

[23] Third energy package was formally adopted by the Council of the European Union European Parliament on 25 June 2009. It stipulates further liberalisation of gas and electricity markets. The package strives to establish common rules for the internal market in electricity; common conditions for access to the network for cross-border exchanges in electricity; establishing an Agency for the Cooperation of Energy Regulators; common rules for the internal market in natural gas and regulated conditions for access to the natural gas transmission networks. Key features of the package include: a) efficient unbundling of energy supply and production from network operations; b) ensuring fair competition between EU companies and third country companies; c) strengthening of the powers of the national regulators and d) creation of a European energy agency. The key features of this legislative package will take legal effect between 2011 and 2013, as the member states have 18 months for transposition of third energy package into their national legislation. (available at: http://eur-lex.europa.eu/JOHtml.do?uri=OJ:L:2009:211:SOM:EN:HTML)

derivates market in Croatia. Croatian Competition Agency also controls the activities of the company with dominant market position (INA) and identifies relevant markets of products.

5. CONCLUDING REMARKS

The common feature of the privatisation of the oil and gas industry both in the West and post-socialist countries, including Croatia is that the process has been performed in an incremental way, i.e. by selling the state assets in several tranches or stages. That may be prudent in terms of allowing the sufficient time for building-up a complex regulatory framework for guiding the competition and price formation of the players at the market. On the other side, however, with partial privatisation, the Government was in position to benefit from the efficiency gains which private investors bring into the company without giving up the control over the enterprise (OECD, 2009, p.41). The other reason for privatising "in portions" which also proved to be relevant when contextualising the experiences of privatisation of INA oil and gas industry, is related to the political economy of the process. Namely, the opponents of the privatisation which are very reluctant to the idea of selling the strategic enterprises from public sector tend to take the situation of gradual and piecemeal sale of "family silver" with more understanding. Also by selling a portion of equity to the citizens at discounted prices in later stages, the Government expended a "constituency in favour" of privatization.

While continuing to cause controversy in public on beneficial impacts of privatizing the utilities sector, careful examination of the performance indicators of INA oil and gas industry shows that it has also brought several gains. To start with the breach of decade's long interface with political nomenclature and process of de-politicisation of the company's management could be considered an important outcome of privatisation of INA. This process is especially evident after MOL gained the operational control over the company, as the company was traditionally under strong influence of politics in terms of staffing management and supervisory boards by political appointees, as well as using company assets as cash machine for different political interests that were coated as "strategic national" ones. After MOL prevailed in management board, the direct impact of politics decreased although was not eliminated, but could not be dominant any longer in terms of everyday business operation of company. The impact of government and politics would continue however to be strong in shaping further the legislative environment for future portions of privatisation as well as through regulation of the market in the sector, especially when it relates to gas trading.

Both quantitative and qualitative data presented in this paper indicate that so called "strategic partnership" of foreign investor and the Government had ambiguous impact on corporate governance of INA. In the first stage, 2003-2008 every strategic decision was based on the full consent of Board members and as the Croatian Government still held nominal majority of shares, it was very important what it had to say about important strategic business directions of the company. Later on, in January 2009 after MOL gained operational majority in the Management Board, the principle remained respected. However, the President of the Board which is now placed by MOL is in position to make the final decisions if the number of votes is undecided. Hence, the influence of the Board members placed by the Croatian government in making operational decisions in INA has decreased accordingly. The evolvement of the change of ownership in INA (originally envisaged by the Privatisation Law 2002 and its Amendments in 2006) did not materialise at the pace planned and such situation was reflected in inability to exercise efficient management control over the company. The evolution of the

ownership towards the majority shareholder might be much healthier for the company, as recent events of fighting over majority ownership have clearly demonstrated it.

Another important impact of INA's privatisation is contribution to further development of capital market in Croatia while involving several hundred thousands of small shareholders into the process (Čalopa et al, 2008). Voluntarily takeover offer by MOL in 2008, and especially the last one from December 2010, has brought a significant impact on the trading volume of the Zagreb Stock Exchange. Furthermore, MOL brought into INA modern business and accounting expertise as well as corporate management knowledge and skills' synergies of a stronger regional partner in company management (Buzady, 2010; Kolotay, 2010). The new management skills have been mirrored in the improved financial performance of the company already in 2009, but especially in 2010. Apart from that, like in other companies it acquired (such as for instance Slovnaft), MOL strives to upgrade the fuel quality standards and ensure effective competition on the Croatian oil product market by adapting INA's output to international standards.

The examination and assessment of post-privatization performance indicators of INA oil and gas industry points to improvements in the operating and financial performance of the company and noticeable increase in output, sales, cost-efficiency, capital investment spending etc. especially when MOL gained the prevailing operational control over the company in 2009. Apart from the harsh influence of world economic crisis in 2008 when INA went into red with loss of operating capital to net sales of -1.4%, company performance was satisfactory measured by most of performance indicators, such as net revenues, EBTIDA and operational profit, as INA was in position to exploit the "close to monopoly" status at the market. On the other hand, however, the restructuring of the company initiated by the strategic partner has been accompanied with some costs too. For instance, company indebtedness due to high capital investments has shown tendency of worsening and vulnerability even prior to crisis what was reflected in worsening of its net financial position.

The post-privatisation performance of INA should be also contextualised in terms of wider socio-economic and welfare implications. In this analysis we focused on the two: employment levels and consumers' welfare. As for the immediate social impacts on the employment level, thanks to initial contract of privatization, the reduction of the number of persons employed was not possible in the first five years and INA kept about 16,000 its employees. Laying-off the redundant workers was postponed to 2010 when the redundancy programme was concluded involving 1,500 employees. Compared to the main competitors, the cost-savings and cost-efficiency were not achieved at expense of the employees so far, and social costs of privatization of INA were not that profound as elsewhere in the region such as for instance in Romania and Bulgaria, however this would be unavoidable in the future. Nevertheless, the announced reduction of labour for 9% would still remain modest as compared to other new EU member states and SEE countries, who all suffered from excessive employment in oil and gas industry.

The other social impact, i.e. the one on consumers' welfare has also been modest and controlled compared to the new EU member states experiences. The reason for that is the commercialisation of company operations, which included the gradual liberalization of prices of oil derivates much before privatization and also through introduction of competitors on retail market. The other segment of the market that relates to gas trading was very strictly controlled in terms of tariffs, that it did not pose major shocks to the consumers, especially to households, but also to industrial and other business companies, which enjoyed the subdued

prices until 2010. This situation would substantially change in the future and joining EU will cause the further increase of prices for households. Nevertheless due to increase competition, the prices for industry and other large consumers might even decrease what would be beneficial for all the sectors that heavily rely on energy inputs.

The limited inventory of the economic and social gains and costs of privatization of INA presented in this paper is rather robust and far from being exhausted and would continue to interest both academic and business analysts as time-horizon extends. Even after almost a decade, the company did not manage to evolve towards getting majority owner since the privatisation of the initial tranche and this situation is reflected in its performance. Having two strong major shareholders which are not always partners due to opposing interests keeps on blocking efficient management of the company. The ownership jigsaw seems still very much work in progress, and recent announcements from the government indicate that it would remain to be so for some time. Nevertheless, the logical evolution would be further increase of MOL's share towards reaching the majority threshold and bringing its operational control to stem from his ownership rights, what will enable further improvements in corporate governance to the benefit of business performance of the company, public interest, workers and consumers.

BIBLIOGRAPHY

Antal-Mokos, Z. and Toth, K., (2006): **MOL's Acquisition of Slovnaft – The Emergence of a Central European MNC**, in K Meyer and S Estrin, eds.: ***Acquisition Strategies in European Emerging Markets***, Hampshire: Palgrave Macmillan.

Buzady, Z., (2010): **The emergence of a CEE-regional multinational – A narrative of the MOL Group plc.**, ***Journal of East Europe Management Studies***, 15(1): 56-79.

Cook, P.; Kirkpatrick, C.; Minogue, M. and Parker, D., (2003): **Competition, Regulation and Regulatory Governance in Developing Countries: An Overview of Research Issues**, Centre on Regulation and Competition, IDPM, University of Manchester, UK.

Čalopa Klačmer, M.; Bubaš, G. and Vuković, K., (2008**): An introduction to the Capital Market of a Leading Petrochemical Company in Croatia: Case Study**, ***SEE Journal***, 3(2): 67-74.

Djankov, S. and Pohl, G., (1998): **The Restructuring of Large Firms in Slovak Republic**, ***Economics of Transition***, 6(1): 67-85.

Galal, A.; Jones, L.; Tandon, P. and Vogelsang, I., (1994): **Welfare Consequences of Selling Public Enterprises: An Empirical Analysis**, New York: Oxford University Press.

Government of Republic of Croatia, (2011): **2010 Pre-Accession Economic Programme**, http://www.mfin.hr/adminmax/docs/2010%20-%20Pre-Accession%20Economic%20Programme.pdf [Accessed 13.04.2011]

INA Annual Report 2009, http://www.ina.hr/UserDocsImages/g_izvjesca_pdf/gi_2009_eng.pdf [Accessed 14.04.2011]

INA Annual Report 2007, http://www.ina.hr/UserDocsImages/g_izvjesca_pdf/INA07engIII.pdf [Accessed 14.04.2011]

INA Annual Report 2005, http://www.ina.hr/UserDocsImages/g_izvjesca_pdf/INA_AR_2005.pdf [Accessed 14.04.2011]

Lopez de Silanes (2005), **"Dos and Don'ts in Privatization: Evidence from Less Developed Countries"**, ***The Privatization Barometer Newsletter***, no.2. available at: http://www.feem.it/userfiles/attach/2009116155114PB_Newsletter_2004.02.pdf

Kalotay, K., (2010): **The Political Aspect of Foreign Direct Investment: The Case of Hungarian Oil Firm MOL**, ***The Journal of World Investment & Trade***, 11(1): 79–90.

Megginson, William L. and Netter, Jeffrey M., (2001): **From State to Market: A Survey of Empirical Studies on Privatization**, ***Journal of Economic Literature***, 39(2): 321-390.

Megginson, William L., (2005): **The Financial Economics of Privatization**, Oxford: University Press, UK.

Milković, B., (2010): **INA in 2009**, http://www.ina.hr/UserDocsImages/investitori/objave/prezentacije/agm_prezentacija_eng_180510.pdf [Accessed 12.04.2011].

MOL Annual Report 2009, http://www.mol.hu/en/about_mol/investor_relations/reports/ [Accessed 14.04.2011]

OECD, (2009**): Privatisation in the 21st Century: Recent Experiences of OECD Countries: Report on Good Practices**, Paris: OECD

OECD, (2003): **Regulatory Authorities in South East Europe**, ***Investment Compact for South East Europe***, Paris: OECD.

OMV, **Annual Report 2009,** http://www.omv.com/portal/01 [Accessed 14.04.2011]

OMV, **Annual Report 2007,** http://www.omv.com/portal/01 [Accessed 14.04.2011]

OMV, Annual Report 2005, http://www.omv.com/portal/01 [Accessed 14.04.2011]

OMV, **Annual Report 2003,** http://www.omv.com/portal/01 [Accessed 14.04.2011]

Petrom, (2011): **Petrom on its way to becoming a leading integrated energy player in SEE**, http://www.petrom.com/SecurityServlet/secure?cid=1255729792755&lang=en&swa_id=1191522617466.1223&swa_site=wps.vp.petromcom [Accessed 14.04.2011].

Saha, S. and Parker, D. (2002) **Globalisation and Sustainable Development: Perspectives on the New Economic Order**, Cheltenham, UK and Northampton, MA, USA.

Sass, M et al., (2010): **The dominance of virtual indirect investors: the case of Hungary**, Budapest: KTI.

Sass, M., (2009): **Services OFDI: the case of Hungary**, Budapest: Institute of Economics, Version of 30th August.

Vickers, J. and Yarrow, G., (1991): **Economic Perspectives on Privatisation**, ***The Journal of Economic Perspectives***, 5(2): 111-132.

Wallsten, S., (2001): **Telecommunications Privatization in developing Countries: The Real Effects of Exclusivity Periods**, Stanford University, Palo Alto, Working paper

Wallsten, S., (2002): **Does sequencing matter? Regulation and privatization in telecommunications reforms**, Development Research Group, World Bank, Washington D.C., Technical Report

World Bank, (2004a): **Building market Institutions in SEE: Comparative prospects for Investment and Private Sector Development**, http://info.worldbank.org/etools/docs/library/117334/building-mkt-inst-in-SEEurope.pdf [Accessed 12.04.2011]

World Bank (2004b): **Reforming Infrastructure. Privatization, Regulation and Competition**, http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/2004/06/16/000012009_20040616143838/additional/310436360_20050007115940.pdf [Accessed 12.04.2011].

THE SOURCES OF THE GREAT MODERATION: A SURVEY

Bruno Ćorić
University of Split, Faculty of Economics
Matice Hrvatske 31, 21000 Split, Croatia
Phone: ++38521430724
E-mail: bcoric@efst.hr

Key words: *GDP growth volatility, structural changes, the Great Moderation*

ABSTRACT

The decades preceding the outbreak of the financial crisis in August of 2007 were a period of exceptional stability for the US economy. A number of studies over the past decade proposed different theoretical rationales and underpinning empirical evidence to explain the so-called Great Moderation. These explanations can be categorized in three main groups: good luck; good policy; and good practice. This study reviews and evaluates the growing literature on the sources of the Great Moderation. We find that substantial debate still surrounds the underlining causes of reduction in output volatility, and suggests new aspects to expand the existing studies.

1. INTRODUCTION

The analysis of the short-run output volatility occupies a prominent place in macroeconomic research. This analysis has been driven by theoretical concerns about the causes of short-run output volatility and by an important policy question, how to manage and reduce this volatility.

The decades preceding the recent crisis had been a period of unprecedented stability for the US economy. In particular, Kim and Nelson (1999) and McConnell and Perez-Quiros's (2000) analysis of the US quarterly GDP growth rates in the period after World War II revealed a large decline in the short-run volatility after 1984. The contrast was sufficiently marked to be characterised by the literature as "The Great Moderation".

Over the past decade new facts stimulated the search for theoretical explanation of the change in short-run output volatility. This review focuses on developments and challenges in the growing literature about the sources of the Great Moderation. The proposed theoretical explanations and underpinning empirical evidences are categorized in three main groups: good luck; good policy; and good practice. Accordingly, the review is organized as follows. Section 2 discusses studies which point to good luck, or a decrease in the frequency and severity of exogenous economic shocks, as a cause of reduced volatility. Contrary to good luck hypothesis, the other two hypotheses argue that a change in the way the economy accommodates shocks is the key to the output volatility decline. Section 3 considers improvements in economic policy as a major source of recently observed economic

smoothening. Section 4 reviews the evidence suggesting that change in inventory investments, change in access to external finance or labour market changes are the most probable reasons for changes in output volatility. The last section summarise the main findings and proposes possible new lines of enquiry.

2. GOOD LUCK

Short-run aggregate economic fluctuations are commonly viewed as a result of various economic shocks which are further transmitted through propagation mechanisms. Hence, if output volatility has changed since the early 1980s, then it must be due to a reduction in the size of the underling shocks or an attenuation of propagation mechanisms, or both.

The first attempt to distinguish between these two sources was Blanchard and Simon's (2001) analysis of the first-order autoregressive model (AR) for the US economy. Namely, if we assume that output growth follows an AR process

$$\Delta y_t = \mu + \phi \Delta y_{t-1} + u_t, \quad u_t \sim N(0, \sigma^2), \quad |\phi| < 1 \tag{1}$$

where Δy_t stands for quarterly growth rates of output. ϕ is the autoregression coefficient whose value measures persistence of the effects of economic shocks on output, that is, the strength of the propagation mechanism. The error term u_t symbolizes economic shocks. The standard deviation of output σ_y then is

$$\sigma_y = \frac{\sigma_u}{1-\phi^2} \tag{2}$$

Therefore, the lower σ_u and/or ϕ, the lower the short-run output volatility will be. Blanchard and Simon's (2001) estimates of the AR(1) model over a twenty quarter rolling sample from 1952 to 2000 suggest that the autoregression coefficient declines slightly, but does not show a clear time pattern. In contrast, the pattern of the standard deviation of the regression residuals closely mimics the pattern of the GDP growth rate standard deviations suggesting that the Great Moderation is mainly caused by smaller shocks rather than weaker propagation.

Stock and Watson (2002) advanced Blanchard and Simon's (2001) idea. Arguably, the process which generates output growth is much more complex than its univariate AR(1) representation. Therefore, Stock and Watson (2002) employed a four variable vector autoregression (VAR) model to analyse output volatility. They estimated a VAR model over the 1960 to 1983 and 1984 to 2001 time periods separately and calculated counterfactual variances of quarterly GDP growth rates, that is, the variances of GDP growth rates that would have arisen had either the regression coefficient matrix or the errors variance-covariance matrix taken values from different time periods. The counterfactual which combined the first period economic shocks and the second period economic structure produced a standard deviation of the GDP growth rate of essentially the same magnitude as observed in the first period. The counterfactual which combined the first period economic structure and the second period economic shocks produced a standard deviation of the GDP growth rate very similar to the standard deviation observed in the second period. These results suggest that the economic structures of the two periods are interchangeable. Correspondingly,

Stock and Watson (2002) identify changes in the shocks as the cause of the Great Moderation. The studies of Ahmed, Levin and Wilson (2004), Primiceri (2005), Sims and Zha (2006) and Kim, Morley and Piger (2008) which adopted and further developed this approach corroborate these results. For example, Primiceri (2005) estimated a time varying structural VAR model to assess possible changes in the US monetary policy from 1953 to 2001. Contrary to Stock and Watson (2002) his model allows a gradual change in both the model parameters and in the variance covariance matrix of shocks. According to Primiceri's (2005) results both systematic monetary policy (modelled through changes in the parameters of the monetary policy function) and non-systematic monetary policy (modelled through changes in the residual of the monetary policy function) have changed (improved) during the last 40 years. Yet, the counterfactual simulations suggest these changes were of minor importance for changes in the US economy. Exogenous non-policy shocks seem to be much more important explaining the increased stability of unemployment and inflation over the considered period. Taken together, these studies provide considerable empirical evidence in support of the good luck hypothesis. However, although compelling, this empirical evidence is subject to critiques.

In particular, it is ambiguous whether the observed change in VARs residuals can be interpreted as a change in exogenous economic shocks. As it is well known, VAR models lack a clear theoretical background; hence, it is possible that the results of VAR models are a product of misspecification rather than the genuine changes in economic shocks. For example, Taylor (1998, 2000) argues that smaller economic shocks have simply not been observed over this period. Economic shocks over the decades preceding the outbreak of the financial crisis in August of 2007 which include the international saving and loan crisis in the 1980s; the first and second Iraq war oil shocks; Latin American, East Asian and Russian financial crashes; the September 11 terrorist attack on the US and the subsequent attacks in the UK and Spain; various climatic catastrophes; do not seem to be smaller or less frequent than shocks before 1980s. Hamilton (2005) suggests that nine out of ten of the US recessions between 1948 and 2001 were preceded by a spike up in oil prices. Frequency and severity of oil shocks from 1966 onward have not, however, coincided with output volatility reduction (Summers, 2005). Blanchard and Galí's (2007) find that effects of oil price shocks on the economy has weakened in the US during the Great Moderation, suggesting that the US faced an improved trade-off in the face of oil price shocks of a similar magnitude. Gambetti, Pappa and Canova's (2008) results of time varying coefficients structural VAR model in which structural disturbances are identified using robust sign restrictions obtained from a structural dynamic stochastic general equilibrium (DSGE) model suggests that reduction in output volatility is caused by the changes in the way the economy responds to supply and demand shocks as well as changes in the size of economic disturbances. The results of VAR analyses also seem to be sensitive to variables specification. For example, Ahmed, Levin and Wilson (2004) attributes 50 to 75 percent of reduction in output volatility to changes in economic disturbances. On the other hand, Stock and Watson's (2002) results attribute almost 90 percent of changes to good luck. These studies leave considerably different amounts of reduction in output volatility to be explained by changes in propagation mechanisms, although they are the same kind of VAR models with only slight differences in their specification. Finally and most importantly, the proportion of the reduction in output volatility that is attributed to a change in economic disturbances appears to be inversely related to the size of the model. In particular, Giannone, Reichlin and Lenza's (2008) counterfactual analysis based on one small VAR, two larger systems of six and seven variables and a VAR with nineteen variables revealed that, whereas in the small models the change in propagation mechanisms explains none of the decline in output volatility, in the large model the change in propagation mechanisms explains the entire

decline in output volatility. In macroeconomic models economic shocks represented by error terms correspond to features that are either exogenous to the model or that are not understood. The more detailed the model, the smaller the shocks should be and the more limited their contribution to output volatility should be compared to the contribution of propagation mechanisms. Accordingly, Giannone, Reichlin and Lenza's (2008) results suggest that the literature which explains the Great Moderation as a consequence of a decline in economic shocks is based on the models which simply did not include enough information and were therefore misspecified.

These critiques cast serious doubt on the evidence based on VAR models. To avoid these objections Stock and Watson (2003), Arias, Hansen and Ohanian (2007), Leduc and Sill (2007), Justiniano and Primiceri (2008) and Canova (2009) consider theoretical DSGE models. For example, Leduc and Sill (2007) constructs a sticky prices DSGE model in which monetary policy is assumed to follow a Taylor type rule and exogenous disturbances are assumed to arise due to total the factor productivity (TFP) and oil shocks. The model is simulated by using different combinations of the pre- and post-79 parameters for monetary policy, TFP and oil shocks. The counterfactual analysis suggests that changes in monetary policy account for only 17 percent of the decrease in output volatility between the pre-1979 and post-1979 periods, implying that the change in the TFP and oil shocks accounts for the overwhelming amount of the output volatility reduction. Arias, Hansen and Ohanian (2007) simulation of the standard Real Business Cycle (RBC) model reveal that, when included in the model, the observed reductions in TFP volatility after 1983 are sufficiently large to produce the amount of output volatility reduction observed in the US economy. As the authors themselves noticed, this should not be surprising because the volatility of TFP is the only source of output volatility in the RBC model, and because the observed decrease in the magnitude of TFP volatility between 1955-1983 and 1983-2003 was about 50 percent, that is, almost identical to the observed decline in the output volatility. To take into account the possibility that other shocks are responsible for the Great Moderation they consider the Burnshide and Eichenbaum's (1996) model. In this model output volatility, apart from the TFP shocks, is caused also by the government spending shocks, labour-leisure preference shocks, and intertemporal preference shocks. The counterfactual simulations suggest that changes in these shocks are not able to contribute significantly to a change in output volatility. So, the reduction in TFP shocks remains a major driver of the Great Moderation.

Although these studies, by employing the theoretically based general equilibrium models, to some extent, avoid objections that their results are a product of misspecification these analyses still can be criticized on several grounds. First, these analyses did not consider the possibility that a reduction in output volatility may be caused by the change in economic structure. The lack of a test for possible effects of the change in economic structure does not only make these analyses incomplete, but is an indicator of a more serious problem. The initiating factors of output volatility in these DSGE models are economic shocks. This is widely accepted in the literature. The way output persistence is formulated in these models, on the other hand, can be matter of dispute. Namely, economic shocks are formulated as an AR processes. For example, in Leduc and Sill (2004) shocks follow an AR(1) process with a correlation coefficient of ϕ = 0.95; in Arias, Hansen and Ohanian (2007) the shocks follow an AR(1) process with correlation coefficient values of ϕ_1=0.95, ϕ_2=0.98, ϕ_3=0.99, ϕ_4=0.99. This indicates that the models' propagation mechanisms are not strong enough to generate the persistence which is observed in the output data. To facilitate replication of the persistence observed in output data authors introduced the autocorrelated shocks. This approach is standard in the DSGE models literature, but when the objective is to test for the cause of

output volatility reduction it can be inappropriate. Shocks modelled in this way do not only represent economic shocks but also the economic propagation mechanisms. Hence, the effects of a change in the size of economic shocks on output volatility are magnified due to the fact that shocks are assumed to be autocorrelated, compared to the case when the economic propagation mechanisms are explicitly built into the model. Justiniano and Primiceri (2008) acknowledged this problem by the interpretation of the estimates obtained from large New Keynesian model. In particular, they counterfactual analysis indicated a sharp reduction in the volatility of investment specific technology shock as the dominant explanation of reduction in output volatility. However, they argue that the reduction in output volatility due to the reduction in investment specific shocks may arise actually from the reduction in financial frictions and that their model, although large, is not rich enough to test this alternative explanation. The results from DSGE models also seem to be sensitive to the type of model used for the analysis. For example, using a three-equation New Keynesian model Canova (2009) finds that both, changes in the parameters of the monetary policy rule and changes in the variability of shocks have support in the data. Yet, only combination of the two explanations can account for a decline in the variability of output over time.

3. GOOD POLICY

The notion of a passive monetary policy as an explanation for the higher output volatility in the pre-1984 period was introduced in the literature by Clarida, Gali and Gertler (2000). Their estimates of the forward-looking version of the Taylor rule revealed substantial difference in the values of regression coefficients in the pre-Volcker period (1960-1979) compared to the Volcker-Greenspan era (1982-1996) suggesting that the Federal Reserve was reacting more aggressively to deviations in output and inflation during the second period. In particular, the response coefficient of the Federal funds rate with respect to output fluctuations, γ, rose from 0.27 to 0.93. The response coefficient of the Federal funds rate with respect to inflation fluctuations, β, rose from 0.83 over the pre-Volcker period to 2.15 in the period after 1982. Estimates of the Federal funds rate responses to inflation suggest that monetary policy not only responded more aggressively to inflation in the Volcker-Greenspan era, but also that its actions were destabilizing rather than stabilizing for the US economy from 1960 to 1979. Namely, in the general equilibrium models built on rational expectations assumptions, like the sticky prices New Keynesian model used by Clarida, Gali and Gertler (2000), $\beta<1$ leads to equilibrium indeterminacy. This occurs because insufficiently aggressive monetary policy creates an opportunity for self-fulfilling expectations, that is, for the so called sunspot shocks. In the case when $\beta<1$ an increase in the expected future inflation rate by one percentage point induces a rise in central bank's (CB) nominal interest rate by less then one percentage point. Consequently, a rise in the rate of the expected inflation leads to a reduction in the anticipated real interest rate. A decline in the anticipated real interest rate raises aggregate demand, output and inflation in the subsequent period. Therefore, the initial increase in economic agents' inflation expectations is confirmed. In this case the economy will be vulnerable not only to changes in economic fundamentals but also to sunspot shocks. On the contrary, in the case when $\beta>1$, a rise in the CB's nominal interest rate is sufficient to increase the anticipated real interest rate, suppress aggregate demand and offset changes in inflation and output. Hence, the economy will be volatile due to fundamental shocks only. In the general equilibrium models with a limited role for rational expectations, as in the backward looking Keynesian models for example, an insufficiently aggressive monetary policy $\beta<1$ leads to an unstable or explosive equilibrium. For example, a rise in inflation rate caused by increased aggregate demand in this case brings down the real interest rate due to insufficient response of the CB's nominal interest rate. A decline in the real interest rate increases aggregate demand and cause

an additional rise in inflation and output. So, the economic shocks are not offset but are rather enhanced by monetary policy reaction.

According to Clarida, Gali and Gertler's (2000) findings the US monetary policy did a considerably better job in insulating the US economy from economic shocks in the Volcker-Greenspan era than before. Using different approaches, other studies corroborate these results. For example, Lubik and Schorfheide (2004) first showed how to estimate a DSGE model under a passive monetary rule allowing for sunspots, and provided econometric tools that allow for a systematic assessment of the quantitative importance of equilibrium indeterminacy and the propagation of fundamental and sunspot shocks in the context of DSGE model. According to the considered New Keynesian model the US monetary policy in the Volcker-Greenspan period is consistent with determinacy, whereas the monetary policy in the pre-Volcker period is not, which supports Clarida, Gali and Gertler's (2000) findings that the US monetary policy in the pre-Volcker period had contributed to aggregate instability and that the policy became more stabilizing during the Volcker-Greenspan period. Bullard and Singh (2008) employed a multiple countries open economy New Keynesian model to explore the world equilibrium determinacy conditions. In brief, their analysis suggests that in the open economy setting, where economic shocks are transmitted across borders, the determinacy of worldwide equilibrium depends on behaviour of policymakers worldwide. Even if the monetary policy in a country is performing appropriately the country may still be exposed to sunspot volatility due to inappropriate policy in some other country or countries. The possibility of equilibrium indeterminacy is larger as the size of the economy which follows an equilibrium determinacy inconsistent policy is larger compared to the size of an economy which follows appropriate monetary policy. The estimates of the forward looking version of Taylor rule for the three largest economies in 1969-1979 (the US, Japan and Germany) and 1990-2004 (the US, EU and Japan) suggest that over the 1970s only the US followed a monetary policy consistent with equilibrium determinacy conditions. Since the size of the other two economies was relatively large, this suggests that sunspot shocks were probably disturbing the US economy over the 70s although the US monetary policy was consistent with equilibrium determinacy. On the other hand in the 90s only Japan followed an equilibrium determinacy inconsistent policy. Relatively small size of the Japanese economy compared to the size of the US and EU economy together suggest the US economy probably mitigated the effects of sunspot shocks which originated in Japan. In line with Clarida, Gali and Gertler (2000) results of Boivin and Giannoni's (2006) analysis of a VAR model over the pre- and post- 1980 period also provide evidence of a change toward more aggressive response of monetary policy to inflation in the second period. Furthermore, their counterfactual analysis of the structural macroeconomic model suggests that the change in monetary policy explains a significant part of the reduction in output volatility in the second period.

Taken together, the good policy hypothesis is theoretically plausible. It is consistent with considerable amount of evidence that suggests a change in the US monetary policy since the early 1980s (see also, Taylor 1999; Romer and Romer 2002; Cogley and Sargent 2002, 2005), and it is supported by Boivin and Giannoni (2006) and Canova's (2009) findings that detected change in monetary policy is a quantitatively important determinant of the decline in output volatility. This view, however, is not unanimous. Several studies, including Primiceri (2005), Sims and Zha (2006) Canova and Gambetti (2009) argue that estimated changes in the US monetary policy had negligible effect on output volatility. Furthermore, it is not clear in which way the conduct of monetary policy has changed in the Volcker-Greenspan era. Orphanides (2004) argues that the change in the US monetary policy was a change to a less rather than more aggressive monetary policy. Following Orphanides (2001) he estimates the

identical forward looking monetary policy reaction function as in Clarida, Gali and Gertler (2000), but using real time data. In particular, Orphanides (2004) use the forecasts prepared by Federal Reserve Board staff to the Federal Open Market Committee, known as the Greenbook, to construct data time series.[1] The estimates of the monetary policy reaction function based on these data suggest considerably different results. First, the results suggest a striking similarity in policy response to inflation deviation in the two periods. The estimation of β is only slightly higher for the period since 1979 than before. Second, it seems that monetary policy responded less aggressively to deviations in the output gap after 1979. The estimated value of γ for the period 1979-1995 is more than twice as small as the value for the period before 1979. These results imply that the period of economic instability associated with the pre-Volcker period coincides with the period of an excessively activist monetary policy. The recent period of low output volatility coincides, on the other hand, with a less aggressive policy. The observed reduction in output volatility after the early 1980s can be an outcome of monetary policy improvement. Yet, the improvement in monetary policy does not necessarily mean a more aggressive policy. It could also reflect a shift from policymakers' overconfidence in their ability to stabilize output, to more modest, but attainable objectives. According to Orphanides (2004), in cases when real time data are noisy optimal policy is the one which responds more cautiously to output and inflation innovations than would be the case if accurate data were available to policymakers. The aggressive stabilization policy could, in fact, by its reaction to false output and inflation disturbances, be a source of economic instability. As a result, an efficient policy that properly accounts for the noise in the data might seek for a balance and call for less activism than may be appropriate in the absence of this noise.

4. GOOD PRACTICE

Several studies argue that output volatility after 1984 was lower due to structural changes in the US economy. Explanations suggested by the literature include inventory investment improvements, changes in access to external finance and labour market changes.

4.1 Inventory Management Improvements

To understand the possible relationship between inventory management improvements and reduction in output volatility it is instructive to consider the standard inventory identity.

$$Y_t = S_t + \Delta I_t \tag{3}$$

where Y is production, S represents final sales and ΔI denotes the change in inventories; that is, inventory investment. From equation (3) the relationship between variance of production and variances of sale and inventory investment is

[1]Orphanides (2001) argues that the monetary policy empirical literature is based on unrealistic assumptions about the time of data availability and its accuracy. The empirical studies in this field generally use the ex-post revised data of nominal, real, and potential output and of inflation for analysis of historical time series. In that way they implicitly assume that these data were available to policymakers at the time of their decision making. But, at the moment of decision making the data that are available to the policymakers (real time data) are forecasts or at best preliminary values of these data. The existence of the wedge between real time data, which are actually used by policymakers, and ex post revised data, can bias econometric estimates and yield a misleading description of the historical pattern of monetary policy.

$$Var(Y_t) = Var(S_t) + Var(\Delta I_t) + 2Cov(S_t, \Delta I_t) \quad (4)$$

The firms that seek to minimize costs will in their response to changes in final sales manage a change in production and inventories in the most cost effective manner. The standard version of the production-smoothing model of inventories predicts that the variance of final sales should be larger than the variance of production due to the negative covariance between sales and inventory investment. The negative covariance should arise as a result of the cost of producing and costs of changing production (Blanchard, 1983). Under the standard assumption of decreasing returns the firm's cost function is convex; hence it is optimal for the firm to minimize short-term changes in production through changes in inventories. In other words, inventory investments are expected to act as a buffer, moving in the opposite direction to final sales. Yet, historically the opposite has been true (Ramey and Vine, 2005). Empirical evidence has been more supportive of the accelerator model of inventories, which suggests that firms want to maintain some desired inventory-to-sales ratio due to the cost of being away from some target level of inventories (Blanchard, 1983). According to this model, it is optimal for a firm to move inventories in the same direction as final sales. Consequently, the covariance between final sales and inventory investment should be positive and the firm's production should be more volatile than final sales. In other words, inventory investments will enhance output volatility rather than act as a buffer between sale and output changes.

Explanation that attributes reduction in output volatility to improvements in inventory investment is based on the accelerator model of inventories. McConnell and Perez-Quiros (2000) and Kahn, McConnell and Perez-Quiros (2002) argue that the widespread implementation of information technology (IT) caused fundamental changes in the nature of production and distribution, and in their relation to final sales. In particular, IT advances enabled application of the so called "just-in-time" approach to inventory management. Methods of electronic scanning and bar codes made possible automatic restocking based on real time sales data. Both of these methods aim to reduce stocks of inventories necessary for firms' "normal" functioning. Hence, their application should reduce the desired inventory-to-sales ratio, and according to the accelerator model of inventories, decrease output volatility. IT advances enabled also a better monitoring of sales reducing the time between moment when a change in final sales occurs and the firm's management becomes aware of it. Computer controlled machines enabled greater flexibility of production, which makes it possible to cut down on the time between production decisions and sales realization. Taken together this enabled better anticipation and prompter reaction to final sales changes which reduce the deviation of inventories from their targeted level. The result is lower inventory investment volatility and, due to a positive covariance between inventory investment and final sales, lower output volatility.

Empirical evidence reported by Kahn, McConnell and Perez-Quiros (2002) consist of four main findings: a) compared to nondurable services and structures, the standard deviation of durable goods most closely replicates the behaviour of output standard deviation. Furthermore, the standard deviation of durable final sales in the period after 1984 fell less than standard deviation of durables production. According to equation (4), the only way this can occur is through a reduction in inventory variance or a decline in final sale and inventory investment covariance; b) the results of output growth variance decomposition show that a decrease in final sales variance can only account for 13 percent of the output variance reduction. In other words, it attributes 87 percent of this reduction to a decrease in inventory investment variance and to a change in final sales and inventory investments covariance,

which changed its sign from positive to negative between the first and the second period; c) the analysis of the inventory-to-sales ratio pattern reveals a clear downward trend in this ratio after the early 1980s; d) a visual inspection of inventory-to-sales ratio deviations from the targeted level suggest that these deviations were much smaller after the early 1980s than before. This empirical evidence has been subject to serious critiques.

The finding that the variance of production declined more than the variance of final sales is sensitive to the frequency of the considered data. Stock and Watson's (2002) analysis of four-quarter growth rates revealed that the standard deviation of production and final sales dropped by essentially the same amount. Moreover, contrary to Kahn, McConnell and Perez-Quiros's (2002) evidence, this proportional decline is observed in all sectors: durables; nondurables; services; and structures production.

The results from disaggregated data also diverge in many points from the Kahn, McConnell and Perez-Quiros (2002) findings. Herrera and Pesavento's (2005) results of the test for structural breaks at unknown time points identified two break points in inventory investment series of some industries. Further, among the industries for which a single break point is identified the break is located in the mid-1980 for only half of them. In respect to final sale, they found that, contrary to Kahn, McConnell and Perez-Quiros (2002), in industry-level data breaks are identified in final sales variances also. Estimation of inventory-sale covariance at the industry level suggests breaks in time series only for a few industries. Even in these industries, a change in covariance revealed reduction in its magnitude, but not a change from positive to negative sign as in the aggregate data. Finally, Herrera and Pesavento (2005) find that change in materials and work in progress inventories account for most of the reduction in the volatility of total inventories after the mid-1980s. Contrary to the case of finished goods inventories, the existing theory remains silent about a possible dependence between aggregate output and input inventories. Hence, there are no a priori reasons to expect that the observed reduction in input inventories volatility could have contributed to the decline in output volatility.

Ramey and Vine (2004) find the difference in the trend of real and trend of nominal inventory-to-sales ratios. While the current dollar ratio reported by Kahn, McConnell and Perez-Quiros (2002) shows a clear downward trend starting in the early 1980s, no such trend is observed in the chained dollar inventory-to-sales ratio. The explanation is simple. The aggregate inventory-to-sales ratio includes services in the denominator, but not in the numerator, since they are not storable. As the prices of services have increased relatively to the prices of goods and structures, they created a decline in the trend of the nominal compared to the real inventory-to-sale ratio. Furthermore, the relative prices of goods and structures decreased at a faster rate after the 1980s, creating a large discrepancy between the observed nominal and real ratios in that period. Therefore, although the inventory-to-sale ratio at a particular point of time is best measured by current dollars, for comparison at different time points it is better to use the real dollars inventory-to-sales ratio which displays no trend.

Results of different theoretical models of inventory investment also challenged the inventory improvement hypothesis. Maccini and Pagan's (2003) simulations of the inventory holding model suggest that even substantial changes in parameters governing firm's inventory holding behaviour have a rather small effect on the volatility of firm's production. These results suggest that inventory management improvements cannot be quantitatively important determinant of decline in output volatility. Ramey and Vine (2005) argue that the change in the covariance between final sales and inventory investment, detected by Kahn, McConnell

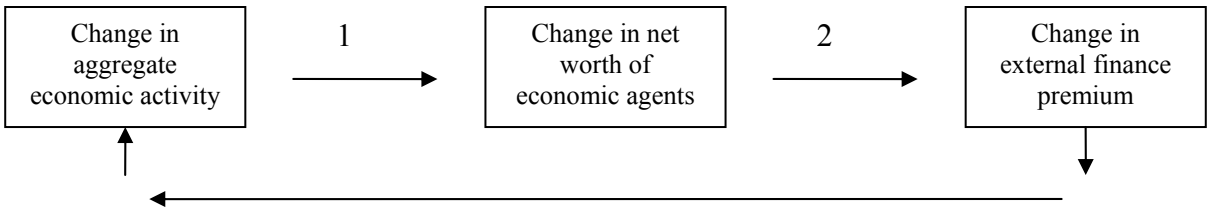
and Perez-Quiros (2002), can be caused by a change in the volatility of final sales. Analysing the US automobile industry data they discovered that changes in final sales became less persistent after 1984. In order to understand the implication of the decline in sales persistence on production they specified and simulate the dynamic cost minimization problem the plant manager solves in making short-run production decisions. Simulations revealed that the standard deviation of the firm's production fluctuates significantly with changes in final sales persistence. A decrease in final sales persistence identical to those observed in the data generated a reduction in output volatility large enough to reduce the output-to-sales volatility ratio, a large decline in covariance between inventory investment and final sales, and a change in covariance sign from positive to negative. Namely, if sales shocks are very persistent then the firm changes its production dramatically in order to maintain the desired inventory-to-sales ratio, since it knows that sales are likely to remain high (low) for a while. In other words, the firm expects that the cumulative cost of being away from some target level of inventories will be higher than the costs of adjusting production. Alternatively, if the shocks are more transitory, the firm is willing to allow deviation from the desired inventory-to-sales ratio since it expects the deviation to be short lived. In other words, the firm expects that the cumulative cost of being away from some target level of inventories will be lower than the costs of adjusting production.

4.2 Accessibility of External Finance

Several studies, including Morgan, Rime and Strahan (2004), Dynan, Elmendorf and Sichel (2006), Portes (2007), Mertens (2008) and Guerron-Quintana (2009), consider changes in access to external finance under different macroeconomic conditions as a cause of the Great Moderation.

Morgan, Rime and Strahan (2004) and Portes (2007) explore possible beneficial effects of geographical diversification. Portes (2007) consider the growth of multinational corporations as a possible source of reduction in output volatility. He argues that international operations provide multinational firms with a smoother paths of net worth, which results in a less volatile external finance premium and, hence, less volatile aggregate output. The supporting evidence is based on the model which introduces internationally diversified firms into the Bernanke, Gertler and Girlchrist's (1999) financial accelerator model. The Financial Accelerator effect, illustrates a channel through which relatively small economic shocks can be amplified and propagated by financial market frictions. Figure 1 outlines this mechanism. Arrow 1 illustrates a positive link between changes in aggregate economic activity and changes in economic agents' net worth. Consecutively, Arrow 2 illustrates an inverse link between change in economic agents' net worth and the size of the external finance premium. At last, since the external financial premium is inversely related to investment the return arrow illustrates pro-cyclical feedback into aggregate economic activity.

Figure 1. The Financial Accelerator



Source: Ćorić and Pugh (2011)

According to Portes (2007), due to growth of multinational corporations, the link between changes in aggregate economic activity and economic agents' net worth (arrow 1) is not as tight since the early 1980s as it was before. Namely, in a closed economy, economic agents' net worth consists of only domestic assets and liabilities. Taking the level of financial market frictions as given the strength of the Financial Accelerator effect depends on the correlation between aggregate output changes and agents' net worth. On the contrary, in an open economy agents' net worth may consist of both domestic and foreign assets and liabilities. In this case only part of economic agents' net worth is directly influenced by changes of domestic output, since the foreign component of economic agents' net worth is directly influenced by changes of foreign output. Simulations of DSGE model developed by Portes (2007) suggest that net worth diversification through rapid growth of multinational firms can account for up to 24 percent of the observed decline in the US output volatility.

Morgan, Rime and Strahan (2004) argue that policy changes enabled intermediary institutions to expand and diversify their activity among the US states and regions. In particular, until 1978 every state in the US banned banks from other states. Consequently, instead of having a integrated national banking system the US had rather 50 "small" banking systems. The process of opening borders to out-of-state banks started in Main in 1978 and was followed by other states in subsequent years. By 1994, when the process was completed, the share of bank assets owned by multistate bank holding companies in the typical state had risen to 60 percent (Morgan, Rime and Strahan, 2004, p. 1559). Compared to the possible effect of geographical diversification of firms' activity geographical diversification of banks' activity in theory can increase as well as decrease output volatility. In brief, local economic shocks should have smaller effect on the banks' capital (net worth) if banks' activities are geographically diversified. Hence, local shocks to banks' net worth should have smaller effects on lending volume, credit standards, and consequently, aggregate economic activity.[2] However, an integrated banking system also enables banks to export capital in the cases of adverse firm collateral (net worth) shocks and in that way to exaggerate the effects of this shock on aggregate economic activity. Morgan, Rime and Strahan's (2004) panel regression analysis suggests that, on average, banking integration had a stabilising effect on output volatility in the US states.

[2] For a more detail explanation of the relationship between banks' net worth and aggregate economic activity see Gertler and Kiyotaki's (2010) analysis of the general equilibrium model in which the Financial Accelerator effect emerges due to the asymmetric information problem that constrains the ability of banks to obtain funds from depositors in retail as well as in wholesale financial markets.

Dynan, Elmendorf and Sichel (2006), on the other hand, argue that the range of innovations in the US's financial markets since the early 1980s reduced financial markets frictions. That increased the ability of firms and households to borrow over economic downturns and in turn lead to lower volatility of aggregate demand and output. Financial innovations that contributed to reduction of financial frictions include: a) Technological advances that make it easier for lenders to collect information on the credit worthiness of borrowers, and so improve the assessment and pricing of risk. New techniques that use this information to determine underwriting standards, set interest rates, and manage risk which results in an increased use of risk-based pricing for consumers' loans; b) A greater use of markets in raising external funds. In particular, development of extensive secondary markets for loans, which means that a large fraction of mortgages and a growing fraction of other household and business loans are now securitized; c) Development of high-risk debt or the so called "junk bonds" market, which means that a larger fraction of business have access to bond financing; d) Phasing-out Federal Reserve Regulation Q, which had set a ceiling on the deposit interest rate. Over the period in which this regulation was binding, this put limits on funds available for lending, since any increase in interest rates above the ceiling level pushed savings away from banks; e) Changes in households' and firms' willingness to borrow caused by an increase in credit availability and the greater familiarity with the process of obtaining credit as well as a reduced stigma of being in debt. According to Dynan, Elmendorf and Sichel (2006) these innovations improved access to credits in terms of both the amount of credit and the consistency of its availability under different macroeconomic conditions. The underpinning empirical evidence reported by Dynan, Elmendorf and Sichel (2006) is based on linear regression and VAR analyses of consumer spending, housing and business investments. Namely, their estimates suggest that, consumer spending was less responsive to income changes in the period 1985-2004 than before, and that shocks to the bank rate spread and mortgage rate had much smaller effects on housing investment over that period than before, which is consistent with the hypothesised reduction of financial markets frictions over the same period. In the case of business investments the results are mixed. For example, high-tech equipment investment responds less to the shocks in cash flow after 1985 than before, but the response to the bank rate spread was minor in both periods. For other equipment investment, on the other hand, the results were the opposite.

The hypothesis that financial innovations since the early 1980s reduced financial markets frictions is interesting, but Dynan, Elmendorf and Sichel's (2006) analysis is incomplete and flawed. First, from Dynan, Elmendorf and Sichel (2006) it is not clear what type of financial market friction is/are reduced. The potential sources of financial markets imperfections include: asymmetric information, bankruptcy costs, agency conflict, transaction costs, taxes asymmetry, and government regulation. Some of these frictions do not have pro-cyclical effect. Hence, release of financial market frictions in general should not necessary lead to lower output volatility. Innovations suggested by Dynan, Elmendorf and Sichel (2006) seem to point toward the release of informational asymmetry and frictions caused by government regulation. Release of these frictions in theory can reduce output volatility. However, in the case of informational asymmetry there is no precise explanation as to why suggested innovations should reduce the problem of asymmetric information in financial markets. In case of both, the informational asymmetry and frictions caused by government regulation, there is no precise explanation through which channel(s) release of these financial market frictions should reduce output volatility. Hence, the precise relationship between the suggested financial innovations and output volatility remains unclear. Second, Dynan, Elmendorf and Sichel's (2006) empirical evidence do not establish a direct empirical relationship between the decline in the US output volatility and financial innovations. Third,

Wachter (2006) showed that the precise relationship between changes in marginal propensity to consume (MPC) reported in Dynan, Elmendorf and Sichel's (2006) and the volatility of consumption growth is not clear. By definition, personal consumption expenditure (PCE) is equal to income minus saving. Its variance can be decomposed as follows

$$Var(PCE) = Var(Income) + Var(Savings) - 2Cov(Income, Savings) \quad (5)$$

The decrease in consumption volatility could therefore arise from a decrease in income volatility, in saving volatility, or an increase in covariance between income and saving. The last seems the most in line with the hypothesis that financial innovation lead to the decline in consumption volatility and is also in line with Dynan, Elmendorf and Sichel's (2006) findings that MPC declines after the mid 1980s. However, the numbers reported in Dynan, Elmendorf and Sichel (2006) indicate also that income volatility after 1985 declines nearly as much as the volatility of PCE. Thus, the evidence seems to point at least as much to an income-driven decline in consumption volatility as to a rise in the ability to smooth income changes. Finally, the empirical evidence on the relationship between financial innovations, housing and business investment is based on aggregate data. The problems related to the use of aggregate data in testing for financial market frictions are well known in the financial literature. The results based on aggregate data suffer from observational equivalence. In particular, they are unable to distinguish between changes in investment caused by changes in investment funds demand or by changes in investment funds supply. Therefore, this literature has been using disaggregated firm level data to test for the financial market frictions (for the seminal contribution see Fazzari, Hubbard and Petersen (1988); for the more recent contributions see, for example, Cummins, Hassett and Oliner 2006; Hovakimian and Titman 2006; and Almeida and Campello 2007). Hence, the results based on aggregate data cannot be considered as reliable evidence neither for existence nor change in financial market frictions.

Theoretically consistent explanation and more sound evidence on the possible relationship between financial innovations and decline in output volatility is provided by Mertens (2008) and Guerron-Quintana (2009). In short, Mertens (2008) formalises the idea that the phasing-out regulation Q contributed to reduction in output volatility by developing a monetary DSGE model which shows that the ceiling on the deposits interest rates exacerbated the drop in economic activity following a monetary tightening. Guerron-Quintana's (2009) analysis suggests that a significant part of reduction in output volatility can be attributed to financial innovations that reduced transaction costs in financial markets, as for example, the introduction of automated teller machines and electronic fund transfers. Lower transaction costs enabled frequent portfolio re-balancing and allowed households to efficiently adjust their money balances when shocks buffet the economy and hence facilitates consumption smoothening.

4.3 Labour Market Changes

Labour market changes have been recently proposed as another possible cause of the Great Moderation. Namely, output growth $(\dot{Y})$ can be decomposed into working hours growth $(\dot{H})$ and labour productivity growth $(\dot{y})$

$$\dot{Y} = \dot{H} + \dot{y} \quad (6)$$

where labour productivity y is defined as output per hours worked $(y = \frac{Y}{H})$. Accordingly, the variance of output growth is the sum of working hours and labour productivity growth variances and their covariance

$$Var(\dot{Y}) = Var(\dot{H}) + Var(\dot{y}) + 2Cov(\dot{H}, \dot{y}) \quad (7)$$

Galí and Gambetti (2009) and Stiroh (2009) identified a large decline in volatility of hours growth, labour productivity growth, and covariance between hours and labour productivity growth around the mid-1980s. Decline in working hours and labour productivity growth covariance, that shifted from values close to zero in the early post-war period to large negative values after mid-1980s, points to possible changes in labour market as the source of the Great Moderation. Suggested explanations include: a steady rise in "just in time employment" due to increase in temporary workers, part time workers and overtime hours which substantially increased the flexibility of the US labour market; and possible reduction in labour hoarding due to an reduction in costs associated with the adjustment of labour.

These potential explanations are acknowledged, but they are not explored. Galí and Gambetti (2009) and Stiroh (2009) do not provide evidence on the relationship between these explanations and the observed decline in hours and labour productivity covariance. The quantitative importance of these labour market changes for the change in output volatility is also not assessed. Hence, as Galí and Gambetti (2009) noted, the role of labour market changes in the US economic stabilization should be treated as a proposition for further theoretical and empirical analysis rather as an established explanation.

5. DISCUSSION AND CONCLUDING REMARKS

The sources of the so-called Great Moderation have been the subject of many studies over the past decade. This review presents and discusses explanations categorised into three groups: good luck, good policy and good practice. Taken together, this literature, has not reached consensus about the underlying causes of the short-run output volatility in the US economy.

Simple comparison of the main findings from the studies in this literature (Table 1) suggests that the number of studies which support the good luck hypothesis as the main, or the one of the main explanations of the Great Moderation is the largest. Namely, the studies which support other hypotheses very often find that these explanations cannot account for the entire reduction in output volatility and usually contribute some part of the reduction in output volatility to a decrease in the frequency and severity of exogenous economic shocks. Severity of the recent economic downturn seems to support the view that the Great Moderation was the period of transient economic stability which most easily can be explained by the smaller economic shocks (see, for example, Canarella, Fang, Miller and Pollard, 2010). However, the investigation of this literature suggest that evidence on smaller economic shocks is not so strong at it might look initially. The good luck explanation is essentially based on the results of simulations of different VAR and DSGE models which suggest that the reduction in output volatility can be predominantly contributed to a decline in variance of models' residuals. Whether the decline in variance of models' residuals represents smaller economic shocks or this decline is caused by changes in economic structure is an open question. Giannone, Reichlin and Lenza (2008) demonstrate that the reduction in output volatility that can be attributed to the change in variance of models' residuals is inversely related to the size of the

model, and that in the large VAR model the change in propagation mechanisms explains essentially the entire decline in output volatility. Formulation of economic shocks as an AR process in the used DSGE models reveals the lack of economic structure in these models also. Therefore, the possibility that the residuals in these models reflect not just exogenous economic shocks, but also economic structure which is not explicitly incorporated into the models cannot be ignored.

Among the other analysed hypotheses the change in conduct of the monetary policy and changes in financial markets seem to be most supported by the literature.

Studies that consider labour market changes as the source of the Great Moderation provide evidence on the decline in volatility of working hours, volatility of labour productivity, and covariance between hours and labour productivity. They acknowledge the potential causes of these changes, but do not provide clear explanation for the possible relationship between the detected changes in the US labour market and their proposed causes. They also do not provide empirical evidence of the effect of suggested explanations on output volatility. In the case of inventory management improvement hypothesis the literature provides theoretically consistent explanation for the possible positive relationship between inventory management improvements and reduction in output volatility. Yet, the empirical evidence which suggested that inventory management improvements occurred in the US around the mid 1980's has been almost completely dismissed by the recent literature.

Studies that contribute the decline in output volatility to a change in monetary policy provide theoretically consistent explanation for the possible relationship between the conduct of monetary policy and the Great Moderation. The good policy hypothesis is supported by considerable amount of empirical evidence that suggests a significant change in the US monetary policy during the Volcker-Greenspan era and a beneficial effect of this change on output volatility. The same, in generally, applies for the literature which considers changes in financial markets as the possible source of the Great Moderation. In particular, consistent theoretical explanation and direct empirical evidence is provided for the possible beneficial effects of changes in government regulation, diversification of firms and banks activity and innovations which reduced transaction costs. The evidence is much less sound in the case of the hypostatised relationships between financial innovations, release of informational frictions in financial markets, and reduction in output volatility.

Table 1. Summary of the findings

Authors	Results
Clarida, Gali and Gertler (2000)	Good policy
Kahn, McConnell and Perez-Quiros (2002)	Good practice
Stock and Watson (2002)	Good luck
Stock and Watson (2003)	Good luck
Ahmed, Levin and Wilson (2004)	Good luck
Lubik and Schorfheide (2004)	Good policy
Morgan, Rime and Strahan (2004)	Good practice
Orphanides (2004)	Good policy
Primiceri (2005)	Good luck
Boivin, and Giannoni (2006)	Good luck and good policy
Dynan, Elmendorf and Sichel (2006)	Good practice
Sims and Zha (2006)	Good luck
Arias, Hansen and Ohanian (2007)	Good luck
Leduc and Sill (2007)	Good luck
Portes (2007)	Good practice
Bullard and Singh (2008)	Good policy
Gambetti, Pappa and Canova (2008)	Good luck and good practice
Giannone, Reichlin and Lenza (2008)	Good practice or good policy
Justiniano and Primiceri (2008)	Good luck or good practice
Kim, Morley and Piger (2008)	Good luck
Mertens (2008)	Good practice
Galí and Gambetti (2009)	Good practice and good luck
Stiroh (2009)	Good practice
Canova (2009)	Good luck and good policy
Guerron-Quintana (2009)	Good practice and good luck
Canarella, Fang, Miller and Pollard (2010)	Good luck
Ćorić and Pugh (2011)	Good practice

Nevertheless, the same as the other discussed literature these studies do not provide ultimate explanation of the Great Moderation. For example, while there is a relatively widespread agreement that monetary policy in the US changed during the Volcker-Greenspan era, there is no consensus in the literature about the direction of this change. The estimates of monetary policy reaction functions suggest different changes in policy responses to output and inflation deviations depend on the data used for their assessment. Hence, it is not clear whether monetary policy during the Volcker-Greenspan era was more or less aggressive than before. The literature also suggests that either a change in monetary policy or change in financial markets cannot alone explain the entire reduction in output volatility of the US economy since the early 1980s. The estimates of the reduction in output volatility that can be explained by these changes range from the 24 percent in Portes (2007) to 50 percent in the Mertens (2008).

The analysis of the existing literature, economic and historical events during the 1980s and over the last few years suggests few directions for further research.

The collapse of the subprime mortgages market at the end of summer 2007 triggered one of the most severe economic crises in the US history. This informs the question of whether the recent economic crisis might tell us more about whether the Great Moderation reflected

structural changes, better policy, or instead reflected a period of unusual, but transient, stability. Namely, the first two hypotheses (good policy and good practice) might imply a permanent movement towards lower output volatility, while the last hypothesis (good luck) could easily be seen as something short-lived and transient, but likely to be reflected in a temporary reduction in output volatility. The severity of current economic downturn seems to shift the balance of evidence towards the good luck hypothesis. Yet, this is not necessarily the case. Namely, the underlying premise of this interpretation is that the crisis is caused by large exogenous shocks. This premise can be challenged for two reasons. First, it is doubtful whether the current financial crisis is caused by exogenous shocks. For example, there is a growing literature which considers this crisis to be a consequence of different negative developments over the previous years (see, for example: Obstfeld and Rogoff, 2009; Jagannathan, Kapoor and Schaumburg, 2009; Bini Smaghi, 2008; Caballero, Farhi and Gourinchas 2008). Second, if we consider the collapse of the subprime mortgages market as the initial economic shock then this shock can hardly be categorised as large. In particular, the size of the subprime mortgages market which collapsed in September of 2007 was $0.7 trillion which was less than 0.5 percent of the size of the US financial markets (Bank of England, 2007). Hence, the question is, why this crisis was so contagious, or what precludes the US and, subsequently, other economies to better accommodate this shock. In that respect, it might be useful to analyse the differences in economic fundamentals in the period of the Great Moderation and at the beginning of the recent crisis. These differences might be informative not only about the severity of recent downturns, but about the causes of the Great Moderation as well.

Effects of economic shocks on the aggregate economic activity do not depend only on the economic fundamentals but also on the economic agents' perception of these fundamentals. Hence, it might also be informative to consider the Great Moderation not just with respect to the 2007-2009 financial crises but also with respect to the global economic and political movements at the beginning of this period. In particular, by the early 1980s it became evident that the planned economies had been lagging behind, were not able to achieve and follow the rise in productivity observed across the western market economies. Hypothetically these changes might have boosted the confidence of the US economic agents in superiority of the market economy and the democratic political system, and consequently, in the ability of the US economy and economic policy to absorb future economic shocks. Households', firms' and financial institutions' response to economic shocks at least partly depend on their expectation how deep and how long the impact of the shock on the economy will be. Hence, a boost in confidence can result in a milder response of economic agents to economic shocks and consequently lower output volatility.

Finally, although most of the studies focus primarily on changing volatility in the US economy such moderation has not been limited to the US. Similar changes in output volatility have been detected for a number of other economies (see: Dalsgaard, Elmeskov and Park 2002, Mills and Wang 2003, Del Negro and Otrok, 2008; Ćorić, 2011). These findings provide an additional testing opportunity, in particular, the possibility to test for systematic difference among countries and periods with different output volatility. Detection of systematic difference or the lack of systematic differences among these countries and periods can be informative with the respect to the possible causes of reduction in output volatility in the decades preceding the recent crisis.

BIBLIOGRAPHY

Ahmed, S., Levin, A. and Wilson, B. A. (2004). 'Recent US Macroeconomic Stability: Good Policies, Good Practices or Good Luck?', *Review of Economics and Statistics*, 86, pp. 824-32.

Almeida, H. and Campello, M. (2007). 'Financial Constraints, Asset Tangibility, and Corporate Investment'. *The Review of Financial Studies*, 20, pp. 1429-60.

Arias, A., Hansen, G. D. and Ohanian L. E. (2007). 'Why Have Business Cycle Fluctuations become Less Volatile', *Economic Theory*, 32, pp. 43-58.

Bank of England (2007). *Financial Stability Report*, Issue No. 22.

Bernanke, B. S., Gertler, M. and Girlchrist, S. (1999). 'The Financial Accelerator in a Quantitative Business Cycle Framework', in Taylor, J. B. (ed.), *Handbook of Macroeconomics*, Amsterdam: North-Holland.

Bini Smagi, L. (2008). 'The Financial Crisis and Global Imbalances: Two Sides of the Same Coin'. Speech at the Asian Europe Economic Forum, Beijing, December 9.

Blanchard, O. and Galí, J. (2008). 'The Macroeconomic Effects of Oil Price Shocks: Why Are the 2000s So Different from the 1970s?', NBER Working Paper, No. 13368.

Blanchard, O. and Simon, J. (2001). 'The Long and large Decline in US Output Volatility', *Brooking Papers on Economic Activity*, 1, pp. 135-74.

Blanchard, O. J. (1983). 'The Production and Investment Behaviour of the American Automobile Industry', *Journal of Political Economy*, 91, pp. 365-400.

Boivin, J. (2006). 'Has U.S. Monetary Policy Changed? Evidence from Drifting Coefficients and Real-Time Data', *Journal of Money, Credit and Banking*, 38, pp. 1149-73.

Boivin, J. and Giannoni, M. P. (2006). 'Has Monetary Policy Become More Effective?', *Review of Economics and Statistics*, 88, pp. 445-62.

Bullard, J. and Singh, A. (2008). 'Worldwide Macroeconomic Stability and Monetary Policy Rules', *Journal of Monetary Economics*, 55, pp. S34-S47.

Burnshide, C. and Eichenbaum, M. (1996). 'Factor-hoarding and the propagation of business-cycle shocks', *American Economic Review*, 86, pp. 1154-74.

Caballero, R., Fahri, E. and Gourinchas, P. (2008). 'Financial Crash, Commodity Prices, and Global Imbalances', *Brooking Papers on Economic Activity*, 1, pp. 1-55.

Canarella. G., Fang, W., Miller, M. S. and Pollard, S. K. (2010). 'Is the Great Moderation Ending?', *Modern Economy*, 1, pp. 17-42.

Canova, F. (2009). 'What Explains the Great Moderation in the U.S.? A Structural Analysis', *Journal of the European Economic Association*, 7, pp. 697-721.

Canova, F. and Gambetti, L. (2009). 'Structural changes in the US economy: Is there a role for monetary policy?', *Journal of Economic Dynamics and Control*, 33, pp. 477-90.

Clarida, R., Gali, J. and Gertler, M. (2000). 'Monetary Policy Rules and Macroeconomic Stability: Evidence and Some Theory', *The Quarterly Journal of Economics*, 115, 147-80.

Cogley, T. and Sargent, T. J. (2002). 'Evolving Post-World War II U.S. Inflation Dynamics', in Bernanke, B. S. and Rogoff, K. (eds.), *NBER Macroeconomic Annual*, Cambridge MA: MIT Press, pp. 331-88.

Cogley, T. and Sargent, T. J. (2005). 'Drifts and Volatilities: Monetary Policies and Outcomes in the Post-WWII US', *Review of Economic Dynamics*, 8, pp. 262-302.

Ćorić, B. (2011). 'The Global Extent of the Great Moderation', *Oxford Bulletin of Economics and Statistics, forthcoming*.

Ćorić, B. and Pugh, G. (2011). 'The Financial Accelerator, Globalization and Output Growth Volatility', Social Science Research Network Working Paper.

Cummins, J. G., Hassett, K. A. and Oliner, S. D. (2006). 'Investment Behaviour, Observable Expectations, and Internal Funds', *American Economic Review*, 96, pp. 796-810.

Dalsgaard, T., Elmeskov, J. and Park, C. (2002). 'Ongoing Changes in the Business Cycle', *OECD Economic Outlook*, 71, pp. 141- 57.

Del Negro, M. and Otrok, C. (2008). 'Dynamic factor models with time-varying parameters: measuring changes in international business cycles', Federal Reserve Bank of New York Staff Reports, No. 326.

Dynan, K. E., Elmendorf, D. W. and Sichel, D. E. (2006). 'Can Financial Innovation Help to Explain the Reduced Volatility of Economic Activity', *Journal of Monetary Economics*, 53, pp. 123-50.

Fazzari, M. S., Hubbard, R. G. and Petersen, B. C. (1988). 'Financing Constraints and Corporate Investment', *Brooking Papers on Economic Activity*, 1, pp. 141-95.

Galí, J. and Gambetti, L. (2009). 'On the Sources of the Great Moderation', *American Economic Journal: Macroeconomics*, 1, pp. 26-57.

Gambetti, L., Pappa, E. and Canova, F. (2008). 'The Structural Dynamics of U.S. Output and Inflation: What Explains the Changes?', *Journal of Money, Credit, and Banking*, 40, pp. 369-88.

Gertler, M. and Kiyotaki, N. (2010). 'Financial Intermediation and Credit Policy in Business Cycle Analysis', *in Handbook of Monetary Economics (forthcoming)*.

Giannone, D., Reichlin, L. and Lenza, M. (2008). 'Explaining the Great Moderation: It is not the Shocks', *Journal of European Economic Association*, 6, pp. 621-33.

Guerron-Quintana, P. A. (2009). 'Money demand heterogeneity and the great moderation', *Journal of Monetary Economics*, 56, pp. 255-66.

Hamilton, J. D. (2005). 'Oil and the Macroeconomy', Department of Economics, University of California, Prepared for: Palgrave Dictionary of Economics.

Herrera, A. M. and Pesavento, E. (2005). 'The Decline in US Output Volatility: Structural Changes and Inventory Investment', *Journal of Business and Economic Statistics*, 23, pp. 462-72.

Hovakimian, G. and Titman, S. (2006). 'Corporate Investment and Financial Constraints: Sensitivity of Investment to Funds from Voluntary Asset Sales', *Journal of Money, Credit, and Banking*, 38, pp. 357-74.

Jagannathan, R., Kapoor, M. and Schaumburg, E. (2009). 'Why are we in a Recession? The Financial Crisis is the Symptom not the Disease!', NBER Working Paper, 15404.

Justiniano, A. and Primiceri, G. E. (2008), 'The Time-Varying Volatility of Macroeconomic Fluctuations', *American Economic Review*, 98, pp. 604-41.

Kahn, J. A., McConnell, M. M. and Perez-Quiros, G. (2002), 'On the Causes of the Increased Stability of the US Economy', *Federal Reserve Bank of New York Economic Policy Review*, 8, pp. 183-202.

Kim, C. and Nelson, C. R. (1999). 'Has the US Economy Become More Stable? A Bayesian Approach Based on a Markov-Switching Model of the Business Cycle', *Review of Economics and Statistics*, 81. pp. 608-16.

Kim, C., Morley J. and Piger, J. (2008). 'Bayesian Counterfactual Analysis of the Sources of the Great Moderation', *Journal of Applied Econometrics*, 23, pp. 173-91.

Leduc, S. and Sill, K. (2007). 'Monetary policy, Oil Shocks, and TFP: Accounting For the Decline in US Volatility', *Review of Economic Dynamics*, 10, pp. 595-614.

Lubik, T. A. and Schorfheide, F. (2004). 'Testing for Indeterminacy: An Application to U.S. Monetary Policy', *American Economic Review*, 94, pp. 190-217.

Maccini, L. J. and Pagan, A. (2003). 'Exploring the Role of Inventory in the Business Cycle', Johns Hopkins University Working Paper.

McConnell, M. M. and Perez-Quiros, G. (2000). 'Output Fluctuations in the United States: What Has Changed Since the Early 1980's?', *American Economic Review*, 90, pp. 1464-76.

Mills, T. C. and Wang P. (2003). 'Have Output Growth rates Stabilised? Evidence from the G-7 Economies', *Scottish Journal of Political Economy*, 50, pp. 232-46.

Obstfeld, M. and Rogoff, K. (2009). 'Global Imbalances and the Financial Crisis: Product of Common Cause', Harvard University Working Paper.

Orphanides, A. (2001). 'Monetary Policy Rules Based on Real-Time Data', *American Economic Review*, 91, pp. 964-85.

Orphanides, A. (2004). 'Monetary Policy Rules, Macroeconomic Stability, and Inflation: A View from the Trenches', *Journal of Money, Credit, and Banking*, 36, pp. 151-75.

Portes, L. S. V. (2007). 'Aggregate Gains of International Diversification through Foreign Direct Investment: An Inquiry into the Moderation of U.S. Business Cycles', *Global Economy Journal*, 7, pp. 1-36.

Primiceri, G. E. (2005). 'Time Varying Structural Vector Autoregressions and Monetary Policy', *Review of Economic Studies*, 72, pp. 821-52.

Ramey, V. A. and Vine, D. J. (2004). 'Why Do Real and Nominal Inventory-Sales Ratios Have Different Trends?', *Journal of Money, Credit, and Banking*, 36, pp. 959-63.

Ramey, V. A. and Vine, D. J. (2005). 'Tracking the Source of Decline in GDP Volatility: An Analysis of the Automobile Industry', NBER Working Paper, 10384.

Romer, C. D. and Romer, D. H. (2002). 'A Rehabilitation of Monetary Policy in the 1950's', *American Economic Review*, 92, pp. 121-27.

Sims, C. A. and Zha, T. (2006). 'Where There Regime Switches in U.S. Monetary Policy?', American Economic Review, 96, pp.54-81.

Stiroh, J. K. (2009). 'Volatility Accounting: A Production Perspective on Increased Economic Stability', *Journal of European Economic Association*, 7, pp. 671-96.

Stock, J. H. and Watson, M. W. (2002). 'Has the Business Cycle Changed and Why?', in Bernanke, B. S. and Rogoff, K. (eds.), *NBER Macroeconomic Annual*, Cambridge MA: MIT Press, pp. 159-218.

Stock, J. H. and Watson, M. W. (2003). 'Has the Business Cycle Changed and Why? Evidence and Explanations', The Federal Reserve Bank of Kansas City Simposium: Monetary Policy and Uncertainty, pp. 9-56.

Summers, P. M. (2005). 'What Caused The Great Moderation? Some Cross-Country Evidence', *Federal Reserve Bank of Kansas City Economic Review*, 3, pp. 5-32.

Taylor, J. B. (1998). 'Monetary Policy and Long Boom', *Federal Reserve Bank of St Louis Review*, 80, pp. 3-12.

Taylor, J. B. (1999). 'A Historical Analysis of Monetary Policy Rules', in Taylor J.B. (ed.), *Monetary Policy Rules*, Chicago: University of Chicago Press.

Taylor, J. B. (2000). 'Remarks for the panel Discussion on "Recent Changes in Trend and Cycle', Federal Reserve Bank of San Francisco Conference: Structural Change and Monetary Policy.

Wachter, A. J. (2006). 'Comment on: Can Financial Innovation Help to Explain the Reduced Volatility of Economic Activity', *Journal of Monetary Economics*, 53, pp. 151-54.

SUSTAINABLE GROWTH OF SMEs IN CROATIA THROUGH DEVELOPMENT OF ENTREPRENEURIAL SKILLS

Gordana Ćorić, BSc
VERN' University of Applied Sciences
Trg bana Josipa Jelačića 3/III, 10000 Zagreb, Croatia
GSM: + 385 (0) 91 48 25 898
E-mail: gordana.coric@gmail.com

Ivica Katavic, PhD
VERN'University of Applied Sciences
Trg bana Josipa Jelačića 3/III, 10000 Zagreb, Croatia
GSM: + 385 (0) 91 48 25 878
E-mail: ivica.katavic@vern.hr

Dragan Kopecki, MSc
VERN'University of Applied Sciences
Trg bana Josipa Jelačića 3/III, 10000 Zagreb, Croatia
GSM: +385 (0) 91 57 29 821
E-mail: dragan.kopecki@sb.t-com.hr

Key words: *Entrepreneurship, Sustainability, SMEs growth, Entrepreneurial skills, Improvement*

ABSTRACT

Entrepreneurship is one of the major generators of growth, wealth and well-being. It can be facilitated by the creation of the environment which provides impulses for both start-up and growth oriented entrepreneurs, reduces the barriers imposed to new and existing companies, and provides opportunities on how to learn from mistakes. As the importance of entrepreneurship and sustainability is increasing, growing SMEs (gazelles) in the global markets have further spurred the need to in-depth research Croatian entrepreneurs. Since entrepreneurial skills influence implementation of sustainable growth of SMEs, the entrepreneur's success depends on the identification of crucial entrepreneurial skills for start-up businesses, as well as for helping the business to survive and grow in the early years.

Although these skills can make the differences between the business success and failure, there is a substantial gap between the successfulness of the two basic approaches to entering into entrepreneurship: opportunity-based and necessity-based entrepreneurship. The first one is better represented in the developed and more successful, competitive economies, and the second in the emerging and transition economies. Due to unfavorable ratio between these two approaches in Croatia, the authors will address this issue and explore possibilities on how to improve and develop necessary set of skills of Croatian entrepreneurs.

The purpose of this paper is to develop an understanding of the importance of entrepreneurial skills and its impact on sustainable SMEs growth. The challenge is to create a "learning platform" for improving entrepreneurial skills, and, as a result, to make economies and societies more entrepreneurial. The primary objectives of this paper are: (a) to identify and examine the different entrepreneurial skills for sustainable growth of SMEs in Croatia, and (b) to evaluate the quality of current companies' performances and potential for growth.

To meet these objectives, the authors have conducted a micro-level analysis, focused on the specific skill characteristics of particular entrepreneurs/managers of SMEs, which have planned growth in terms of revenues and number of employees. This analysis has provided some answers on how to assess key challenges in the area of growing, but sustainable entrepreneurship.

The approach used in this paper is based on the content analysis of materials collected from 1995 to 2010 in two separate phases. While in the first phase the data was collected during the implementation of the EMED project (1995 to 1998), the second phase took place from 2003 to 2010 in order to assess the growth potential of the Croatian SMEs. The instruments that guided this analysis were Entrepreneurial Management and Executive Development (EMED) program, and the Allan Gibb's growth model (framework for growth).

The major results of this paper have indicated the Croatian entrepreneurship skill levels and gaps, as well as confirmed that entrepreneurial skills greatly affect entrepreneurs' choice of growth strategy options. Having entrepreneurial skills does not guarantee entrepreneurial success. However, identifying the range of entrepreneurial skills, understanding the importance of these skills and their impact on sustainable growth, may lead to a potential for success.

1. INTRODUCTION

The SME sector plays an important, growing economic role in the world. It is expected that SMEs contribute significantly to achieving national development. This contribution can reflect the increase of GDP, improvement of living standards, and decrease the unemployment rate. The most profound hypothesis from the comparative historical study of the development of advanced economies over the past century is that the organizations – not markets – drive the process of economic development (Lazonick, 2002). This suggests that the economic development, which leads to sustainable growth, heavily depends on the organizational activities and the ability of the organization to manage the scarce resources, mainly capital, ideas, knowledge, entrepreneurship and human capital. However, achieving sustainable growth is a challenge that requires entrepreneurial skills.

The purpose of this paper is to stress out and develop an understanding of the importance of entrepreneurial skills and its impact on sustainable SMEs growth. This paper is aiming to promote the role of entrepreneurial skills for achieving competitive advantages and consequently sustainable growth.

The primary objectives of this paper are: (a) to identify and examine the different entrepreneurial skills for sustainable growth of SMEs in Croatia, (b) to propose techniques for measuring and evaluating entrepreneurial skills, and (c) to determine how these skills can contribute to SMEs growth. In order to achieve the above mentioned objectives, it necessary to focus on the specific skill characteristics of particular entrepreneurs/managers of SMEs, which have planned growth in terms of revenues and number of employees in Croatia.

In accordance with the paper objectives, this research was based on the content analysis of materials collected between 1995 and 2010. The instruments that guided this analysis were Entrepreneurial Management and Executive Development (EMED) program, and the Allan Gibb's growth model (framework for growth). The findings of the paper will serve for recommendations to all stakeholders and decision makers in Croatia for promoting the development of entrepreneurial skills as a base for sustainable growth of SMEs.

This paper is organized in five major sections: introduction, literature review, methodology, findings, and conclusion. In the literature review section, there will be a number of areas and terms that will be described and researched. They are presented in the following subsections: (1) Entrepreneurship and Entrepreneurs, (2) The Enabling Environment for Entrepreneurship, (3) Entrepreneurial Process, (4) Entrepreneurial Skills, (5) Entrepreneurial Company Life Cycle, (6) Sustainable Growth and (7) Small and Medium-sized Enterprises (SMEs) in Croatia. The section methodology reflects the instruments, samples, data collection, and data analysis. In the section findings, the results were presented, interpreted, and discussed. In the section conclusion, the major points and contributions were summarized, and future research was proposed.

2. LITERATURE REVIEW

The literature which served as foundation for preparation of this paper represents a variety of published information, books, articles, Internet resources and various researches on entrepreneurship, sustainable growth, entrepreneurial skills, and methodology to research these issues. Some issues (e.g. company lifecycle, entrepreneurial process, etc.) are presented

through findings or work of several authors in order to provide a reader with the broader picture.

2.1. Entrepreneurship and Entrepreneur

Entrepreneurship is one of the major generators of growth, wealth and well-being. There are many ongoing definitions of entrepreneurship, which are mostly using the following words to define it: creativity, innovation, growth, (calculated) risk-taking, opportunity, development (Timmons and Spinelli, 2003).

However, some of the most popular definitions of entrepreneurship are: "*entrepreneurship is the pursuit of opportunities beyond the resources you currently control*" (Stevenson, 1993), "*entrepreneurship is the ability to create and build something valuable from practically nothing*" (Timmons and Spinelli, 2003), and "*entrepreneurship is an activity that involves the discovery, evaluation and exploitation of opportunities to introduce new goods and services, ways of organizing, markets, processes, and raw materials through organizing efforts that previously not existed*" (Shane, S. 2003). These definitions emphasize processes of recognizing opportunities, creation, and organization as key components of entrepreneurship.

In addition, „*entrepreneurship is the process of creating something new with value by devoting the necessary time and effort, assuming the accompanying financial, psychic, and social risk and receiving the resulting rewards of monetary and personal satisfaction and independence*" (Hisrich and Brush, 1985). This definition reflects entrepreneur's effort to: (a) create a new venture, (b) devote some amount of time and effort, (c) be independent, and to (d) assume potential risks in the business arena.

The common mistakes of identifying entrepreneurship with (a) each start up of a small business, (b) managing a small business, or (c) insisting on innovation as mandatory component of entrepreneurship, are overcome with a number of new definitions.

Entrepreneurship takes various forms, and not everything marked as 'entrepreneurial' is desirable, and not every entrepreneurial activity can be considered as positive contributions to the economy and the society. W. Baumol (1990) distinguishes between productive, unproductive and destructive entrepreneurship.

Although there are different emphases in defining entrepreneurship, there are much more difficulties in defining entrepreneurs. The definitions range from stressing out the components of innovation, risk-taking, speculations, to organization of venture, leadership skills or charismatic traits. For example, according to Hisrich, Peters, and Shepherd (2008), *entrepreneur is an individual who takes risks and starts something new*. In addition, *entrepreneur is one who organizes, manages and assumes the risks of a business or enterprise* (Merriam Webster Dictionary, 2011). An entrepreneur is an innovator and organizer - not necessarily a manager or a capitalist.

One of the most important factors influencing entrepreneurs in their career path is choice of a role model (Almquist and Angust, 1971). Their role and tasks are very complex.

The person who brings fund to the entrepreneurial project bears mostly the financial risk; the manager organizes the business and makes it run smoothly, while the real entrepreneur's function is more strategic one. Therefore, an entrepreneur is not the same as a small business

owner. Most businesses are not entrepreneurial, because they are not innovative. However, the newer definitions of an entrepreneur are in favor of pointing out the ability to make opportunity, instead for simply search for them (Sarasvathy, 2011).

Economists regard entrepreneurship as one of the five fundamental resources, or the factors needed to produce goods and services, used in context of costs of production (Wiki.answer.com, 2011). This statement is supported by the role of entrepreneurship in the economy. According to Stavrosinstitute.org (2011), the basic roles of the entrepreneur are as follows:

- Entrepreneur is innovator.
- Entrepreneur provides choice.
- Entrepreneur provides jobs.
- Entrepreneur helps the economy grow.

An entrepreneur as an innovator looks at an opportunity to get benefits of the external environment. Based on the opportunity, it creates new goods and services and /or improves existing products. An *entrepreneur provides choices* of goods and services to the customers or clients. He/she listens to the customers' comments in terms of the product/service preferences, and accordingly offers a variety of products and services to different customers and clients. *An entrepreneur provides jobs* for people from the local communities. He/she uses resources from the business environment which lead to new jobs in the industries that supply those resources. By doing so, an entrepreneur helps the economy grow.

In addition, an entrepreneur is associated with the creativity to produce new products. This means that an entrepreneur has an ability to generate new ideas which are usually transformed into useful application products of new processes, methods, devices, products, and services. According to Articlesbase.com (2011), characteristics of successful entrepreneurs are:

- Self-confident and optimistic (Positive thinking)
- Able to take calculated risk
- Respond positively to challenges
- Flexible and able to adapt
- Knowledgeable of markets
- Able to get along well with others
- Independent minded
- Versatile (variety) knowledge
- Energetic and diligent (carrying out a task steadily)
- Creative, need to achieve
- Dynamic (active) leader
- Responsive (reacting or responding positively) to suggestions
- Take initiatives (to go ahead)
- Resourceful and persevering (performer)
- Perceptive (sharp or interested) with foresight (advance thinking)
- Responsive to criticism (comments or judgments)

Entrepreneurs are the persons who are constantly learning; in the evening, they are not the same persons as they were earlier that morning. Many entrepreneurs interviewed about their

entrepreneurial beginnings had referred to the excitement while making first successes and failures in organizing the business, preparing offers, negotiating, recruiting people, dealing with difficult ones, and the pride over lessons learned and integrated in future practice. Therefore, the learning component should be considered as one of the crucial factors in defining an entrepreneur.

Michael Eisner, former CEO of the Walt Disney Company said: "*Succeeding is not really a life experience that does that much good. Failing is a much more sobering and enlightening experience*." (SearchQuotes.com). This message is well taken by many entrepreneurs assessed for this paper.

2.2. The Enabling Environment for Entrepreneurship

To understand the future of entrepreneurship, it is critical to address the issue of enabling environment for entrepreneurship and key drivers of entrepreneurship in the world and in Croatia in the next decade. As per Laura D'Andrea Tyson, (Tyson, 1993) it is a review of what has been done, and what might be done by the policy makers to enable and promote entrepreneurial activity.

On a global level, the trend of economic growth and rise of standard in poorer (developing) countries will certainly continue so as easier flow of good ideas and exchange of information. The importance of ceasing and recognizing the "windows of opportunities" for opportunity motivated entrepreneurs will be expanded with the new, proactive approach not only as finding but also as 'making' new opportunities, firms, markets and institutions (Sarasvathy, 2001). This will be further facilitated with the broader availability of various resources including money, human resources, technology (e.g. Internet, mobile and wireless communication, ICT development, etc.), and sharing good practices of globalization (e.g. franchising, e-commerce, networking, social networks, corporate citizenship, etc.). Above all, the nowadays impulses to be as creative and innovative as possible are significant push-factors and empower entrepreneurs in their attempts to switch fast to other niches, clients, needs, etc. Therefore, they open new areas and dimensions for emerging new, entrepreneurial behavior and innovative approaches to business and even to everyday life.

However, it is expected that the key drivers of entrepreneurship in Croatia in the next decade will continue to be influenced with the high unemployment rate, low employment benefits and insecurity of jobs, which will certainly increase the share of *necessity motivated entrepreneurs*. This category has been introduced into economic and entrepreneurship terminology by the Global Entrepreneurship Monitor consortium in 1999, and represents the less successful type of entrepreneurship in comparison to the *opportunity-driven entrepreneurs* (GEM, Global report 2010). There is a substantial gap between the successfulness of these two basic approaches to entering into entrepreneurship: opportunity-based and necessity-based entrepreneurship. Therefore, in an attempt to create the common ground for defining two so different types of entrepreneurship, the entrepreneurship itself could be defined as the ability to simultaneously express own creative potential, cease the (business) opportunity, create new value(s), and resolve problems of own unemployment, poverty, boring current job or lack of excitement.

Thanks to the globalization processes, the role of education (in entrepreneurship, IT sector, services, sciences, high technology, biology, etc.) will emerge in Croatia. Requirements of the European Union in the pre-accession and accession period which include, for example,

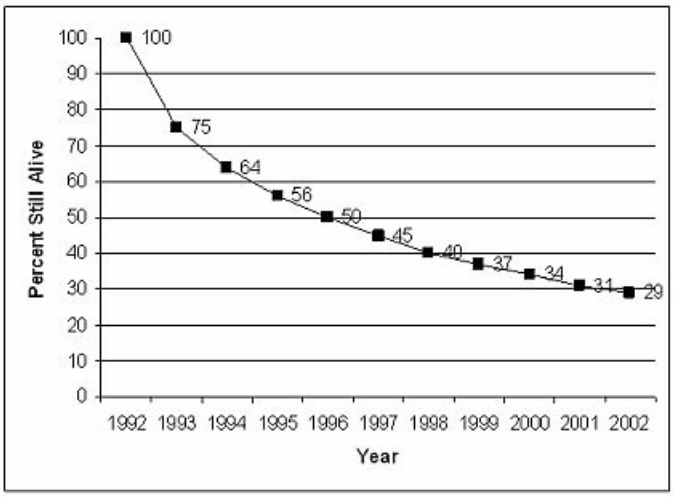
greening of economy, simplifying the process of starting up a company, unifying the patent registry and the procedure, flexibility of work force hiring/firing, and many others, will be an important factor in providing direction for mainstreaming entrepreneurship. Furthermore, the support of the family in starting an entrepreneurial venture (financial, emotional, advisory, etc.) and psychological factors (independence in doing business, etc.) will remain the important pillars for strengthening entrepreneurship in Croatia.

The low effectiveness of the existing infrastructure for support of start-ups (incubators, centers of entrepreneurship, entrepreneurial zones), and lack of transparency of the EU Funds availability, so as the poorly disseminated knowledge in project preparation and application for funds, will lead to the reorganization of this resource and result with either better general conditions for entrepreneurial activities, or will require better reporting on impacts and results achieved thanks to the support infrastructure.

Entrepreneurship can be facilitated by creating enabling environment which provides impulses for both start-up and growth oriented entrepreneurs, reduces the barriers imposed to both, new and existing companies, and provides opportunities on how to learn from mistakes.

Although an important lesson could be learned from the failures, there is a lack of statistical data on survival rate of companies. One of important findings is provided by Scott Shane (2008), in his study "Failure is the constant of entrepreneurship", while he researched the survival rate of the companies over the period between 1992 and 2002. It is presented in the *Figure 1. Companies' survival rate in 10-year period - proportion of new businesses founded in 1992 still alive by year*, where it is easy to see the trend: Five years upon foundation, around 45% companies were still alive, and after 10 years, only 29% of companies were still around.

Figure 1. Companies' survival rate in 10-year period - proportion of new businesses founded in 1992 still alive by year



Source: Shane, S. (2008). Illusions of Entrepreneurship: The Costly Myths that Entrepreneurs, Investors, and Policy Makers Live By. New Haven, CT: Yale University Press. p. 99

His research has also shown that the companies started during the recession have the same prospects of survival: half of the businesses will live five years or less, and recession won't affect business's odds of survival.

In order to provide broader platform for understanding the issues relevant for high growth companies (gazelles), this chapter will conclude with the list of initiatives that are currently taken by Europe's 500, European organization and networking platform for growth companies and their entrepreneurs.

This group is working on following five initiatives and suggestions from Europe's 500 to the EU Commission: (1) Standards drive growth of jobs and wealth and help fight poverty (drives internal demand in the emerging markets, so they become more of a customer and not only a cheap labor provider), (2) One patent/one intellectual property register valid in all 27 EU states brings Europe together and helps innovation (entrepreneurial innovation multiplies into all member states), (3) Investment loans insurance to help fund growth below investment grade (weaknesses in the banking sector should not hinder entrepreneurial growth), (4) The EU should encourage part time work (best practice) in order to reduce unemployment and to increase flexibility, and (5) Facilitate access to universities for entrepreneurs (support private agencies that allow entrepreneurs to use intelligence and resources from universities at low cost and more easily).

2.3. Entrepreneurial Process

"*Entrepreneurial process is the process of pursuing a new venture, whether it be new products into existing markets, existing products into new markets, and/or the creation of a new organization"* (Lumpkin & Dess, 1996). This process requires entrepreneur to: (a) identify and evaluate the opportunity, (b) develop a business plan, (c) determine required resources, and (d) manage resources.

Opportunity identification and evaluation is the process by which an entrepreneur comes up with the opportunity for a new venture (Hisrich, Peters, & Shepherd, 2008). For example, an entrepreneur may use the existing customers to collect potential ideas about products and services. Additionally, he/she may use the business association to identify opportunities. In order to evaluate the business opportunity, entrepreneur should make an opportunity assessment plan. The plan should help him/her to make better decisions in terms of the market to be served, specific customers' needs, social conditions, and competition. In addition, an opportunity assessment plan should describe entrepreneur's products or services, an assessment of the opportunity, an assessment of an entrepreneur, and the source of capital. Finally, the opportunity should be compatible with entrepreneur's goals and skills.

Development of a business plan is a crucial aspect of the organizational success. It should be developed to explore the external opportunity. According to Hisrich, Peters, and Shepherd (2008), a business plan is the description of the future direction of the business. It helps the entrepreneur to organize business activities to keep up equilibrium between revenues and expenses.

In order to *determine the resource required* for the business venture and address the opportunity, an entrepreneur needs to identify present useful resources and assess the risk associated with insufficient resources. As business moves from the introduction stage to the growth stage, more financial resources are needed to finance the growth of the venture.

Identifying and evaluating the opportunity, developing a business plan, determining required resources and manage them, are steps in the entrepreneurial process that take part in the

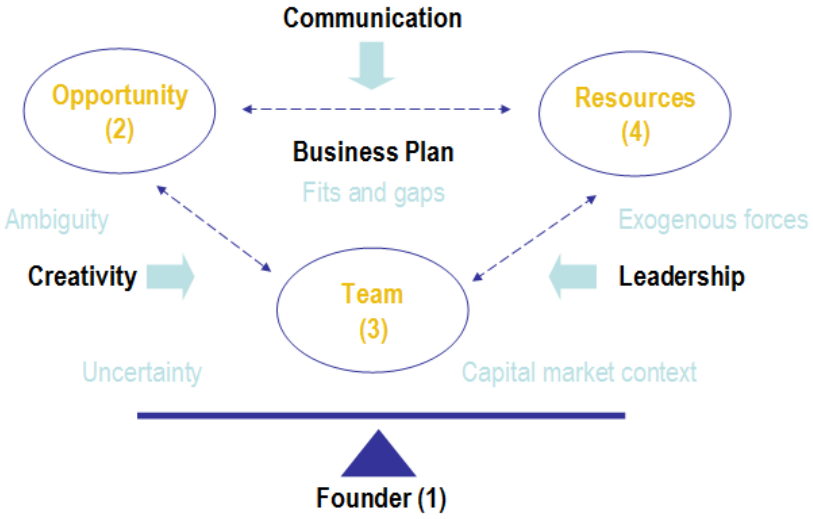
turbulent uncertain business environment. Due to permanent changes in the environment, entrepreneurs should adjust their activities and define strategies to take advantage of such environment.

Entrepreneurial strategy refers to a course of action that firms apply to adapt to ''environmental change and exploit opportunities created by uncertainties and discontinuities in the creation of wealth'' (Hitt et al., 2001, pp. 479–491). This definition suggests that entrepreneurs should focus on adaptive strategies that enable them to adjust quickly to changing environment. Many of the concepts and techniques dealing with strategic management have been developed to and used successfully by business corporations such as General Electric and the Boston Consulting Group (Wheelen & Hunger, 2004).

For better understanding of the entrepreneurial process(es), two additional approaches are used to define them. The first one is explained by Scott Shane in his definition of entrepreneurship (Shane, 2003), and it earmarks entrepreneurial process through the following phases (1) identifying and evaluating opportunities, (2) deciding whether or not to exploit those opportunities, (3) making efforts to find resources, (4) organizing those resources into a business venture, and (5) developing a strategy for the (new) venture.

The second model is well-known Timmons model of entrepreneurial process, which is based on three main backbones: (1) the entrepreneur and the founding team, (2) the opportunity, and (3) resources necessary for start-up of a new venture (Timmons & Spinelli, 2003). This model shows that the entrepreneur is the crucial element – the whole entrepreneurial process begins with him/her, as he/she seeks an opportunity, mobilize combination of resources, and risks his/her money, reputation, etc.

Figure 2. The Timmons model of entrepreneurial process



Source: Timmons, J. A., & Spinelli, S. (2003.) New Venture Creation: Entrepreneurship for the 21st century, (International edition), 6th ed.: Mc Graw Hill, N.Y., p. 57

However, this model, presented in the *Figure 2: The Timmons model of entrepreneurial process*, also shows that the entrepreneur does not necessarily need to know everything, but should rely on trustworthy team, with the set of skills complementary to those of the

entrepreneur. Actually, failing to delegate and involve good team is the easiest way to fail the entire venture and the project. The projects are too complex for one leader to be the one who thinks, reflects, acts, and has a front-person role.

This model addresses the issue of value creation with the focus on three driving forces to improve chances for success. The entrepreneurial process starts with the opportunity, not with the money, business plan, strategy, or hiring employees. The opportunity and its dimensions drive the size and value of the entrepreneurial venture, and the entrepreneur's role is to invite the best team members and resources to the project.

Despite of usual beliefs that the major problem while starting up a project is the money, the real problem is in the lack of top quality opportunities, skilled entrepreneurs, and knowledgeable teams. The entrepreneur and his/her team are the key to success, and they could achieve it if they are active in continuous improvements and learning. Furthermore, they successfully deal with the adversity, they build culture, and efficient organizational structure, they are motivated and committed, determined to succeed, persistent, they have high tolerance to uncertainty and risk. Such teams are creative, have good communication and are adaptable.

2.4. Entrepreneurial Skills

Since entrepreneurial skills influence implementation of sustainable growth of SMEs, the entrepreneur's success depends on the identification of crucial entrepreneurial skills for start-up businesses, as well as for helping the business to survive and grow in the early years.

Among variety of explanations of how the entrepreneurial process works, the authors would refer to the six schools of thought on entrepreneurship developed by Cummings and Lischeron (1991), in an attempt to provide a framework for better understanding the entrepreneur as the key ingredient of an entrepreneurial process. The schools are grouped around these criteria and presented in the *Figure 3: Six schools of thoughts on entrepreneurship*.

Figure 3. Six schools of thought on entrepreneurship

CATEGORY	SCHOOL (ENTREPRENEURIAL MODEL)	CENTRAL FOCUS (PURPOSE)
(a) Assessing Personal Qualities	1. The "Great Person" School of Entrepreneurship	The entrepreneur has an intuitive ability and traits (s)he was born with
	2. The Psychological Characteristics School of Entrepreneurship	The entrepreneurs have unique values attitudes and needs which drive them
(b) Recognizing Opportunities	3. The Classical School Entrepreneurship	Entrepreneur's central characteristic for entrepreneurial behavior is innovation
(c) Acting and Managing	4. The Management School of Entrepreneurship	Entrepreneurs are organizers of a venture – they organize, own, manage and assume the risk
	5. The Leadership School of Entrepreneurship	Entrepreneurs are leaders of people, they can adapt to the need of people to motivate, direct and lead them
(d) Reassessing and Adapting	6. The Intrapreneurship School of Entrepreneurship	Development of independent units in the complex organization in order to create, market and expand services

Source: Cunningham, J. B. and Lischeron, J. (1991). Defining Entrepreneurship, Journal of Small Business Management, vol. 29, January 1st, 1991, p. 47

These schools are categorized according to its focus in (a) personal characteristics, (b) opportunities, (c) management, or the need for (d) adapting an existing venture.

Another contribution to understanding the management and entrepreneurial skills (Whetten, Cameron, 2005) has been provided by segmentation these skills into three groups, including personal, interpersonal and group skills, as basic management skills, and adding several additional skills, as presented in the *Figure 4. Model of essential and additional management skills*:

Figure 4. Model of essential and additional management skills

Basic management skills	
Personal Skills	Developing Self-Awareness Managing Personal Stress Solving Problems Analytically and Creatively
Interpersonal Skills	Building Relationships by Communicating Supportively Gaining Power and Influence Motivating Others Managing Conflict
Group Skills	Empowering and Delegating Building Effective Teams and Teamwork Leading Positive Change
Additional management skills	
Specific Communication Skills	Making Oral and Written Presentations Conducting Interviews Conducting Meetings

Source: According to Whetten, D.A. and Cameron K.S. (2005). Developing Management Skills, 6th (international) edition, Pearson Prentice Hall – Pearson Education International (p. 18, p. 534)

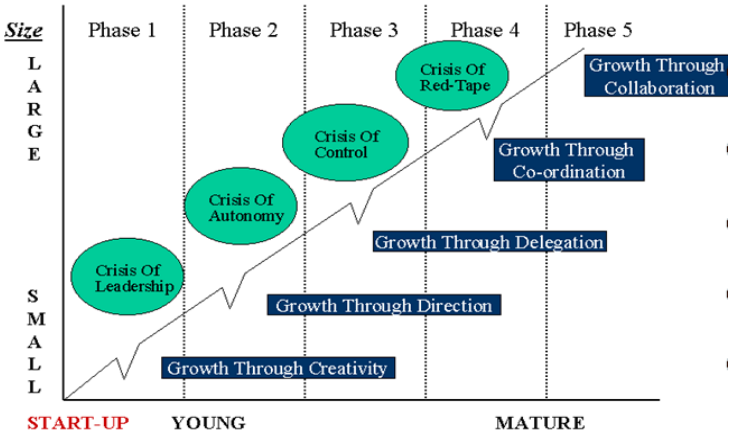
Entrepreneur should be aware of the variety of necessary basic and additional management skills that are not only desirable, but also required for successful guidance of the company. Having that in mind he/she will have more knowledge on how to compose his/her ideal team to consists of the team members with the complementary skills, and avoid situations to hire people with similar or same skills as his/her own (Hamm, 2002, p.5).

2.5. Entrepreneurial company life cycle

It is clear that in the different phases of company's life cycle (start-up phase, growth stage, maturity, or pre-exiting phase of a venture) it may require different behaviors or skills. Good framework for understanding these phases and the requirement of different set of skills and strengths is provided with the Greiner's model (Greiner, 1972) of evolution and revolution in the process of growth of a company. This model addresses the issue of evolution (prolonged periods of growth where no major upheaval occurs in organization practices) and revolution (periods of substantial turmoil in organization life) as business grows. This model relies upon company's age and size as explanatory variables.

The *Figure 5: Evolution and revolution as businesses grow – the five phases of business growth* graphically presents "five distinct periods of development (or evolution) each of which is characterized by a period of relative calm followed by a crisis of direction (a revolution), and each stage is closely conditioned by the previous one" (Greiner, 1972). Having this in mind, this is another reason for companies to plan continues improvement and development of knowledge and skills, as the calm periods will not last forever; therefore, there is a constant imperative to be well prepared in advance for the consequent crisis periods.

Figure 5. Evolution and revolution as businesses grow – the five phases of business growth

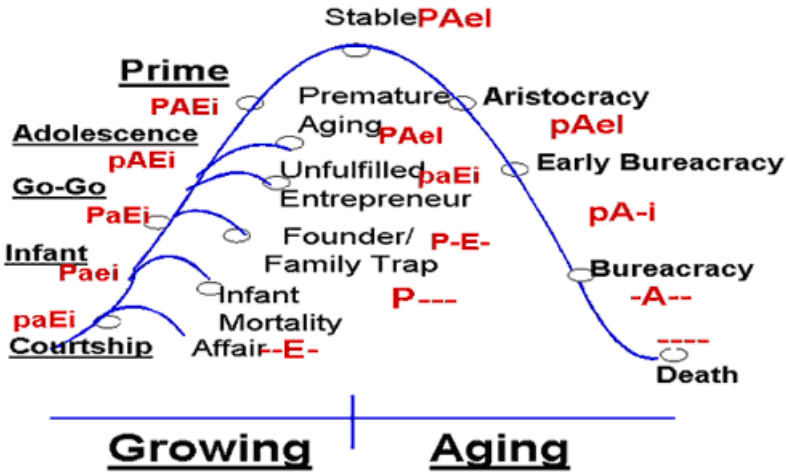


Source: According to Greiner (1972). Evolution and revolution as organizations grow. Harvard Business Review, p. 11

Ichak Adizes (2005) has done a lot of work in the field of defining growth cycle of a business, characteristics of four (4) main management types, and effects of their activities in each particular phase. He described processes all businesses must pass through and the issues that must be solved to attain profitability and sales growth. Management's problem solving abilities, priority setting skills, and creation of new market opportunities, differentiates successful from unsuccessful businesses.

The value of the life cycles is presented in the *Figure 6: Life Cycle and four roles of management*:

Figure 6. Life cycle and four roles of management



Source: According to Adizes (2005). Adizes, I. (2006). Corporate lifecycles: how and why corporations grow and die and what to do about it. *(Croatian edition: Životni ciklusi tvrtke: Kako nastaju, razvijaju se i zašto umiru dobre tvrtke?)*. Zagreb: MEP Consult

The four roles of management are

- (P) stands for "Producer" (producing the results for which the organization exists so it can be effective);
- (A) stands for "Administer" (administering the organization for short-term efficiency, he/she administers or controls to doing things right);
- (E) stands for the "Entrepreneur" (proacting to predicted change so the organization can be effective in the long run; create new ideas, not fixing old ones
- (I) stands for "Integrator" (his/her main tasks are integration and to ensure the organization has the values to sustain itself; building team work which makes the organization efficient in the long run and ensures no one person in the organization is indispensable).

The analysis of a business lifecycle phases, together with the strategic planning process, provides a company with a plan that focuses management on growth and entrepreneurial characteristics rather than the status quo and reducing costs.

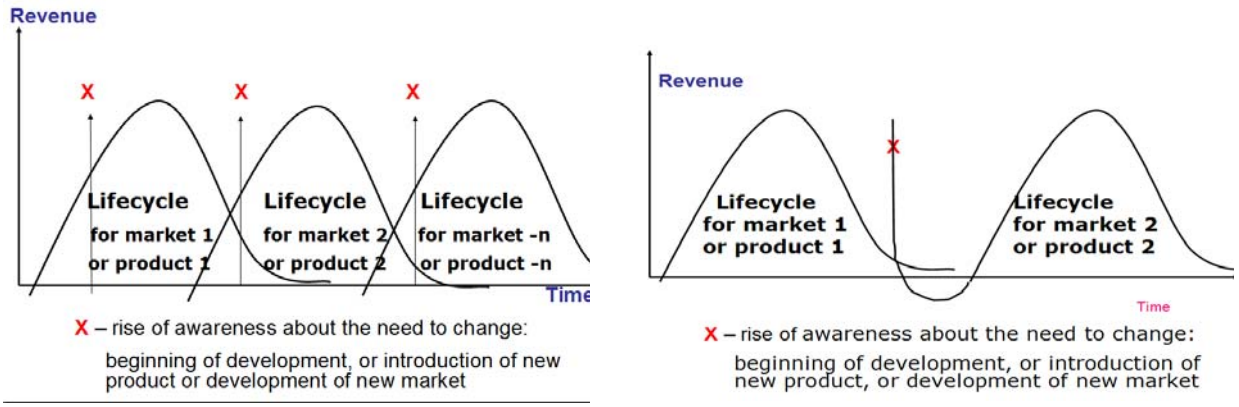
All entrepreneurs begin with three categories of means: (1) Who they are – their traits, tastes and abilities; (2) What they know – their education, training, expertise, and experience; and, (3) Whom they know – their social and professional networks (Sarasvathy, 2001). Therefore it is of utmost importance to be clear about the strengths and weaknesses of the entrepreneur and his/her team, as it is prerequisite for his/her successful accomplishment an entrepreneurial role.

Applying Adizes's model, the Peter Senge's quote in "The 5th Discipline" (2003) that the *"successful problem solving requires a deep understanding of the causes of the problem, not the symptoms*", can be expanded with the understanding that the same problems in different lifecycle phases should be resolved by different people, of different management roles.

To illustrate this statement, *Figure 7* presents two graphs; the first one shows the company which seeks changes and plans its growth, and the second one shows the company which doesn't plan its growth.

The main difference in these approaches is in the moment when company recognizes the need to change something in its approach: to introduce the new product or to enter or develop the new market. The rise of awareness for the need to change will happen in two considerably different phases: the *good and healthy* company will identify that need while its performance is still in the growing phase, and the *unhealthy* company will ignore all signs for the need to change even in the declining stage of its development.

Figure 7. Two graphs showing (1) the company which seeks changes and plans its growth and (2) the company which doesn't plan its growth.



Source: Glas, M. at all (1999). Entrepreneurship for the 21st century: handbook for teachers, trainers advisors and promoters of entrepreneurship. Ministry of Economy of the Republic of Croatia, Zagreb *(Croatian Edition: Poduzetništvo za 21. stoljeće: priručnik za učitelje/ trenere, savjetnike i promotore poduzetništva: Ministarstvo gospodarstva Republike Hrvatske, Zagreb)*

The advantage of the first company is in the fact that the "*death valley*" syndrome (a gap between technology, product or market development and its deployment, which is characterized with the ongoing investments and/or growing expenses, and should be covered before initial funding sources and support dry up) is happening in the phase where the other existing product or market are at their peaks, and generate the most turnover and profit. On the other hand, the second company generates these launching expenses in the period while the core product or market is in its declining and loss-generating phase.

2.6. Sustainable growth

"Sustainability is simply ensuring that economic, environmental and social developments go hand in hand" (Dee, 2010). The philosophy behind the sustainable development is that four areas of business environment (poverty, environment, population, and globalization) harmonize with the key business areas (energy and climate, development, the business role, and ecosystems), and stream towards profitability. Sustainable development needs to be profitable in order to be effective.

The idea of sustainable development grew from numerous environmental movements in earlier decades and was defined in 1987 by the World Commission on Environment and Development (Brundtland Commission 1987). It points out the following: "*Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs"*.

In addition to the concept of *sustainable development*, there are several understandings of the concept of *sustainable growth*.

According to the European Commission and its Directorate General Enterprise and Industry, it means as follows: (1) building a more competitive low-carbon economy that makes efficient, sustainable use of resources, (2) protecting the environment, reducing emissions and preventing biodiversity loss, (3) capitalizing on Europe's leadership in developing new green technologies and production methods, (4) introducing efficient smart electricity grids, (5) harnessing EU-scale networks to give our businesses (especially small manufacturing

firms) an additional competitive advantage, (6), improving the business environment, in particular for SMEs, and (7) helping consumers make well-informed choices.

The second definition is based on the concept of sustainable growth, originally developed by Robert C. Higgins. As per the Reference for Business (Encyclopedia of Business, http://www.referenceforbusiness.com/encyclopedia/Str-The/Sustainable-Growth.html):

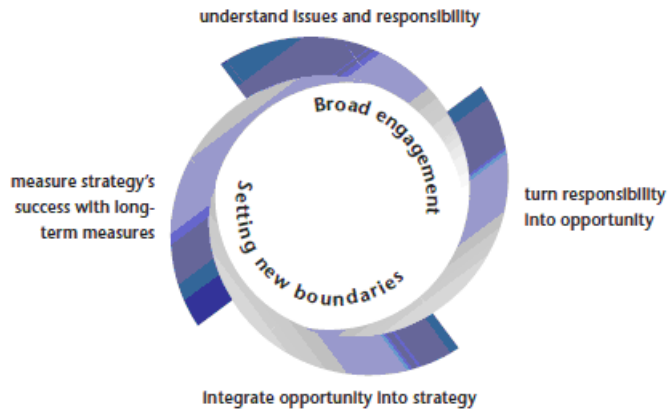
> *"the sustainable growth rate (SGR) of a firm is the maximum rate of growth in sales that can be achieved, given the firm's profitability, asset utilization, and desired dividend payout and debt (financial leverage) ratios. The variables in the model include: (1) the net profit margin on new and existing revenues (P); (2) the asset turnover ratio, which is the ratio of sales revenues to total assets (A); (3) the assets to beginning of period equity ratio (T); and (4) the retention rate, which is defined as the fraction of earnings retained in the business (R)".*

This same source defines sustainable growth rate (SGR) of a firm as the "*maximum rate of growth in sales that can be achieved, given the firm's profitability, asset utilization, and desired dividend payout and debt (financial leverage) ratios*".

Sustainable growth models assume that the companies want to: 1) maintain a target capital structure without issuing new equity; 2) maintain a target dividend payment ratio; and 3) increase sales as rapidly as market conditions allow.

The third definition of sustainable growth (as per Quick reference to the Dictionary of Banking Terms (http://www.answers.com/topic/sustainable-growth) is that *"income from a firm's operations in future accounting periods that can support debt repayment. It implies a rate of growth expected from retained earnings without external financing, and without altering financial leverage."*

Figure 8. The sustainability model in practice



Source: The World Business Council for Sustainable Development (WBCSD). (2006). From Challenge to Opportunity: The role of business in tomorrow's society", http://www.wbcsd.org/DocRoot/CZ2dt8wQCfZKX2S0wxMP/tomorrows-leaders.pdf [Assessed 20.4.2011] p.30

The sustainability model consists of 4 rotating phases: (1) understanding issues and responsibility, (2) turning responsibility into opportunity, (3) integrating opportunity into strategy, and (4) measure strategy's success with long-term measures.

The key prerequisites for sustainable growth are the existence of a growth strategy and a growth capability.

2.7. Small and medium-sized enterprises (SMEs) in Croatia

The European Commission (Commission Recommendation C (2003) 1422, May 2003) defines small and medium-sized enterprises (SMEs) as

> "*any entity engaged in an economic activity, regardless of its legal form which employ fewer than 250 persons and which have an annual turnover not exceeding EUR 50 million and/or and annual balance sheet total not exceeding EUR 43 million"*. Within that category, a small enterprise is defined as an "*enterprise which employs fewer than 50 persons and whose annual turnover and/or annual balance sheet does not exceed EUR 10 million*", and a micro enterprise is defined as an "*enterprise which employs fewer than 10 persons and whose annual turnover and/or balance sheet does not exceed EUR 10 million*" (p. 39)

The same criteria are used to define micro, small and medium-sized companies in Croatia, as presented in the *Figure 9: Small business in Croatia and in the EU*.

Figure 9. Small business in Croatia and in the EU (according to definition)

MALO GOSPODARSTVO RH I EU (PREMA DEFINICIJI)*

SMALL BUSINESS IN CROATIA AND THE EU (ACCORDING TO DEFINITION)*

KRIITERIJI CRITERIA	MIKRO GOSPODARSKI SUBJEKTI RH MICRO SCALE COMPANIES IN CROATIA	MALI GOSPODARSKI SUBJEKTI RH SMALL ECONOMIC ENTITY IN CROATIA	SREDNJI GOSPODARSKI SUBJEKTI RH MEDIUM SIZED ECONOMIC ENTITY IN CROATIA	MIKRO EU MICRO EU	MALI EU SMALL EU	SREDNJI EU MEDIUM SIZED EU
Broj zaposlenih Number of Employees	<10	<50	<250	<10	<50	<250
Ukupni godišnji promet do (mil.) Total annual turnover up to (mil)	14 HRK	54 HRK	216 HRK	< 2 EUR	< 10 EUR	< 50 EUR
Vrijednost dugotrajne imovine do (mil.) Fixed assets value up to (mil)	7 HRK	27 HRK	108 HRK	< 2 EUR	< 10 EUR	< 43 EUR
Neovisnost u poslovanju Business independence	Ako drugi nisu vlasnici više od 25% udjela u vlasništvu ili pravu odlučivanja u subjektu malog gospodarstva, pojedinačno ili zajednički, te i sami nisu subjekti malog gospodarstva. If others are not the owners of more that 25% ownership share or power of decision-making in the small economic entity, individually or jointly, and are not small economic entities themselves					

*Zakon o poticanju razvoja malog gospodarstva (NN 29/02, 63/07)
*Small Business Development Promotion Act (The Official Gazette- NN 29/02, 63/07)

Source: Small and Medium Enterprises (SMEs), publication of Croatian Chamber of Economy, Industry and Technology Department, http://www2.hgk.hr/en/depts/industry/Malo_gospodarstvo_10_web.pdf [Accessed on March 16, 2011]

Croatian economy, according to the Global Competitiveness Report 2011 (p.11) belongs to the group of so called *efficiency driven economy in transition to more advanced stage from 2-3*. As the importance of entrepreneurship and sustainability is increasing, growing SMEs (gazelles) in the global markets have further spurred the need to in-depth research Croatian entrepreneurs. To get and overview of the size of the SME sector, *Figure 10: Number of entrepreneurs per type of the company since 2001*, will sort out the numbers of entrepreneurs corresponding to particular company size:

Figure 10. Number of entrepreneurs per type of the company since 2001 (criteria: company size)

	2001.	2002.	2003.	2004.	2005.	2006.	2007.	2008.	2009.
Size	**Number of entrepreneurs**								
Small companies	54.213	60.562	54.213	65.327	67.760	76.588	81.468	80.199	81.426
Medium-sized companies	2.203	2.279	2.597	2.692	2.969	1.480	1.589	1.350	1.390
Crafts	91.066	96.605	98.419	101.052	102.081	101.846	101.442	99.054	93.679
Cooperatives	286	347	414	539	694	885	1.019	1.032	1.125
TOTAL SMEs	**147.768**	**159.793**	**155.643**	**169.610**	**173.504**	**180.799**	**185.518**	**181.635**	**177.620**
Large-sized companies	571	720	889	962	1.074	441	475	444	436
Share of SMEs in the Croatian economy	99,62	99,55	99,43	99,44	99,38	99,76	99,74	99,76	99,76
TOTAL	**148.339**	**160.513**	**156.532**	**170.572**	**174.578**	**181.240**	**185.993**	**182.079**	**178.056**

Source: FINA, processed by Ministry of Economy, Labor and Entrepreneurship (2011), published in the Operational Plan for support of SMEs for the year 2011. http://www.mingorp.hr/default.aspx?id=1618 [Accessed on 16.3. 2011] p.5.

Among these companies, every year since 2006, there is a selection of the most successful fast growing companies. Croatian business magazine *business.hr* had launched the project Croatian Gazelles, and since then studied fast growing Croatian companies, defined by achieving (cumulative) turnover growth of at least 30% in the three preceding years. Database with data of 4610 companies for the successive 5 years (period between 2006 and 2010) were analyzed and presented in the paper "Where are the Croatian gazelles headed, compared to the European "gazelles" (comparative analysis of two projects dealing with similar topics).

The initial step in defining the group of successful and sustainable growing companies was made by analyzing available data on 4.610 Croatian companies - business gazelles. A group of companies called the ″sustainable gazelles″ was identified. Only one (1) percent of these listed companies (precisely, 47 of those), have been present for the entire duration of five years, i.e. that they have continuously and sustainable grown from 2003 to 2009. In comparison with other gazelles, they had higher income and higher average income per employee. One category in which the sustainable gazelles were ″weaker″ than the other gazelles was the category of profit (as percentage of income), which may be attributed to higher allocations for research and development, salaries or investments.

The research has concluded that 47 sustainable gazelles should be attributed higher attention, because their sustainability is surely a value that should be promoted by the project of business gazelles. By comparing the Croatian results with the results of the European project(s), numerous possibilities were noticed for (1) creating a stimulating environment for sustainable growth of fast-growing companies in Croatia, and (2) learning lessons from them on how to develop entrepreneurial skills and remain in the group of fast-growing and successful companies.

3. METHODOLOGY

3.1. Introduction

In accordance with the paper objectives and the expected outcomes, the following research methods were used:

- inductive-deductive reasoning was used for identifying entrepreneurial needs and pointing out the benefits from the tailor-maid training. It was done through needs

assessment using interviews and site visit, mapping the entrepreneurs' needs, training program design and delivery, follow-up research of the benefits from the tailor-made training.

- desk research method was used to evaluate the quality of current companies' performances and potential for growth, indicate the best strategies for growth, and identify different entrepreneurial skills necessary for sustainable growth of SMEs in Croatia**.** The major tool for this research was the Allan Gibb's Growth framework (framework for profiling performance and determining potential within the independent owner-managed business).

3.2. The instruments

The instruments selected to conduct this research were:

- Entrepreneurial Management and Executive Development (EMED), a business exchange program between the U.S. and CEE countries that enhances management skills and business practices of owners and senior managers of small and medium-sized enterprises (SMEs).
- The Allan Gibb's growth model (framework for growth), an instrument which consists of two analyses and one framework for designing the desired growth strategy.

These instruments were selected because of its validity, reliability and accessibility. They assess and measure entrepreneurial skill levels that are crucial for sustainable growth of SME's in Croatia.

3.3. The samples

The research was guided by two different instruments, which used two different samples. These samples were selected from Croatian entrepreneurs/managers of SMEs, which have planned growth in terms of revenues and number of employees. They were selected because of their relevance and economic contribution to SMEs growth.

- The target sample for identifying entrepreneurial needs was composed of 56 Croatian entrepreneurs of whom seven (7) were female and 49 male. These participants attended individual training programs, designed to satisfy their particular training requests. Participants have represented various business sectors, including agriculture (9), computers and telecommunications (5), financial services (12), production of intermediate goods (11), production of final and consumer goods (11), sales/trade (4), tourism (2), business training services (1), and water supply consulting/engineering (1). From these 56 entrepreneurs, 37 entrepreneurs (who completed their training) participated in the "Program Benefits Update."

To be considered for selection, candidates had to be owners of companies or entrepreneurs holding senior positions in Croatian small or medium enterprises, and speak fluent English. The selected companies had to be at least two years old and employed at least ten employees.

- The target sample for evaluating the quality of current companies' performances and potential for growth was composed of 303 entrepreneurs.

Among 303 interviews made in the period between 2003 and 2010, for the purpose of this paper, data of 40 entrepreneurs and their companies have been analyzed. The reason for the

selection of such smaller number for this particular analysis incumbent in the loose compliance with the criteria (not all companies met all the required criteria) as the interviewers were advised to use their judgment in cases where not all of the listed conditions and criteria were satisfied, but where many of other characteristics of a growing, dynamic company and/or entrepreneur could be observed. Interviewers were also advised to favor those companies involved predominantly in manufacturing.

The number of interviewed entrepreneurs is shown in the *Figure 11. The number of interviewed entrepreneurs in the project Analysis of the growth potential for Croatian companies.*

Figure 11. The number of interviewed entrepreneurs in the project Analysis of the growth potential for Croatian companies

year	number of interviewed entrepreneurs
2003	21
2004	23
2005	29
2006	32
2007	41
2008	35
2009	92
2010	30
TOTAL	303

Source: database of the project "Analysis of the company growth potential" (2003-2011), Gordana Coric

This database is not exhausted with this research, as there are many comparable data, thanks to the Growth framework methodology used in all interviews.

3.4. Data Collection

The data collection process took two phases. In the first phase the data was collected during the implementation of the EMED project (1995 to 1998). In the second phase the data was collected from 2003 to 2010 in order to assess the growth potential of the Croatian SMEs.

To gather the data during the first phase, with the help of local networks, government institutions and entrepreneurs' associations, World Learning has recruited over 110 candidates since 1995. Between November 1995 and October 1998, World Learning Croatia provided EMED training to 56 entrepreneurs. This data and the results of the EMED project provided significant input for the research that took place between 2003 and 2010 for measuring growth potential of SMEs in Croatia. It provided a sound base for further design of research of entrepreneurs' characteristics, training needs and development of entrepreneurial skills of Croatian entrepreneurs. It was particularly important as they were facing the need to adjust and adapt to dramatically changed conditions for doing business and developing entrepreneurial firms.

The process of selection of the participants was very competitive and there were no significant limitations regarding the industry and/or regional location. Candidates had to compete for participation in the program, so they were very motivated to submit as better application materials as possible, and the training advisor was involved in all phases of their

preparations for the program (recruiting, active advising on the program, processing, training providers selection, follow-on, etc.). Disadvantage of that concept was that, upon return from the program, in the process of the implementation of new knowledge, ideas and skills, the participants didn't have extensive support in the field, and sometimes, due to a strong disregarding from the environment, they just gave up any innovation or changes.

In the second project, where the growth framework analysis was used as a method of research, to gather the data during the second phase, the companies were selected based on the following criteria:

- Independence

  The Company is not part (subsidiary) of another group that owns a substantial equity share of the company (exclusion of franchisees or "daughter" companies) and has a clear ownership structure.

- Growth in turnover and employment

  The Company must demonstrate at least 20% growth in turnover and ideally in an employment in the reference period (last three years).

- Size

  The company must have a minimum of 10 employees at the beginning of the reference period and/or minimum annual turnover of 1 million $.

- Age

  Companies must have exited the "death valley" phase, and are in the early growth phase (according to the company life cycle as defined by Ichak Adizes (2005) it could be go-go, adolescent or even prime phase). Companies younger then 3 years should not be considered.

- Business Performance

  Company is doing business on a profitable basis.

Eligibility criteria for the selection of the entrepreneur to be analyzed were defined as follows:

The interviewed entrepreneur:

- has substantial ownership in the company (ideally 100% ownership share; however, partnership with other physical person(s) is acceptable)
- independently runs the business
- is clearly in a transition from the entrepreneurial into managerial stage of running the company,
- has identified the need to grow,
- has some kind of growth plan (i.e. market expansion, new product introduction, development of new process that would contribute to the growth or diversification).

The reasons behind these selection criteria are to be able to track reasons behind company's success from the founder/entrepreneur's point of view, and define key success factor in all studied area according to the used model (Gibb's Framework for Growth).

3.5. Data analysis

As indicated above, the major instruments for this research were Entrepreneurial Management and Executive Development (EMED) and the Allan Gibb's growth model (framework for growth).

Analysis of the research project 1
Entrepreneurial Management and Executive Development (EMED)

Entrepreneurial Management and Executive Development (EMED), is the business exchange program between the U.S. and CEE countries that enhances management skills and business practices of owners and senior managers of small and medium-sized enterprises (SMEs).

Entrepreneurial Management and Executive Development (EMED) EMED was established to help entrepreneurs from the new market economies of Central and Eastern Europe enhance business management and development skills, to understand how the American economic system works and to develop personal and professional relationships with American business owners. This program was funded by USAID and administered by World Learning.

Since its establishment in Croatia in late 1995, EMED has provided training opportunities to 56 Croatian entrepreneurs. Participants had the opportunity to attend individually tailored programs in the United States, each designed by World Learning to respond to participants' particular training needs. The programs were generally three to four weeks long, consisting of trade show attendance, short seminars on requested topics, company visits, on-the-job training, consultations with experts in the field, and training on specific issues.

With the help of local networks, government institutions and entrepreneurs' associations, World Learning has recruited over 110 candidates since 1995. Between November 1995 and October 1998, World Learning Croatia provided EMED training to 56 participants, of whom 7 were female and 49 male. These participants attended individual training programs, designed to satisfy their particular training requests. Participants have represented various business sectors, including agriculture (9), computers and telecommunications (5), financial services (12), production of intermediate goods (11), production of final and consumer goods (11), sales/trade (4), tourism (2), business training services (1), and water supply consulting/engineering (1).

Following their training, participants have been able to improve business performance, expand and reorganize their businesses, introduce new technologies, products and services, and develop lasting professional relationships with American business owners and associations.

EMED was considered by its participants to be a very useful and extremely practical project. Compared to other technical assistance programs, EMED provided participants with immediately useful skills, knowledge and networks, and exposure feasible business opportunities. Through EMED, participants were offered a variety of new ideas as well as ways to transform old-fashioned attitudes. The program encouraged participants to improve business operations, reorganize companies, win new markets, introduce new products and services, and modernize equipment. EMED opened new horizons while educating participants about what makes successful companies successful.

Participants reported significant benefits from their participation, and they attributed some improvements and changes in their companies to this program. They also expressed great interest in continuing to explore business opportunities in the States and in Croatia. Moreover, as SMEs are a driving force in Croatia's future development and reconstruction, this opportunity for entrepreneurs to foster their businesses, improve their performances and establish business contacts with American companies were aimed to contribute to Croatia's faster involvement in the developed world economy.

Upon a completion of the training, the research was made in order to identify:
(1) major reasons for success in the business (key success factors in the past),
(2) major obstacles to growth in the company (current issues), and
(3) the biggest business challenges in the near future.

It is made on the basis of the interviews and answers to the questionnaire "Program Benefits Update," filled out by the 37 entrepreneurs who completed their training the latest in November 1996). The research was made in February 1997, and it served for the preparation of the 1st EMED Croatia conference in which the participants addressed their needs for further development, networking and learning. The responses to the three key questions are presented in the *Figure 11: Overview of the responses to the questionnaire "Program benefits update" by EMED participants:*

Figure 12: Overview of the responses to the questionnaire "Program benefits update" by EMED participants

#	MAJOR REASONS FOR SUCCESS IN BUSINESS	MAJOR OBSTACLES	BIGGEST CHALLENGES IN THE FUTURE
1	clear goal, ambition, new startup after failure, health	economy in the region and in Croatia, post-war situation	business expansion to Zagreb, joint-stock company
2	hard work, development of contacts with partners, new market	high taxes and interests, lack of trust and support of financial institutions for SMEs in Eastern region	recovering from '96 financial situation on the market, finding investor for building own trade show facilities, establishing new trade show
3	visions and ideas, good team, hard work	privatization process, education, communication and information	investment in new technology, expansion to the European market better information system
4	curiosity, a wish to learn more, persistence, instinct of the fighter for survival	political situation, relatively small amount of long term loans available, expensive foreign credits	increasing of basic capital, increasing of citizens' and companies' deposits and offering them middle and long-term credits, efforts in developing/crediting SMEs
5	idea, international contacts	small market	new product lines, new product, new factory /workshop
6	numerous customers, regular payments and collection, appropriate working facilities	high taxes, only a few companies covering Croatian market, unclear customers' wishes	network expansion all over the world and useful contacts
7	excellent suppliers, internal organization, better marketing then others		expansion to the European market
8	marketing, quality, price	economical crisis, general low payment ability, lack of skilled staff	turnover increase for 50%

#	MAJOR REASONS FOR SUCCESS IN BUSINESS	MAJOR OBSTACLES	BIGGEST CHALLENGES IN THE FUTURE
9	productivity, flexibility, quality	small internal market, low government incentives, unskilled labor forces	distribution, new market
10	knowledge, experience, good organization, continuous improvements, development vision, courage to realize all ideas	low level of general knowledge in Croatia (securities), non-defined regulations, only a few real experts	investment trusts transactions' development, influencing clients tending to start financing business by issuing shares, expansion to other countries
11	education, experience, talent	human resources, market size, cost of capital	own production of packaging consumables, expansion to the neighboring markets, ISO 9000 qualification, computer network in operating mode
12	hard work (12 hours daily), education	approaching credit lines from the USA for high-tech products, education of managers in Croatia, bank system in Croatia	development of bank applications for Croatian & Bosnian banks, Internet applications, consulting, telecommunication network, satellite technology
13	planning, market research, flexibility (quickness in changing production)	bad credit conditions, high tax, bad protection of domestic production	survival, exit to foreign market, technology reconstruction
14	consistency of original business plan, aggressive marketing, management control	credit support by banks, payments, constant need for marketing	inventions of new products, distribution, new clients
15	experience, offering complete service, SME owner should have knowledge about production, finance, marketing	slow and difficult collection, limited choice of loans (which are quite bad), small domestic market	export to West Europe & the US, start with more sophisticated production and expand into new product line
16	knowledge and understanding of own business, professionalism and serious/respectful treatment of clients, energy and high working capacity	lack of market economy, local laws don't protect private companies, changes happening too often, difficult access to long-term loans for SMEs	running own production, export, modernization of production, getting higher productivity, offering higher standard to the employees
17	development and market orientation, new products, lower prices	economic growth - investment, problems with personnel on the company level	better organization within the company, modernization of production, lower production costs
18	correct relationship, knowledge, permanent efforts to do better	economic situation in Croatia	improvement of efficiency, organization, development of distribution network, covering entire market of Croatia
19	good planning, development, human resources	marketing, new products, calculation - budgeting	quality of products, prices, export growth, new products
20	running the programs competitive with international level and standards, modern technology and equipment	no local knowledge and tradition in the service offered, lack of funds for investing in ideas and prospective programs, lack of serious partners interested in joint ventures in Croatia	building golf centers (as seen in the States), high standard golf courses on the coast, development of golf organization in Croatia, introducing golf and travel programs in Croatia for the European and world golf travel market
21	hard work (more then 10 hours per day), final vision in the business, persistent work in building the company name and brand	transition period in the country after the 5-year of war, lack of good bank programs for supporting SMEs, inadequate work space, low money accumulation	building a strong company name to protect a business field from bad quality products, investment in new machines, new bigger workshop to accommodate new employees

#	MAJOR REASONS FOR SUCCESS IN BUSINESS	MAJOR OBSTACLES	BIGGEST CHALLENGES IN THE FUTURE
22	knowledge, high quality product/production, hard work	achieving higher quality, getting a good price for the product, export	selling on domestic market
23	competent people, good organization, timely reaction, networking with key people	the consequences of the war, low purchasing power, poor taxation system	entering successfully into reintegrated territory of Croatia, acknowledgment in the other industry markets, launching new business - opening shops and support services
24	ambition, education, persistence	slowly changing environment, inexperience, lack of funding	implementation of the on-line money market in Croatia, organizing secondary market for short-term securities, preparation for competition
25	good information sources, knowledge application, various financial possibilities	problems in the surrounding geographic area, dealing with the material and financial war damages, lacking financial support, lost markets	better organization and cutting the cost of production, obtaining loan support, entering worldwide market
26	qualified personnel, technology, raw materials	irregularities of demand, lack of bank guarantees for the investment loans, unfavorable credit conditions	new production line for assembling
27	good network within government institution, tradition, quality	lack of marketing knowledge, production orientation as business strategy, out-of-date equipment and plants	building a new factory (joint venture), contacts with foreign investors, market orientation, opening a representative office in Zagreb
28	hard work, professional approach (kind and patient)	money, adequate facilities	new programs, market expansion, education of staff experts
29	persistence in adopting new skills and knowledge, company philosophy: to be open to new markets, skills and technology	lack of production plant, equipment, lacking new markets	building a new production plant of 10000 m^2, purchasing new equipment, increasing number of employees for additional 100 workers, penetration to markets in the USA and Middle East
30	better cooperativeness, products of better quality		production of final goods expansion, better marketing
31	high quality product, targeting customers, sales methods, 25 years of experience and well known company image	fast development of advanced technology of catering equipment production, organization according to quality assurance standards, development of new markets	organization of company according to ISO 9000, design and development of new products, expansion to international market
32	high quality of the product, long experience - family owned business, high confidence in business relations	out-of-date technology, disloyal competition, unfavorable conditions of payment	getting a certificate ISO 9000, market expansion to Dalmatia, computerization
33	work, order, discipline	lack of on-time payments	expanding to markets of higher quality, loan re-payment, exhibit at the trade show in Osijek
34	honesty, decency, work 24/7/365, customer friendly working hours, hunger for knowledge and new challenges	pending formal registration as a bank, obstacles in opening new branch offices, delegation and decision making process need improvements	registering as a fully licensed bank, opening 3-5 branch offices, delegation and decision making process improvement, doubling the number of clients

#	MAJOR REASONS FOR SUCCESS IN BUSINESS	MAJOR OBSTACLES	BIGGEST CHALLENGES IN THE FUTURE
35	permanent learning, a lot of working hours, full commitment	cash flow, potential of the market, education of key personnel	resolving the problems with cash flow, market and staff education
36	possibility of fast changes	undeveloped environment, lack of "fresh" money	development of a company according to the West European standards, market expansion, company growth, response to the pressure of growing competition
37	continuous learning and education, personal courage, patience	recession, lack of demand for our products in Europe and Croatia, lack of support to develop new products or programs, taxes and duties too high for such a weak economy	doing business in the next few years, development of new products, putting production line in operation

Source: Databases of Entrepreneurial Management and Executive Development (EMED) project 1995-1999., World Learning Croatia

The initial analysis of this research was made for the purpose of development of follow-up programs and further discussion of common and specific issues relevant to further development of researched entrepreneurs. Apart from the three group of issues listed in the *Figure 12* (key success factor in the past, present obstacles and future challenges) the questionnaire covered some other issues, such as technical assistance needs, interest to participate in the future networking events, recruiting assistance, participants' update and interest in forming the SME association.

The research project 2
Analysis of the growth potential of the companies

The Allan Gibb's Growth model (framework for growth) is an instrument which consists of two analyses and one framework for design the desired growth strategy.

The first analysis, so called "MOF analysis," was used within the Growth framework. This analysis provides evaluation of the company current performance and effectiveness mainly observing the following areas: market, operations and finance. The evaluation of the market was based on the customers' evaluation, success of sales, the awareness of external environment and specific parts of marketing mix. The evaluation of operations performance resulted from the collection of estimates of the process quality, location and premises, existing staff and equipment. When estimating current finance performance, the method of calculating various indicators was applied. Observed financial indicators include liquidity, financial stability, coefficient of debt, activity, coefficients of assets turnover, stocks and accounts and receivables, business success indicators, profitability and the structure of total assets. Its purpose was to evaluate company performance in managing financial resources and their rational use.

At the final stage of estimating all above elements, a comparative chart was drawn covering all the three areas – market, operations and finance evaluated according to the degree of successfulness in their performance in the given period and their importance in the future development of the company. There was also made an estimate of the need for consulting and interventions in the observed performance areas.

The use of the other part of the Growth framework followed (so called "RECoIL" analysis) and the estimate of growth potentials made according to the following bases: resource base, experience base, control base, idea base and leadership base. Every observed base finally got two grades: its potentials grade (in what degree the observed base is important and has potentials) and its usability grade or its value for the future growth. The bases requiring additional improvement have been taken out.

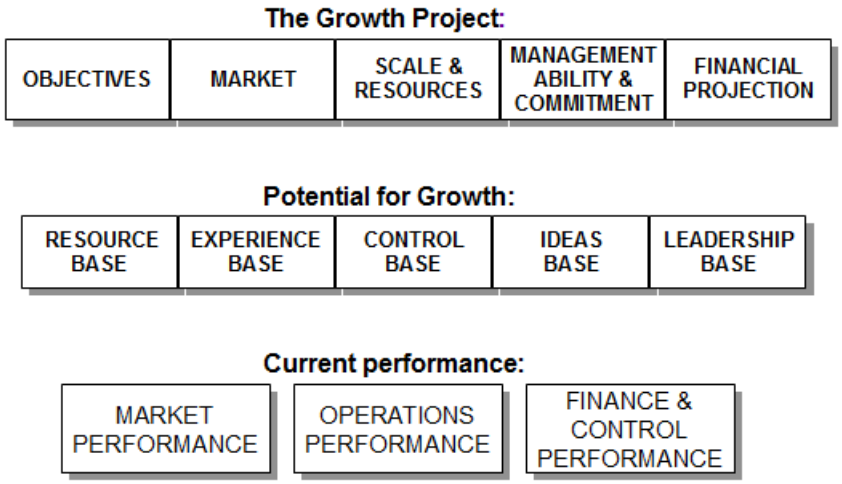
In order to put all the elements of Growth framework in mutual relationships, a more comprising concept of »flower pot« (or »model of growth through product/market development in the small firm«) which, has put in relation potentials for growth and external and internal factors, by means of Ansoff matrix, resulting in various possibilities – selection of directions in which the company could develop. Ansoff matrix puts in relation old and new products and markets, determines four basic generic growth strategies (positioning, specializing and differentiation and existing market breakthrough with existing product, product development, market development and diversification).

Based on the conducted analyses and set diagnosis of the current performance, and estimated potentials for growth, the ultimate goal of this assignment was to propose one or more strategies that would the best respond to the growth needs of the particular company.

The assignment - Analysis of the growth potential of the companies has being performed on an annual basis since 2003. The major tool for evaluation of growth potential is Allan Gibb's Growth framework (framework for profiling performance and determining potential within the independent owner-managed business). This tool helps to (1) understand the pressures, issues and problems an SME faces as it contemplates growth, and (2) to assess the business current performance and potential for growth.

Assisting the growth business happens in three stages: (1) Assessing current performance, (2) Assessing the potential for growth, and (3) Evaluating the most suitable growth projects. The model is presented in the Figure *13. Framework for growth.*

Figure 13: Framework for growth



Source: Gibb, A. (1991). Appraising growth potential: Key issues in the thresholds of growth of the independent business Chapter 9 in Growth Capital and Entrepreneurship, EFER and IESE, Barcelona, p. 229

Assessing current performance is the first necessary step taken in order to identify the issues a business needs to either survive or build a solid platform for growth. The current performance should be assessed in three key areas:

1. Marketing
2. Operations
3. Finance.

This tool (called "MOF" analysis, according to the first letters in the words of these key areas), when used after thorough familiarization, will enable the entrepreneur to assess his/her small business' readiness for growth and identify areas which need to be addressed for survival or growth.

Assessing potential for growth is done with the help of the part of the Growth framework called "RECoIL" analysis (named as an acronym of the first letters of the words *R*esources, *E*xperiences, *Co*ntrol, *I*deas, and *L*eadership). In order to identify the capacity for a business to grow, the assessment of the growth potential in the five key areas is crucial:

1. Resource base
2. Experience base
3. Control base
4. Ideas base
5. Leadership base.

This tool is designed to help entrepreneur to assess his/her business' readiness for growth and identify areas which need further addressing to reach necessary capacity for growth.

Based on the results of the two previous assessments (of current performance and of the potential for growth), and the analysis of all prospective growth strategies with the help of the Ansoff matrix, the selection of the most suitable strategy should be further developed through the platform for evaluating the growth project. In order to evaluate a specific project for growth, the assessment of the project should be done in five key areas:

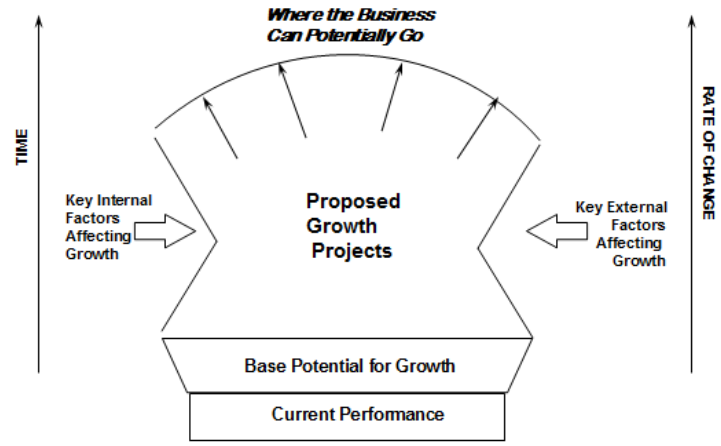
1. Objectives
2. Market
3. Scale and Resource requirement
4. Management ability and commitment
5. Financial projections.

This tool will enable the entrepreneur to assess needs and potentials, and be well prepared for a project which will enable a small business to grow.

The full value of the model Framework for growth is achieved if put in the context of the comprehensive model so called "Flower pot" (presented in the *Figure 14.*)

There is a wide range of factors influencing the capacity of any small business to grow. These can be divided into three groups – (1) Performance - past and present, (2) Potential - the capacity of the business to grow, and (3) Project - the specific growth plan.

Figure 14: Flower pot – a model of small firm growth



Source: Gibb, A. (1991). Appraising growth potential: Key issues in the thresholds of growth of the independent business Chapter 9 in Growth Capital and Entrepreneurship, EFER and IESE, Barcelona, p. 229

The flower pot model responds to three key questions in assessing a business:

- How good is the business performance to date?
- How strong is the business' potential for growth?
- Do you have a clear growth project?
- What are the key external influences that may impact on the project?

Answers to these questions provide the resources for further development of various responses to the challenges of growth.

4. FINDINGS

Based on the analysis of the research project 1, and due to the needed assistance, network interests, site visits, and the formation of an association of SME entrepreneurs, the following results appeared:

The assistance is needed in the following areas:

- Management (in general, of information systems),
- Marketing (research, sale of products in general, sale of wood products, export, purchase of products in foreign markets, development of distribution channels, new sale methods, development of new products),
- Manufacturing (i.e. ship industry: acoustics, vibrations, fire-fighting systems and equipment),
- Technical assistance of international organizations (i.e. USAID, AMA, etc.), planning, human resources, banking, organization (i.e. of ready-made women's clothes in context of the productivity progress),
- Production (suggestions about technical equipment, organization of the process of production).

Assistance should be provided in the following forms: consultancy, databases (technical), "library" (books, reviews, analysis), assistance in human resources management delivered by "Gray panthers" volunteers (senior or retired executives who donate their time and experience in the companies in need), direct contacts with potential business partners.

Networking interests

The interesting finding of this research was that after the attendance of the EMED program, alumni felt comfortable to offer their assistance to other entrepreneurs through consultancy, association workshops, etc. in the following areas:

- Management of information systems
- Planning: business plans, marketing plans, new business plans development, project management
- Finance: making of financial statements, trading with securities
- Tourism
- Nautical business
- Wood industry: technical assistance
- Ship industry: information
- Leather manufacturing: information
- Ice cream production
- Joint venture: information on how to find the partner from W. Europe
- Export/Import: customs regulations

Site visits

Furthermore, several participants offered to host *site visits* to other participants (the number in the brackets indicates preferred number of visitors) and discuss the following areas and topics:

- Wholesale (2)
- Modern office and hotel furnishing (10)
- Management of information systems & US software in Croatian businesses (5-7)
- Ice cream production: information update (5-10)
- Wood processing
- Quality of products
- Technology - new technology information
- Apparel industry: industry problems and how to search for solutions
- Wood industry: wood processing, serial production of door

However, the participants discovered that participation in the EMED program opened new areas for knowledge and skills improvement, and therefore they listed some events and other organizations they would like to visit and discuss the following:

- Wholesale of sanitary equipment
- Car industry: spare parts, future of car industry, car service in Croatia, support for independent car services
- Leather: manufacturing, foreign markets
- Coffee industry

- Furniture: possibilities for cooperation
- Management of information systems
- Marketing: international marketing, marketing skills
- Technology- new technology
- Catering equipment industry: common products
- Ecology: Reconstruction of old used filters
- Wood industry: wood processing

The following changes in their careers or companies have occurred:

- change or expansion of activity (5),
- current position change (from managerial to strategic one) (3),
- annual turnover/sales revenue change (8),
- company book value change (6),
- number of employees change (7)
- successful promotion of own projects and ideas within the company since return after the training (2).

Exposure to the American businesses, ways how they do business, available infrastructure for providing necessary support and information, and proven advantages of networking, triggered these participants to ask for more information about

- Membership possibility in the US Croatia Business Council (USCBC)
- How to facilitate networking with entrepreneurs from West European countries (Germany, Austria, Italy, France, England, Sweden, The Netherlands), other Central and East European countries (Slovakia, Poland, Check Republic, Hungary, Slovenia, Romania) and the United States
- Attendance regional conferences dealing with the issues of interest to entrepreneurs (European, Bulgarian, etc.)
- Other specific issues: ship industry: acoustics, US investment funds and partners interested to invest in Croatia, US Chamber of Commerce, small business publications, etc.

Formation of an association of SME entrepreneurs

Since in 1997 were only a few operating associations of entrepreneurs, this group initiated the association of small and medium sized business owners and had a couple of meetings. Several participants volunteered to serve in the national or regional boards and in an executive board. The rest of participants see themselves as members of the association.

According to their responses, the most interesting and important services that the association should provide them for development of necessary skills, were as follows:

1. business networking and exchange of information through formal and informal mechanisms (23),
2. assisting international organizations looking for business partners in Croatia (17),
3. lobbying policy & government decision makers for a favorable business environment for entrepreneurs (ensuring that the views of entrepreneur are heard) (16),
4. arranging technical assistance (international and domestic) (14),

5. conference, seminars and workshops - in-country training (11),

Based on the discussion regarding the purpose and expectations from the prospective association of entrepreneurs, and direct contribution of the most involved entrepreneurs, the following goals of the Association were proposed:

- to represent and protect common interests of all members of the Association,
- to participate in the economic development programs for the Republic of Croatia,
- to propose legal solutions related to SMEs,
- to share knowledge about various credit sources with the members,
- to facilitate networking with suppliers and other business partners,
- to facilitate cooperation with other associations,
- to organize seminars, conferences, workshops and roundtables,
- to support publishing of business publications and other professional literature,
- to start up new companies,
- to develop other goals to strengthen the Association.

The entrepreneurs met on September 17, 1997 as a part of EMED follow-on activities. This meeting provided an opportunity to elect the presidency and the members of executive and supervisory board, and the members of the court of honor. The entrepreneurs started the registration procedure in order to make their SME Association operational as soon as possible.

They were quite new in this venture, and since there was not structured support provided to maintaining the association, several members joined other associations (business women association, SME association within the Croatian Employers' Association, and some other SME and professional associations). By that time, the participants were empowered enough to carry on assignments and responsibilities in these associations. Their active work in these associations can be attributed to the initial support received through EMED program.

Based on the analysis of the research project 2, the following outcomes appeared.

Out of the entire Growth framework model for assisting the growth business, the following steps were studied for the purpose of this paper:

- Step 2 (Assessing the potential through 5 bases) – the emphasis was put to the Resource Base Evaluation, and particularly to the section People as a part of resources, where the following issues were evaluated: quality, skills, age, attitude, flexibility, morale. The highlighted issue was "skills" as this paper deals with the development entrepreneurial skills.

- Step 3 (Evaluating the project) - the data for this research were taken from the evaluation of the Management Ability and Commitment (with the specific questions "How do existing skills match needs?" and "What new skills and abilities are needed?")

In response to the skills evaluated in the Step 2 and 3, the entrepreneurs' self-evaluation resulted as presented in the *Figure 15: Grades allocated to certain skills (sorted out by descending order of frequency)*.

Figure 15. Grades allocated to certain skills (sorted out by descending order of frequency)

Potentials grade - skills existing *(in what degree the observed skill is important and has potentials to facilitate further growth)*	Usability grade – skills needed (due to its value/importance for the future growth, or its share in the future success)
• Knowledgeable of markets	• Able to take calculated risk
• Flexible and able to adapt	• Solving problems analytically and creatively
• Motivating others	• Empowering and delegating
• Self-confident and optimistic (Positive thinking)	• Leading positive change
• Dynamic (active) leader	• Energetic and diligent (carrying out a task steadily
• Responsive to criticism (comments or judgments)	• Versatile (variety) knowledge
• Creative, need to achieve	• Take initiatives (to go ahead)
• Resourceful and persevering (performer)	• Respond positively to challenges
• Making oral and written presentations	• Managing conflict
• Independent minded	• Building effective teams and teamwork
• Able to get along well with others	• Responsive (reacting or responding positively) to suggestions
• Conducting meetings	• Perceptive with foresight (advance thinking)
• Conducting interviews	• Gaining power and influence
• Developing self-awareness	• Managing personal stress
	• Building relationships by communicating supportively

Source: database of the project "Analysis of the company growth potential" (2003-2011), Gordana Coric

This evidence shows that skills greatly affect entrepreneurs' choice of growth strategy as an option to status quo or "staying small". The majority of skills that are assessed as skills that already exist in the company and could serve as a basis for further growth belong to the set of skills that are easily developed while managing and developing small scale company. For example, such skills are flexibility, adaptability, knowledge of market and close resources, etc. On the other hand, the skills which are incremental for further grow, but the entrepreneurs do not feel comfortable about their presence or power (strength) in the company. Therefore, they would like to would like to see more of creativity, sophisticated techniques (such as conflict management, empowering and delegating, all sorts of building and inclusion/participation skills, etc.) in their companies before they start to grow.

It is another proof of how skills should evolve in the process of transforming company from small to growth oriented business. Interviewed entrepreneurs have recognized their value and importance for the future growth. It is easier to plan a scope of growth and select growth strategy once the entrepreneur and his/her team know their strengths and weaknesses, and learn how to transform weaknesses into strengths, and also to reverse threats into opportunities. Thus, the entrepreneurs show great share of commitment for the future success of their growing company.

5. CONCLUSION

Sustainable growth and nation's prosperity greatly depends on the ability of entrepreneurial skills applied in the daily business. The application of these skills creates new jobs, adds values to all stakeholders, increase GDP, develops new SMEs, and fasten economic development. In line with the primary objective, to evaluate the quality of current companies' performances and potential for growth, indicate the best strategies for growth, and identify different entrepreneurial skills necessary for sustainable growth of SMEs, the two projects were analyzed. The first project identified entrepreneurial needs and pointed out the benefits from the tailor-maid training. The second project helped to assess the growth potential of the SMEs in Croatia. The findings showed that there is need for entrepreneurial assistance, network interests, site visits, and the formation of an association of SME entrepreneurs. In addition, identified existing entrepreneurial skills, as well as skills that need to be developed, greatly affect entrepreneurs' choice of growth strategy options.

The major contributions of this paper are:

- promoting of the development of entrepreneurial skills that lead to sustainable growth
- increasing competitiveness through development of entrepreneurship
- pointing out the necessity of strengthening entrepreneurial networking (public and private sectors and scientific and research institutions)
- stressing out the need for life-long entrepreneurial education
- forming entrepreneurial associations
- promoting new entrepreneurial projects that contribute sustainable growth of SMEs in Croatia.

Entrepreneurship education is an emerging concept. Yet it may have a significant role to play in transitioning entrepreneurial activity from necessity to opportunity-based in the efficiency-driven countries, in addition to enhancing innovation and international competitiveness. Further research on these issues is necessary to promote the further development of entrepreneurial skills that lead to sustainable growth.

BIBLIOGRAPHY

Adizes, I. (2006). **Corporate lifecycles: how and why corporations grow and die and what to do about it.** (Croatian edition: *Životni ciklusi tvrtke: Kako nastaju, razvijaju se i zašto umiru dobre tvrtke*?). Zagreb: MEP Consult

Almquist, E. and Angust, S. (1971, July). **Role model influences on college woman's career aspirations,** Merrill-Pallmer Quarterly 17, pp. 263-97.

Articlesbase.com (2011). **Role of entrepreneur and entrepreneurship**. http://www.articlesbase.com/entrepreneurship-articles/role-of-entrepreneur-and-entrepreneurship-1889061.html [Accessed 12. 04. 2011)

Baumol, W. (1990.) **Entrepreneurship: Productive, Unproductive, and Destructive.** http://business.auburn.edu/~ral0011/Georgia/Baumol.pdf [Accessed 08. 09. 2008)

Blyth, A. (2009). **How to Grow Your Business (for Entrepreneurs)**. Pearson Prentice Hall (Business) – Pearson Education Unlimited

Brundtland, G. H., et al. (1987). **Our Common Future: Report of the World Commission on Environment and Development**. Oxford: Oxford University Press

Business magazines Gazelles 2006-2010 (in Croatian: Gazele 2006, Gazele 2007, Gazele 2008, Gazele, 2009, Gazele 2010 (business.hr)

Charan, R. and Tichy, N.M. (1998). **Every Business Is a Growth Business**. Times Books, Three Rivers Press

Cunningham, J. B. and Lischeron, J. (1991). **Defining Entrepreneurship,** *Journal of Small Business Management*, 29: 45 – 61 vol. 29, January 1st, 1991, pp. 45-61

Dee, J. (2010). **'Sustainable Growth' book for small and medium sized businesses (**http://about.sensis.com.au/small-business/free-sustainable-growth-book/**)** [Assessed 16.4.2011.]

Encyclopedia of Small Business, Barron's Banking Dictionary, The Gale Group, Inc. **Quick reference to the Dictionary of Banking Terms**, 5th edition, by Thomas P. Fitch, Barron's Educational Series, Inc **(**http://www.answers.com/topic/sustainable-growth**), [**Accessed 15.4. 2011]

European Commission (2003). **Commission Recommendation C (2003) concerning the definition of micro, small and medium-sized enterprises 1422**) (2003/361/EC), http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:124:0036:0041:en:PDF [Assessed 20.4.2011]

European Commission, Directorate General Enterprise and Industry, **Sustainable growth - for a resource efficient, greener and more competitive economy (**http://ec.europa.eu/europe2020/priorities/sustainable-growth/index_en.htm) [Accessed 16.04.2011]

Europe's 500, **Initiatives.** http://www.europes500.eu/initiatives.html, [Accessed 16.03.2011]

Gibb, A. (1991). **Appraising growth potential: Key issues in the thresholds of growth of the independent business** Chapter 9 in *Growth Capital and Entrepreneurship*, EFER and IESE, Barcelona, p. 223-244

Glas, M. at all (1999). **Entrepreneurship for the 21st century: handbook for teachers, trainers advisors and promoters of entrepreneurship.** Ministry of Economy of the Republic of Croatia, Zagreb *(Croatian Edition: Poduzetništvo za 21. stoljeće: priručnik za učitelje/ trenere, savjetnike i promotore poduzetništva: Ministarstvo gospodarstva Republike Hrvatske, Zagreb)*

Greiner, L. (1972). **Evolution and Revolution as Organizations Grow.** Harvard Business Review, Vol. 50(4)

Hamm, J. (2002). **Why Entrepreneurs Don't Scale?** Harvard Business Review, Reprint R0212J

Hisrich, R., Peters, M., and Shepherd, D. (2008). **Entrepreneurship.** Burr Ridge, IL: McGraw-Hill Irwin.

Hisrich, R.D., and Brush, C. D. (1985). **The woman entrepreneur: Starting, financing, and managing a successful new business,** Lexington, MA. Lexington Books. p.18.

Hitt, M. A., Ireland, R. D. Camp, M. S. and *Sexton*, D. L. (2001). Guest Editors Special Introduction to the Special ***Issue*** on 320 Yosem E. Companies and Jeffery S. McMullen, **Strategic Entrepreneurship: Entrepreneurial Strategies for Wealth Creation, *Strategic Management Journal*** 22, 479–491.

ISTUD (2005), **Patterns of small business growth experience**, Milan: ISTUD, materials distributed at the training for teachers of entrepreneurship delivered 11-13.11.2004

Kelley, D., Bosma, N., Amorós, J.E. and Global Entrepreneurship Research Association (2011). **Global Entrepreneurship Monitor - Global Report 2010,** http://www.gemconsortium.org/about.aspx?page=pub_gem_global_reports [Accessed 15.03.2011]

Lazonick, W. (2002), **Innovative Enterprise and Historical Transformation**. ***Enterprise and Society,*** 3(1): 3 - 47

Lumpkin, G.T. & Dess, G.G. (1996**). Clarifying the entrepreneurial orientation construct and linking it to performance,** in ***Academy of Management Review*****,** 21: 135 - 72**.**

Merriam Webster Dictionary (2011). **Entrepreneur,** http://www.merriam-webster. com/dictionary/entrepreneur [Accessed 10.04.2011)

Ministry of Economy, Labor and Entrepreneurship (2011). **Operational Plan for support of SMEs for the year 2011**. http://www.mingorp.hr/default.aspx?id=1618.[Accessed on 16.3. 2011] p.5.

Reference for Business, Encyclopedia of Business (2nd ed.). **Sustainable Growth.** http://www.referenceforbusiness.com/encyclopedia/Str-The/Sustainable-Growth.html, [Accessed 09.04.2011]

Sarasvathy, S. (2001). **What makes entrepreneurs entrepreneurial?** Harvard Business Review (revised June 21, 2001)

Schwab, K. ed. (2010). **Global Competitiveness Report 2010-2011**. World Economic Forum. http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2010-11.pdf [Accessed on 2.10.2010]

Search Quotes. www.searchquotes.com/quotations [Accessed 20.4.2011]

Shane, S. (2003). **A general theory of entrepreneurship: the individual-opportunity nexus.** Cheltham/Northampton: Edward Elgar Publishing Inc.

Shane, S. (2008). **Illusions of Entrepreneurship: The Costly Myths that Entrepreneurs, Investors, and Policy Makers Live By.** New Haven, CT: Yale University Press

Stavrosinstitute.org (2011). ***The Role of the Entrepreneur in the Economy***. http://www.stavrosinstitute.org/Assets/PDFs/ [Accessed 14.04.2011)

Stevenson, H. (1993). **The Nature of Entrepreneurship** in Abell, D and Köllermeier, T. ed. ***Dynamic Entrepreneurship in Central and Eastern Europe.*** 2nd edition, The Hague: Delwel Publishers (p. 3-5)

Timmons, J. A. & Spinelli, S. (2003). **New Venture Creation: Entrepreneurship for the 21st century**, (6th, international edition), N.Y.: McGraw Hill,

Tyson, L.D'A. (1993). **The Enabling Environment for Entrepreneurship** in Abell, D and Köllermeier, T. ed. ***Dynamic Entrepreneurship in Central and Eastern Europe.*** 2nd edition, The Hague: Delwel Publishers (p. 35-39)

Wheelen, T. L., & Hunger, J. D. (2004). **Strategic management and business policy** (9th ed.). New Jersey: Upper Saddle River.

Whetten, D.A. & Cameron K.S. (2005). **Developing Management Skills**, 6th (international) edition, Pearson Prentice Hall – Pearson Education International

Wiki.answer.com (2011). **What is the role of entrepreneurship in economics growth**? http://wiki.answers.com/Q/ [Accessed 09.04.2011]

The World Business Council for Sustainable Development (WBCSD). (2006). **From Challenge to Opportunity: The role of business in tomorrow's society",** http://www.wbcsd.org/DocRoot/CZ2dt8wQCfZKX2S0wxMP/tomorrows-leaders.pdf [Assessed 20.4.2011]

THE ROLE OF THINK TANKS IN SHAPING SME BUSINESS ENVIRONMENT IN CROATIA – THE CASE OF CEPOR

Anamarija Delić
J.J. Strossmayer University in Osijek, Faculty of Economics in Osijek
Croatia, Osijek, Gajev trg 7
Phone: ++ 385 31 22 44 26; Fax: ++ 385 31 22 44 38
E-mail: adelic@efos.hr

Slavica Singer
J.J. Strossmayer University in Osijek, Faculty of Economics in Osijek
Croatia, Osijek, Gajev trg 7
Phone: ++ 385 31 22 44 44; Fax: ++ 385 31 22 44 38
E-mail: singer@efos.hr

Mirela Alpeza
J.J. Strossmayer University in Osijek, Faculty of Economics in Osijek
Croatia, Osijek, Gajev trg 7
Phone: ++ 385 31 22 44 26; Fax: ++ 385 31 22 44 38
E-mail: mirela.alpeza@efos.hr

Key words: *Think tank, Policy research, SME sector, Supportive business environment, Political decision-making process*

ABSTRACT

Think tank organisations (policy centres) are modern organisations focused on policy research of all the aspects of society, whose role in the processes of political decision-making in developed countries is almost irreplaceable. Despite their significant role in decision-making processes in developed countries, it is still difficult for political decision-makers in countries in transition to accept their recommendations and research results. There are several reasons for this situation – there is no history of independent policy research in Croatia (because academic and research community mainly deals with fundamental and applicative research and only in rare cases builds upon that with policy recommendation) and the political decision-making process in Croatia itself is closed. Model of political decision-making process of the open type inaugurates think tank organisations as mediators who, for the needs of the academic community, public opinion and state administration, are producing research that aims to influence making of decisions of general (public) interest. This paper presents the case of CEPOR, think tank organisation that was established by institutions from academic and research sector and support institutions for SME development with the purpose of conducting policy research, education and influence on public discussion and decision-making process in the area of small and medium-sized enterprises and entrepreneurship. CEPOR is building its strategy of positioning in decision-making processes through strengthening its institutional capacity, developing policy dialogue with key stakeholders and exchanging best practices with regional think tank organisations.

1. WHAT IS POLICY CENTRE / THINK TANK?

The term think tank was coined at the end of the Second World War in the United States of America, and it denoted a safe place (tank) where civilians and military strategists planned military operations and adopted strategies (think). Shortly after the war, the concept has spread and encompassed a multitude of different activities, so that today it is difficult to associate it with any specific type of organisation. The fact that different authors also use the term policy centre for the same activities and types of organisations, contributes to complexity of defining think thank organisations. Therefore, for the purposes of defining the type of organisation as well as its activities, both terms will be used alternatively, according to the thoughts and attitudes of certain authors.

Starting from the most general definition, think tank organisations represent institutes, associations or groups that undertake interdisciplinary research and are often figuratively called "factories of ideas, thoughts" (Schneider, 2002). Weaver and McGunn (2000) describe think tank organisations as research organisations with significant autonomy in relation to government and other interest groups, while Ladi (2000) states that think tank organisations differ from other research institutions because commissioned (financed) research is only one of their activities, by which they differ both from advocacy groups, because they are not trying to achieve anything by compulsion, and from government institutions, because they are independent in their activities. Therefore, the approach taken by Stone (1996), who has singled out characteristics of think tank organisations, is a significant step forward in distinguishing from other, similar or related organisations. Stone (1996) points out organisational independence and stability, orientation towards a specific area of research, dedication to policy research, public purpose, and expertise and professionalism of researchers as characteristics of think tank organisations.

Think tank organisations or policy centres are modern organisations that conduct independent, publicly available policy research, focused on a specific research area, which are backed by expert and professional team of researchers. Area of activity of these organisations is dependent on the source of financing (client who commissions the research), information and/or ideologies that are entered into research processes (inputs), and the aims of research, and it ranges from scientific research, research for government purposes, and research for the needs of individual clients (political parties, large companies and trade unions are some of the examples). Policy centres today deal with a wide spectrum of research, which encompasses all the social issues and problems.

There are many different think tank organisations, and they can be classified with regard to several factors: founders, institutional form, business capacity, method of financing, products, users, and the method of communicating the research results.

Depending on the profile and sources of funding, think tank organisations throughout the history were being founded both by individuals and groups of people. At first, these organisations were founded primarily by university professors and academics, but during the Second World War, when professional military knowledge was extremely sought after, experts of various profiles appeared among founders, whose association was driven by government contracts. Later, as the focus of research shifted, donors themselves appeared among founders, together with think tank organisations, which thus founded new organisations and expanded their influence. In Japan, where think tank organisations are

dependant in their activities, government appears as the founder, as well as private consultants and researchers.

Founders, in relation to set goals, influence the institutional form of organisations, growth and financing of organisations, as well as the area of research. The most important thing for think tank organisations is to maintain independence in their research, which is influenced the most by sources of funding and chosen institutional form – academic think tank organisations, profit and non-profit organisations. Academic think tank organisations, which produce interdisciplinary research with a policy component, most often use the state and various other funds as the sources of funding, and they are often called "universities without students", because founders consist mainly of professors and academics. For-profit think tank organisations exclusively conduct research commissioned by clients and also provide lobbying and advocacy services to their clients. However, since in some countries, such as United States of America, it is not possible to establish a for-profit organisation and engage in advocacy activities, founders of these organisations include lobby groups, non-profit organisations, and various counselling organisations, which will collect information necessary for research. On the other hand, all the private think tank organisations in Europe are primarily connected to a certain private sector whose interests they advocate. Non-profit think tank organisations are characterized by independent research, multitude of various donors, and autonomy in the work of organisations.

Although there are large differences between different types of organisations, the majority of think tank organisations will combine advantages of individual types and, despite the fact that they have been commissioned, they will conduct their research independently, and for financing they will use both donors – from government to political parties to the private sector, and profitable activities, such as book publishing and holding seminars for government officials.

1.1. Historical development of policy centres

Since their inception, when these organisations were exclusively tied to planning of military operations, think tank organisations went through 4 developmental, that is, historical phases, and have occupied an important position in the development of civil, pluralistic and democratic society.

McGunn (2000), Smith (1991) and McGann,Weaver (2000) identify 4 generations of think tank organisations, that is, the organisational form characteristic for that historical period. The first generation of think tank organisations is characterized by academic centres – "universities without students", while the form of contractual institutions is characteristic for the second generation. The third generation of these organisations is focused on advocacy, while the fourth is characterized by interest organisations.

Academic think tank organisations have emerged from the need of philanthropists and intellectuals for debating on important political issues (Frontali, 2004), and their goals were not focused on imposing specific political questions, but on improving the process of political decision-making (Abelson, 1998). Their research is focused more on everyday, current political problems, and less on theoretical foundations, which reflects through their publications – mainly monographs and professional papers. These organisations are financed

solely through donations, and given the fact that there was not much competition at the time they had been established, their funding has never been an issue.
The second generation of think tank organisations, which are financed by the government and deal primarily with issues related to national security, has been characterized by contractual organisations. Since they mostly conduct commissioned research, some of which, because of national security, cannot even be published, the question of independence of their research is raised, and they are always placed last when policy centres are classified. This generation of organisations is financed from the state budget, and the question to what extent are decision-makers ready to finance policy research that does not support ideology of the current government.

The third generation of think tank organisations is characterized by organisations that want to spread their thinking and products, and boost the influence on political decision-making using aggressive marketing approaches. These advocacy think tank organisations are very similar to interest groups, which try to implement those solutions that are in accordance with their ideological beliefs and those of their largest donors by applying pressure on decision-makers. In that way, these organisations are no longer just observers of the decision-making process, but are becoming actively involved in the policy process (Stone, 1996). With their publications, which are mainly just summaries of various studies in which they insert their ideological beliefs, they show that in their activities emphasis lies on active participation.

The last, fourth generation of think tank organisations are organisations whose founders are politicians who used to be on high positions, with the aim to continue working on issues of national and foreign policy. This generation of think tank organisations is called "legacy based", because they are connected to political parties, politicians or interest groups whose interests they promote. They carry out numerous studies, publish various publications, but, with regard to their founders, they "sacrifice" their independence, which is especially obvious during presidential elections, when they act as election headquarters. Therefore, Abelson's doubt (1998), who asks how independent results of their research are, is justified.

The number of think tank organisations started growing extremely fast after the Second World War. According to McGann (2001), two thirds of today's think tank organisations were founded during that period. In such a rapid increase of the number of these organisations, old think tanks have not only lost their monopolistic position, but have found themselves in an extremely competitive activity, with low entry barriers. This situation was caused by several factors, which are today still the reason for founding of new think tank organisations – increase in demand for information and research, strengthening of civil society and democratisation, growth of state, government and non-government organisations, advancements in communication technology, globalisation of sources of financing of non-profit organisations, numerous political changes and new world order, crises of trust and diversification of think tank organisations (McGann, 2001).

In such conditions, the demand for information and analysis is increasing. Political decision-makers need to enter knowledge into the process, for which they require information on the society they govern, effects of legal regulations in force, their costs and consequences. But, the amount of information they have at their disposal, as well as the questionability of independence and systematic quality of individual studies is the fundamental problem of decision-makers. The majority of the information is politically, administratively and financially unacceptable, that is, so technically written that the target group does not understand it (McGann, 2001). No information can be transformed into a political decision

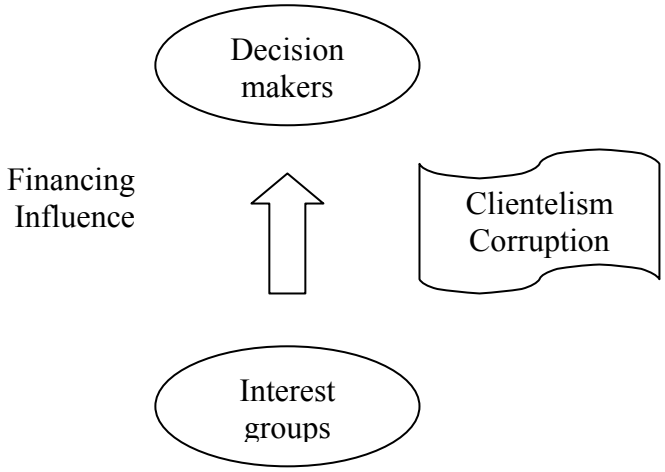
unless it is written in the right way and at the right time. In other words, decision-makers need timely, understandable, reliable, available and useful information, which are provided to them by think tank organisations. Besides, these organisations can also be independent critics of government policies, which contributes to better decisions and better legislation.

According to the study on influence of globalisation on think tank organisations that was carried out by McGann in 2001[1], each developed democratic country today has around thirty of these organisations, and their number is still increasing. Globalisation has especially influenced not only on spreading of these organisations, but also on creating teams of researchers from different organisations throughout the world, which contributes to more independent and objective research.

2. THE ROLE OF POLICY CENTRES IN MODERN SOCIETY

Political decision-making process can be either of the open type or the closed type. Policy process of the closed type, shown in Figure 1, is characterized by a small number of participants in the process. Participants in the process, interest groups and makers of political decisions are directly connected by influences and there are no mediators between them that would influence the making of political decisions of general, public interest.

Figure 1. Political decision-making process of the closed type



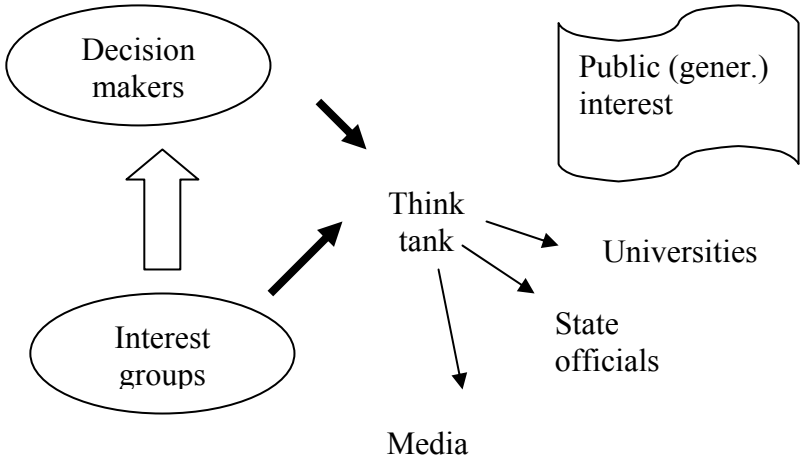
Source: Schneider, J.: "Think-tanks in Visegrad Countries (From policy research to advocacy), Final Research Paper, Center for Policy Studies, Central European University, Budapest, 2002, p 3.

Each democratic society aspires to the decision-making process of the open type (Figure 2), which is characterized by mediators, think tank organisations, which produce research for the needs of academic research, the media and government officials, aim of which is to influence the making of decisions of general public interest. In his research "Think tanks and policy

[1] McGann, J. G.: "Globalization and the Growth of Think Tanks", McGann Associates, Pennsylvania, 2001

transfer[2]" Ladi sees think tank organisations as bearers of knowledge, which puts them at the centre of the open policy process.

Figure 2. Political decision-making process of the open type



Source: Schneider, J.: "Think-tanks in Visegrad Countries (From policy research to advocacy), Final Research Paper, Center for Policy Studies, Central European University, Budapest, 2002, p 3.

Think tank organisations play a significant role in policy processes in developed democratic countries, and their activities are focused on supplying participants of policy processes with analyses and conclusions that are the foundation for adoption of new policies and correction or cancellation of existing ones. One of the greatest challenges for think tank organisations is early identification of important national issues and directing the attention of participants in the policy process and the public to those issues (Talbott, 2011). Democratic political systems are founded on critical debates and discussions which do not include only decision-makers, but all the citizens as well as the organisations they have founded. Decision-makers, to whom citizens have transferred part of their decision-making power, enter their own interests into the decision-making process, which interferes with the presumption of open debate. Policy organisations bring information relevant for making the right political decisions into the debating process, assume the critical and supervisory function and thus decrease the probability of dominance of personal interests of the participants in the political decision-making process and of adopting the wrong solutions for current policy issues (Cassel, 1999). Think tank organisations strengthen the capacity of government policy processes by passing policy-relevant information from various sources to the decision-makers (Dror, 1984), and enabling implementation of abstract, theoretical scientific models into applicable political options (Cassel, 1999). In doing so, they occupy a market niche which is not filled either by scientific or research institutes or participants in the policy processes. Lindquist (2001) points out that studies produced at scientific research institutes are more focused on educating target audience and rarely shift intellectual boundaries of policy methodology with the aim of creating a new approach in understanding economic and social problems. Dobuzinskis comments on the results of research carried out by institutes in the context of creating policy

[2] Ladi, S.: „Think-tanks and policy transfer: The case of the International Dialogues Foundations", Policy Transfer Panel, University of York, 2000

inputs, and states that institutes' recommendations cannot be implemented without previous reinterpretation, redesigning and repositioning, because they do not pay enough attention to the political context and the organizational, control and implementation dimension of the problem (Dobuzinskis in Plumptre et al, 2001). The absence of innovation in designing recommendations for solving policy problems, focusing on education of target users and not paying attention to the political context of problems in the research of scientific institutes are the reasons why participants in policy processes turn to think tank organizations and their research.

McGann and Weaver (2000) identify the fundamental roles of think tank organisations in modern society: (1) conducting basic research on policy problems and policy recommendations; (2) providing advice on current policy issues, which are debated by policy-makers; (3) evaluation of government programs; (4) facilitating networking and exchange of ideas; (5) development of quality decision-makers; (6) assisting in interpretation of policies and current events for electronic and print media.

Relying on comments of policy experts from think tank organisations on various policy issues, the media are trying to inform the public about complex political issues in the simplest possible way. Interpretation of political decisions and current events for the media is the reason behind the connection between think tanks and the media. Think tank organisations as a rule do not publish the results of their research as books or articles. The aim of these organizations is to present their ideas and recommendations as accurately as possible, using the simplest possible language, which is why policy-oriented non-government organisations significantly contribute to the efficiency and awareness of the media in modern democratic societies. On the other hand, relationship with the media ensures visibility of think tank organisations, which is, besides the acceptance of their policy recommendations, one of the important prerequisites for success of these organisations[3]. The majority of these organisations gather in their ranks the best experts in individual policy areas, and are thus able to assess the effects of particular policy decisions – both those that are yet to be adopted and those that government has already passed. Expert researchers who work in these organisations are often a source of high quality consultants to governments or presidential candidates, which is not a rare occurrence in the USA. Abelson (1997) investigated the connection between the success of certain presidential candidates through their collaboration with think tank organisations, and the results indicate better positioning, better policies and greater success of candidates who have collaborated closely with think tank organisations.

In contrast to developed democratic societies, think tank organisations in the majority of transition countries are still struggling for their place in the political decision-making process. Tardos[4] highlights the particularly important role of think tank organisations in transition countries, where disintegration of former political systems, elimination of all the institutions of the communist system and economic depression created a situation in which searching for

[3] One of the most often cited examples of the influence of think tank organisations on accepting policy recommendations and on public opinion is the statistics of monitoring the number of citations by individual think tank organisations in the media after the terrorist attacks on September 11, 2001. Statistics have shown strengthening of influence of organisations ideologically adhering to the political right, which advocated a more dominant foreign policy. The study covered the period after September 11, 2001, and the whole 2002, and monitored were citations by the most prominent think thank organisations in the USA. The study has shown that the media were less interested in domestic think tank organisations, while left-oriented recommendations remained outside the debate arena, which enabled the recommendations of right-oriented think tank organisations to "win".

[4] http://www.cipe.org/publications/ert/e21/E21_02.pdf (22.03.2011)

solutions is necessary. As opposed to gentle advice and often impractical and unrealistic recommendations offered by government advisors, politicians, according to the same author, need advice that take into account the current contradictory situation in Central and Eastern Europe and enable creation of further detailed strategies in response to the problems in the region.

After the fall of communist systems, transition countries were faced with numerous problems. Social rights and benefits, which were particularly pronounced during the communist regime, were reduced to a minimum, and the inherited values and collective attitudes – both economic and political – could not disappear overnight. Transition has also led to the change of governing elites. Županov (2002) states that a process of departure of "industrializing" and arrival of "de-industrializing" elite took place, in which the science became completely marginalized. Commenting upon policy processes in transition countries, Krastev[5] states that the model of closed political decision-making process, which is still dominant in the region, is the cause of numerous economic and political mistakes of the post-communist era. According to the same author, closed policy processes and governments that are monopolising the debate process are characteristic for all the transition countries in which think tank organisations are "... something that everyone has heard about, but no one studies them, and the majority of policy research institutes are better known in Washington and Brussels than in their own countries.[6]" After examining think tank organisations in transition countries James (2000) concluded that in transition countries there is no tradition of hiring think tank organisations within ministries for work on policy analysis, and very little or no attention at all is paid to identification of different solutions and their consequences. James further states that employees of ministry of finance often lack time or analytical skills for writing a good budget proposal, and wider economic consequences are often not examined – sometimes due to lack of time and skills, but mostly because there is no tradition of policy research.

Krastev shifts responsibility for such situation to think tank organisations themselves, which are more interested in proving themselves to the donors, than in improving their position, and describes them as inventive when it comes to producing proposals, ingenious in producing reports and professional in not producing trouble[7].

The environment of think tank organisations in transition countries and majority of European countries, as well as the reasons for the emergence of these organisations greatly differ from those in the USA. Think tank organisations in the USA were formed for the purpose of using social science to address specific social, economic or political problems, which was not the case in transition countries. Think tank organisations in USA are the role model for the majority of organisations not only in transition countries but also in some West European countries, because American environment of policy-making is fragmented and is characterized by the separation of executive and legislative power, the American distrust of the federal bureaucracy, weak party system, philanthropic tradition and the American tax regime which made think tank organisations into autonomous and influential participants in the policy process[8].

Research carried out among think tank organizations in developed countries states the following key factors of success of these organisations: (1) management of organisations and

[5] http://www.cls-sofia.org/en/papers/the-liberal-estate-44.html (22.03.2011)
[6] Ibidem
[7] Ibidem
[8] Ibidem

their directors who need to have good contacts with participants in policy processes and recognisability towards donors; (2) revenue generation, in terms of service research contracts and finding other sources of funding for research projects and programs; (3) recruiting quality researchers and their involvement in work of organizations (Board of Directors); (4) marketing, communication with participants in the policy process and other activities directed at dissemination of research results; (5) media visibility, which is regarded as the most important indicator of organizations' success (Plumptre et al, 2001).

3. POLICY CENTRES IN CROATIA

Despite the undeniable role and importance of think tank organisations in the process of making political decisions and solutions, as well as in the development of civil society, these organizations in the Republic of Croatia are not recognizable enough, and the participants in the policy processes use their research insufficiently or even not at all. All this results in a situation in which out of the total of 618 laws adopted during the 2008-2011 period, as many as 535 laws were adopted by urgent procedure[9], that is, without sufficient research of the effects of application of the new laws. Hurried, insufficiently researched legal regulations without alternatives bring more harm than good.

The Republic of Croatia, as a candidate for joining the European Union, in accordance with the Copenhagen criteria, must create stable institutions that ensure democracy, rule of law, respect for human rights and minorities, and must prove the ability of undertaking the obligations coming with the membership. For strengthening of these rules, European Union proposes the following principles: (1) openness in communication with the public and transparency; (2) more intensive involvement of citizens in policy-making; (3) increasing the responsibility of policy bearers; (4) effectiveness in policy execution; (5) coherence of all the policy measures and levels of power in order to achieve consistency (Bađun, 2004). In this regard, European Union wants to give a greater role to organisations of civil society, so that the services provided would be as adapted to the needs of the citizens as much as possible.

There is only one think tank organisation in Croatia, SMEs and Entrepreneurship Policy Center – CEPOR, focused on creating a positive environment for the development of the small and medium- sized enterprise sector. Besides CEPOR, some other organisations and institutes also, as part of their activities, carry out policy research, which can be used in the processes of political decision-making. Among them, Institute for International Relations (IMO), Institute of Public Finance and Institute of Economics Zagreb should be pointed out.

Institute of Economics Zagreb was founded in 1939 as a public institution, and it is engaged in economic research, results of which it makes available to state bodies, local and international organisations, business experts and the academic community. Institute is engaged in analysis of Croatian economy; it researches factors of economic development and proposes concrete solutions which, in several studies and programs, have been served as guidelines for participants in the process of political decision-making as guidelines in creation of the national economic policy of the Republic of Croatia[10].

[9] Exceptionally, a law can be adopted by urgent procedure only when that is demanded by interests of defense or other particularly justified state reasons, i.e., when that is necessary in order to prevent or eliminate major disruptions in the economy (http://www.sabor.hr/Default.aspx?art=1566, 22.03.2011)
[10] http://www.eizg.hr/o-nama-hr-HR/573.aspx (22.03.2011)

Institute for International Relations (IMO) deals with a wide spectrum of current problems: international economic and political relations, transition policy, international markets, sustainable development, economic policy resources and environmental policies, and culture and communication. Since its establishment in 1963, it has changed its name and focus of interest several times. Today IMO is the largest publisher of books from the field of policy research in English language, and it is also known as European Documentation Centre in the Republic of Croatia.

Institute of Public Finance was founded in 1970 as a scientific and research institution specialized in the field of public finance. Institute focuses its research on all the aspects of the public economy sector: taxes, public expenditures, fiscal and budget policy, public debt, the state's role in the economy, etc. Institute is focused on scientific research which it presents through various publications – books, articles and newspapers, as well as through round tables, conferences and workshops.

National Competitiveness Council is a think tank that was founded in 2002 on the initiative of the business sector and Croatian Employer's Association, based on a decision of the Government of the Republic of Croatia, as an answer to challenges with which Croatia was faced at the start of the 21 century – globalisation process, transition to a market economy, efforts to achieve membership in the European Union, and strengthening the competitiveness of Croatia's private and public sectors. The Council is an independent advisory body comprised of 23 members and four key interest groups – the business sector, government, trade unions, and the academic community – with the goal of creating dialogue, partnership and consensus on programs and policies that are critical to the sustainable growth and development of Croatia. Some of the goals of the Council are to act to increase competitiveness of the Croatian economy and to prepare Croatia for entry into the European Union. To achieve these goals, the Council acts by encouraging policies for reform, recommending and creating guidelines for development policies, constructing coalitions with stakeholders that support reform processes, increasing public understanding of and support for reforms, encouraging dialogue between the public and private sectors, raising and expanding the level of awareness and knowledge of the importance of competitiveness and monitoring and evaluating reforms that have been implemented.

Through policy research that have been carried out in the Republic of Croatia by institutes, National Competitiveness Council and SMEs and Entrepreneurship Policy Center – CEPOR, participants in the political decision-making processes have been given recommendations whose aim is to stimulate the development of small and medium-sized enterprises. Appreciation of research of policy centres that operate in the Republic of Croatia, as well as other research in the field of entrepreneurship and the sector of small and medium-sized enterprises, will contribute to quality legal regulations, better policies and creation of a stimulating environment for the development of small and medium entrepreneurship.

4. ROLE OF POLICY CENTRES IN PROCESSES OF FORMING AND PASSING POLICIES AND LAWS RELEVANT FOR THE SECTOR OF SMALL AND MEDIUM-SIZED COMPANIES IN THE REPUBLIC OF CROATIA

Policy centres in the Republic of Croatia have emerged as a reflection of the need to create new development policies during the transition to the market economy. These new development policies should be focused on creation of an environment which encourages the development of the small and medium-sized companies sector – which represents the driver of the national economy, but also of the economy of the European Union. But, it seems that policies and laws relevant for the small and medium-sized enterprise sector are neither encouraging nor supporting. According to the results of GEM (Global Entrepreneurship Monitor) research, which is being carried out in Croatia since 2002, experts give them below average grades. Their view is that these laws are unpredictable, inconsistent and ineffective. What is even more worrying is the fact that average grades are in constant decline, i.e., changes in laws and policies are for the worse and do not contribute to improvement.

Table 1. Average grades of experts related to issues of policies and laws relevant for the sector of small and medium-sized companies in the last 5 years

Question / Year	2006	2007	2008	2009	2010
B06 In Croatia, tax and other government legislation is applied at new and growing companies in a predictable and consistent manner.	2,89	2,20	2,20	2,15	2,15
B07 In Croatia, it is not overly difficult for new and growing companies to deal with bureaucracy, legal and regulatory demands.	2,11	1,63	1,76	1,87	1,95
C01In Croatia, a wide range of government aid measures for new and growing companies can be obtained by going to only one agency.	2,53	2,06	2,39	2,33	1,77
C02 In Croatia, science parks and business incubators ensure effective help to new and growing companies.	2,81	2,69	2,90	3,15	3,08
C03 In Croatia, there is a sufficient number of appropriate government programs for new and growing companies.	2,83	2,80	2,56	2,74	2,38
C04 In Croatia, people who work for government agencies are competent and effective in providing support to new and growing companies.	2,64	2,71	2,56	2,87	2,52
C05 In Croatia, almost everyone who needs help from government programs for new and growing companies can find what they need.	2,67	2,60	2,73	2,41	2,21
C06 In Croatia, government programs intended for supporting new and growing companies are effective.	2,75	2,49	2,46	2,44	2,21

Source: GEM research database, experts' answers, CEPOR

The process of adoption of policies and laws in the Republic of Croatia is defined by several laws and regulations – the Constitution of the Republic of Croatia (Official Gazette 56/90, 135/97, 8/98 revised text, 113/00 and 124/00), Change of the Constitution of the Republic of Croatia (Official Gazette 28/01), Rules of Procedure of the Croatian Parliament (Official Gazette 71/00, 129/00, 117/01, 6/02 revised text, 41/02, 91/03 and 58/04), Law on the Government of the Republic of Croatia (Official Gazette 101/98, 15/00, 117/01) Rules of Procedure of the Croatian Government (Official Gazette 138/99, 16/00, 36/00 and 105/00).

Constitution of the Republic of Croatia prescribes the duties of the Croatian Parliament. Article 80 of the Constitution of the Republic of Croatia states, among other things that the Croatian Parliament: (1) decides on the enactment and amendment of the Constitution; (2) enacts laws; (3) enacts the National Budget; (4) passes declarations that express the policies of the Croatian Parliament.

The law enactment procedure consists of starting the initiative, drafting, proposing and passing the law. Any natural or legal person can initiate the procedure for adopting legislative proposals, but the Constitution of the Republic of Croatia still defines who those persons are – each member of the Parliament, parliamentary party clubs and their working bodies, working bodies of the Croatian Parliament, and the Government of the Republic of Croatia itself.[11]

In the process of proposing legislation, draft of the proposal is prepared by relevant ministries; only in cases when the law is proposed by the Government of the Republic of Croatia. Before the Government determines the text of the law, draft is submitted to the narrow Government cabinet, permanent and temporary working bodies and expert working groups, who will give their opinions on it. Narrow Government cabinet (which is comprised of the Prime Minister and Deputy Prime Ministers) must discuss the drafts of systematic legislative proposals and program materials, which change important elements of the system or influence the system in other ways. Members of permanent working bodies are ministers and directors of state administrative organisations, and Article 19 of the Rules of Procedure of the Croatian Government provides the possibility of participation in the process or at least of providing expert opinions by individuals, prominent experts in relevant fields.

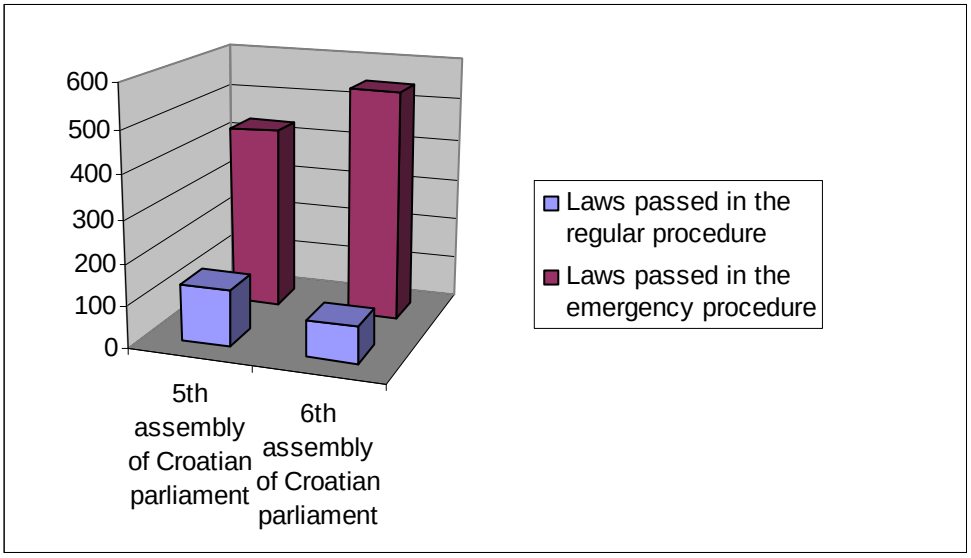
The process itself consists of two steps, or readings. The first reading of a legislative proposal is actually its presentation at the Parliament's session, when it is introduced by its sponsor, details are discussed and a decision on the need to pass the law is made. After the discussion, the proposal and the related opinions, suggestions and conclusions are submitted to the sponsor for the drafting of the final bill. In the conclusion of the first reading it is possible to seek expert opinion related to the proposal itself or the need to pass it. The second reading is actually a debate on the final proposal of the law, the views of the working bodies, discussion and deciding on the amendments, and the adoption of the law itself. Within six months, the bill's sponsor is required to submit the final bill in writing (with explanations and reasons for passing the law), and only in rare cases there is a third reading, when the number of amendments is such that it significantly changes the original bill.

In extraordinary situations, when that is demanded by interests of defense or other particularly justified state reasons, i.e., when new laws eliminate major disruptions in the economy, laws can be enacted by urgent procedure. Request for enacting of a law by urgent procedure must be accompanied by written support of 25 members of the Parliament, or parliamentary party clubs that have at least 15 members.

Legislative activity of the Croatian Parliament in its 5th and 6th Assembly is shown in Figure 3.

[11] Constitution of the Republic of Croatia, Article 84; Official Gazette 56/90, 135/97, 8/98 revised text, 113/00 and 124/00), Change of the Constitution of the Republic of Croatia (Official Gazette 28/01)

Figure 3. Legislative activity of the Croatian Parliament, and laws by adoption procedure



Source: Information and Documentation Department of the Croatian Parliament, http://www.sabor.hr/Default.aspx?sec=520, April 6, 2011

From the law enactment procedure it is visible that urgent procedures do not offer enough opportunities for analysing all the factors related to individual legislative proposals (opinions, analyses, costs and sources of funding), nor opportunities for expert opinion on the quality of the legislative proposal or the need to adopt the same. But, according to Bratić (2004), the most worrying thing in the whole process of passing a law is the fact that members of Parliament generally obey the guidelines of their party, and thus the whole process is run by the ruling party.

A survey that was conducted in 2003 among the members of the Parliament[12] has shown that they do not have enough time to study legislative proposals, and when that is combined with the fact that at that time only 14% of them were of economic profession, a strong need for policy research and recommendations of think tank organisations is clearly evident.

On the other hand, before entering the large European community of countries, the Republic of Croatia will have to adopt and incorporate the "Better Regulation Package" to its system of political decision-making and legislation. With this package of guidelines, "legislative proposals and their consequences will be carefully assessed, while the existing legislation will be examined in order to determine whether it can be simplified or even abolished. Secondly, closer cooperation between the member countries will occur, in order to ensure that participants in the decision-making process continuously apply all the principles of the Better Regulation Package in the entire European Union, at all levels. Finally, greater importance will be given to consultation with all the participants that will be affected by the planned measures and to the use of alternative procedures such as, for example, Self-management"[13].

Appreciation of research carried out by policy centres that work on territory of the Republic of Croatia, as well as other research in the field of entrepreneurship and the small and

[12] Bratić, V.: "Role of parliament in the budget process: example of the Parliament of the Republic of Croatia", Financial Theory and Practice, Institute of Public Finance, no 28, Zagreb, 2004
[13] http://ec.europa.eu/enterprise/dg/files/evaluation/final_report_cses_en.pdf, 6.04.2011

medium-sized enterprise sector will contribute to better legal regulations, better policies and the creation of supportive environment for the development of small and medium-sized enterprise, i.e., initiate development of the entire Croatian economy.

5. CASE: CEPOR – SMES AND ENTREPRENEURSHIP POLICY CENTER

CEPOR was founded in 2001 as a think tank, which deals with public policies and problems in the sector of small and medium-sized enterprises and entrepreneurship, with the goal to influence the public debate and the decision-making process. Conceptual creators of CEPOR's founding are Slavica Singer, Professor at the J.J. Strossmayer University in Osijek, Faculty of Economics in Osijek, Piotr Korynski from Open Society Institute New York and Professor Allan Gibb from Durham Business School, United Kingdom. At the time of CEPOR's founding, think tank organisations were a novelty in transition countries, and attempts to find partners for founding of a think tank organisation seemed to be an "impossible mission". Numerous conversations with representatives of various groups, organisations and associations, and employees of relevant ministries were conducted, but it was difficult to explain what a think tank organisation is, what does policy aspect mean and who may be interested in activities of such an institution.

CEPOR is envisioned as an independent group of people that will critically observe and analyse what is happening at the level of government policies and propose policy interventions, and its organisational form was supposed to enable independence in decision-making and acting. CEPOR's mission is to influence the public and political environment, emphasizing the key role of entrepreneurship and small and medium-sized enterprises in the development of Croatian economy. CEPOR aims to contribute to the shaping of entrepreneurial culture and stimulating institutional and regulatory framework for entrepreneurial activity, with the goal of achieving strong economic growth based on international competitiveness.

CEPOR is registered as an association, not of individuals, but of institutions. The targeted structure of founders has been achieved, since they involve business association (Croatian Chamber of Economy, Croatian Chamber of Crafts and Trades), infrastructural professional institutions that provide support to small and medium-sized enterprises (Centre for Entrepreneurship Osijek, Istrian Development Agency Pula, Međimurje Entrepreneurship Centre Čakovec) and research institutions (Institute for International relations, Institute of Economics, J.J. Strossmayer University in Osijek, Faculty of Economics in Osijek)[14]. The basis for foundation of CEPOR was the Agreement between the Open Society Institute – Croatia and the Government of the Republic of Croatia, which has secured the initial funding. It was pointed out at the founding assembly that CEPOR is neither going to be a scientific research institution nor a centre that will provide training services, but a think tank with a strong network of collaborators from research, educational and development institutions.

The core activities of CEPOR are: (1) conducting independent research related to policy of development of entrepreneurship and small and medium-sized enterprises with the purpose to objectively define the problems and propose solutions; (2) policy development by Providing counsel to government institutions with the purpose of building Government's legislative and institutional capacity for designing and implementing efficient and non-discriminatory

[14] Open Society Institute Croatia and Association of Croatian Institutions for Ecouragement of Entrepreneurship, which have since ceased operations, were also among its founders.

policies for the development of small and medium-sized enterprises; (3) advocacy through organizing activities that will allow problems of small and medium-sized enterprises to be heard and discussed in the public, and presenting recommendations to the Government in order to achieve specific solutions.

After its founding, CEPOR was faced with the problem of finding a market for its products. Despite numerous discussions and presentations to various participants in policy processes with the aim of clarifying the influence of participants in policy processes on the growth of small and medium-sized enterprises, the lack of feedback and reaction in the form of a rush of calls and projects pointed to a lack of understanding of the difference between the academic and the policy approach in research, and an unwillingness to appreciate recommendations and opinions of independent experts.

Since 2002, CEPOR has focused on projects, but only on those with policy potential. The first project was participation in the largest international research focused on entrepreneurship – Global Entrepreneurship Monitor (GEM). The aim of this research is to examine the connection between the economic development of a country and the level of entrepreneurial activity, through use of a specially defined model. In the research which has started in1999, and of which Croatia is a part of since 2002, 60 countries have been involved in 2010. The reason for involvement in the GEM research was the possibility of international comparison of Croatia and monitoring of the changes in entrepreneurial activity within Croatia and their relativisation in relation to others. The results of GEM research have pointed out: hindered access to financing sources, hindered access to relevant information, lack of entrepreneurial knowledge and skills, inconsistent and non-transparent government policies, and complicated regulatory framework. The costs of Croatia's participation in this research are co-financed by the Ministry of Economy, Labour and Entrepreneurship and the J.J. Strossmayer University in Osijek, Faculty of Economics in Osijek through projects financed by the Ministry of Science, Education and Sports (from the field of entrepreneurship). After several years of insufficient appreciation or even ignoring of the recommendations based on this research, since 2007 Ministry of Economy, Labour and Entrepreneurship to a considerable extent bases its annual programs for the development of small and medium-sized enterprises on findings and recommendations from GEM research.

In order to initiate a greater interest in policy issues, as well as demand for policy research, CEPOR has started two important projects: Program for training policy officials (2003) and Program of doctoral scholarships for the development of policies of small and medium-sized enterprises (2004). Program for training policy officials was prepared by Professor Allan Gibb, modelled on an OECD program, but the interest for that type of education was underwhelming, and the program was not implemented. Program of doctoral scholarships has also indicated the presence great ignorance when it comes to policy research and, despite great interest, only one scholarship was granted.

CEPOR has achieved a significant improvement in its activities by inclusion of its research and recommendations in the work of the National Competitiveness Council, since 2003. Within "*55 Recommendations for the Improvement of Croatia's Competitiveness*[15]", using its research, CEPOR has prepared recommendations related to the small and medium enterprises sector and entrepreneurship.

[15] National Competitiveness Council: „55 Recommendations for the Improvement of Croatia's Competitiveness", Annual Report on Croatian Competitivenss 2004", www.konkurentnost.hr/nvk 29.03.2011.

Despite numerous attempts to talk with participants in policy processes, studies, round tables and public presentations of research results, understanding and comprehension of policy research and problems is still insufficient, and a part of the problem lies in ministries, which are more concerned with operational rather than policy issues. All the attempts thus far prove that CEPOR is painstakingly struggling in the Croatian market of policy products, developing products which, for now, almost no one needs. Only by persevering in offering critical views of government instruments in the sectors of small and medium enterprise and entrepreneurship, and proposing new approaches, latent needs will be converted into an open need, and then into demand. Situation will be easier for CEPOR when everyone, from citizens to associations become more demanding and critical and when that forces the government, parliament and other decision-makers to be more responsible for their decisions. As things stand now, it seems that CEPOR is ahead of its time and that it is doing what can be sold at the market in developed countries, while in Croatia it is still necessary to explain why experts' opinions and comparisons with those that are better than us should be important to the government.

6. CONCLUSION

In the presented example of the only think tank in Croatia (CEPOR – SMEs and Entrepreneurship Policy Center), by using assessments on government policies and programs focused on the development of entrepreneurship and the small and medium enterprise sector, it is visible that experts' opinions are being ignored.

In the five year period (2006-2010), all the components of government policies and programs (except the importance of business incubators) have been rated with scores below 3. According to the GEM research, it is considered that these components, rated with scores below 3, represent obstacles, that is, they do not encourage the development of entrepreneurship and the small and medium enterprise sector. Even more important is the information about the presence of a trend of decreasing grades in all the components of entrepreneurial environment. It is especially important to note the low grades that were given to policies/measures/instruments related to growing companies. Knowing that growing companies are the most important generator of new employment, government's ignoring of such grades is inconsistent with proclaimed government's orientation on employment growth.

This is an example how policy focused research, in this case GEM, and the efforts of institutions that promote a critical attitude towards current government policies and programs, in this case CEPOR, can serve as an important foundation for designing more effective and consistent interventions in the regulatory framework. Policy research and institutions can be the starting point or a good basis for developing policies and programs (in areas of education, innovativeness, access to financial resources, employment, social welfare...) with which synergistic effects of increasing competitiveness, and thus solving Croatia's biggest problem – unemployment, can be achieved only in case of consistent and simultaneous application.

BIBLIOGRAPHY

Abelson, D. E, (1998): **Think Tanks in the United States** in Stone, D, Denham, A: ***Think Tanks Across Nation – A Comparative Approach,*** Manchester University Press, Manchester

Bađun, M, (2004): **Governance i javna uprava u kontekstu pridruživanja Hrvatske Europskoj uniji**, in Bađun, M, ed: ***Pridruživanje Hrvatske Europskoj uniji:izazovi institucionalnih prilagodbi***, Institut za javne financije, Zagreb

Cassel, S., (1999): **Die Rolle von think tanks im US – Amerikanischen Politikbeartungsprocess**, Albert-Ludvigs-Universitaet, Freiburg

Dror, Y., (1984): **Required Breaktroughs in Think Tanks**, Elsevier Science Publishers, Amsterdam

Frontali, G, (2004): **Think Tank:dale origini al ruolo nella societa contemporanea**, MISP, Universita degli Studi di Bologna, Bologna

Marsh, I, (1994): **The Development and Impact of Australia's "Think Tanks",** Australian Journal of Management,19,2: 177-200

McGann, J. G, (2001): **Globalization and the growth of Think Tanks**, McGann Associates, Philadelphia

Stone, D, (1991): Old Guards Versus New Partisans: Think Tanks in Transition, Australian Journal of Political Science, 26,2: 197-215

Stone, D, (1996): **Capturing the Political Imagination – Think Tanks and the Policy Process**, Portland Frank Cass, London

Stone, D, (1996): **Non-Governmental Policy Transfer: the Strategies of Independent Policy Institutes**, University of Birmingham

Struyk, R, (1999), **Reconstructive Critics: Think in Tanks in Post-Soviet Bloc Democracies**, Urban Institute Press; Washington D. C.

Weaver, R.K, McGann, J. G, (2000): **Think Tanks & Civil Societies: Catalysts for Ideas and Action**, Transaction Publishers, New Brunswick

Talbott, S, (2002): **The Brookings Institution:How a Think Tank work**, http://guangzhou.usembassy-china.org.cn/uploads/images/QHgRpr9Ar-KtqbseIUl05Q/ijpe1102.pdf (accessed 14.04.2011.)

Schneider, J, (2002): **Think-tank in Visegrad Countries: From policy research to advocacy**, Final Research Paper, http://www.policy.hu/schneider/RPFinal.pdf, (accessed 14.04.2011.)

Croatian parliament, http://www.sabor.hr/Default.aspx?sec=713 (accessed 14.04.2011.)

National Council for Competitiveness, http://www.konkurentnost.hr/Default.aspx?sec=30 (accessed 14.04.2011.)

Constitution of Republic of Croatia, Official Journal of the Republic of Croatia, 56/90, http://narodne-novine.nn.hr/ (accessed 14.04.2011)

Ammendments and Supplements of Constitutional Law, Official Journal of the Republic of Croatia, 135/97, http://narodne-novine.nn.hr/ (accessed 14.04.2011)

Constitution of Republic of Croatia (revised text), Official Journal of the Republic of Croatia, 8/98, http://narodne-novine.nn.hr/ (accessed 14.04.2011)

Decision of Changes in the Constitution of Republic of Croatia ,Official Journal of the Republic of Croatia, 113/00, http://narodne-novine.nn.hr/ (accessed 14.04.2011)

Constitution of Republic of Croatia (revised text), Official Journal of the Republic of Croatia, 124/00, http://narodne-novine.nn.hr/ (accessed 14.04.2011)

Changes in the Constitution of Republic of Croatia, Official Journal of the Republic of Croatia, 28/01, http://narodne-novine.nn.hr/ (accessed 14.04.2011)

Rules of the House of Representatives of Croatian parliament, Official Journal of the Republic of Croatia, 71/00, http://narodne-novine.nn.hr/ (accessed 14.04.2011)

Changes in Rules of the House of Representatives of Croatian parliament, Official Journal of the Republic of Croatia, 129/00, http://narodne-novine.nn.hr/ (accessed 14.04.2011)

Law on changes in Changes in Rules of the House of Representatives of Croatian parliament, Official Journal of the Republic of Croatia, 117/01, http://narodne-novine.nn.hr/ (accessed 14.04.2011)

Rules of the House of Representatives of Croatian parliament (revised text), Official Journal of the Republic of Croatia, 6/02, http://narodne-novine.nn.hr/ (accessed 14.04.2011)

Decision on the Amendment of Rules of the House of Representatives of Croatian parliament, Official Journal of the Republic of Croatia, 41/02, http://narodne-novine.nn.hr/ (accessed 14.04.2011)

Decision on the Amendment of Rules of the House of Representatives of Croatian parliament, Official Journal of the Republic of Croatia, 91/03, http://narodne-novine.nn.hr/ (accessed 14.04.2011)

Amendments on Rules of the House of Representatives of Croatian parliament,, Official Journal of the Republic of Croatia, 58/04, http://narodne-novine.nn.hr/ (accessed 14.04.2011)

Law on the Government of the Republic of Croatia, Official Journal of the Republic of Croatia, 101/98, http://narodne-novine.nn.hr/ (accessed 14.04.2011)

Decision on the Amendment of Law on the Government of the Republic of Croatia, Official Journal of the Republic of Croatia, 15/00, http://narodne-novine.nn.hr/ (accessed 14.04.2011)

Rules of Procedure of the Croatian Government , Official Journal of the Republic of Croatia, 138/99, http://narodne-novine.nn.hr/ (accessed 14.04.2011)

Rules on Amendments of Rules of Procedure of the Croatian Government, Official Journal of the Republic of Croatia, 16/00, http://narodne-novine.nn.hr/ (accessed 14.04.2011)

Rules of Procedure of the Croatian Government, Official Journal of the Republic of Croatia, 36/00, http://narodne-novine.nn.hr/ (accessed 14.04.2011)

Rules of Procedure of the Croatian Government, Official Journal of the Republic of Croatia, 105/00, http://narodne-novine.nn.hr/ (accessed 14.04.2011)

REGIONAL ASPECTS OF FDI IN CROATIA

Dražen Derado, Ph.D.
University of Split, Faculty of Economics
Matice hrvatske 31, 21000 Split, Croatia
Phone: ++ 385 021 430 681; Fax: ++ 385 021 430 701 (attn:)
E-mail: dderado@efst.hr

Alen Škudar, M.Sc.
Croatian National Bank
Trg hrvatskih velikana 3, 10000 Zagreb, Croatia
Phone: ++ 385 01 4564 867; Fax: ++ 385 01 4564 624 (attn:)
E-mail: Alen.Skudar@hnb.hr

Spomenka Rakušić, M.Sc.
Ministry of Economy, Labour and Entrepreneurship
Ulica Grada Vukovara 78, 10000 Zagreb, Croatia
Phone: ++ 385 01 610 6961; Fax: ++ 38501 610 9118 (attn:)
E-mail: spomenka.rakusic@mingorp.hr

Key words: *FDI, OLI-paradigm, location characteristics, regional development, Croatia, EU*

ABSTRACT

Globalization and economic integration, together with actual technological development and new internationalization strategies of MNEs, have promoted regions to relevant entities of economic activities in general and recipients of FDI in particular. The existing theoretical literature on FDI gives a good basis for the analysis of factors which determine FDI-flows at regional level and these include: microeconomic performance, region-specific institutional factors and forces behind agglomeration economics. Despite large inflows of FDI, Croatia failed to realize significant sector- and region-specific spill-over effects of foreign capital. The analysis of Croatian counties shows strong positive correspondence between local economies' performance (sales, labour productivity, exports, net-wages) and the amount of inward FDI, thus indicating relative ineffectiveness of the FDI-promotion legislation so far. However, realized improvements in the exiting legislation and further development of business climate, elimination of administrative barriers, institution building and support to agglomeration economics should further improve location advantages of individual regions and Croatian economy in general for hosting FDI.

1. INTRODUCTION

Foreign direct investments nowadays generate a considerable amount of cross-border capital flows, thus affecting international specialization pattern, relative position of labor force and ultimately contributing to the increase in exchange of goods and services, and creation of international flows in information, technology and know-how. Therefore, FDI are considered to incorporate all the relevant aspects of globalization. During the last twenty years FDI grew more strongly than other indicators of internationalization or economic growth in general. In the years 1990-2009 world inward FDI-stock grew at 12% per annum, while exports of goods and services increased by 7,1%, and world GDP climbed up by 5,1% annually. These relations remain stabile across different country groups and hold even in the case of developing countries[1]. Globally, such a strong increase of FDI has gone beyond growth of the official financial assistance or the level of long-term debt, thus helping to preserve relatively stabile external positions of many less developed countries.

The reasons for such a remarkable growth of FDI include the nature of technological advance, global trend of economic liberalization, endeavors of less developed countries to realize stronger economic growth, and global corporate strategies of the investing companies. Technological development makes it possible, through vertical differentiation of the production process and an increasing role of non-tangible factors of production (knowledge), to effectively split up the chain of value added among countries different in respect of their relative factor endowment. This opens up opportunities for less developed countries to find their own niche on the world market and determine their own specialization pattern. The process of economic liberalization which begun at the beginning of the 1990s has put privatization and deregulation (e.g. de-monopolization, trade and capital flows liberalization) high on the economic policy agenda of many countries what coincided with the broader aims of economic development of the less developed countries and their needs to finance economic growth and development from external sources. Vulnerable external position of these countries and their needs for capital and new technologies have made them particularly interested in FDI as a source of fresh capital and know-how, and an access to external markets. Finally, corporate strategies of MNEs, which generate the greatest part of FDI, promote business internationalization and global strategic positioning with the aim of making more efficient use of firm-specific assets (ownership advantages) in a globalized business world[2] (more in: Bloningen, 2004).

Many empirical studies dealing with FDI are mostly focused on country-specific factors which determine inflow of FDI on a national level. However, inter-regional disparities in the amount, composition and spill-over effects, as well as 'national' policy measures which differentiate among regions according to their development level, call for more attention to sub-national, i.e. regional level in the analysis of FDI. Furthermore, with globalization and increasing mobility of production factors on one hand, and advanced process of economic integration on the other, traditional country-specific determinants of FDI are becoming less relevant when compared to characteristics of a specific location as an investment site. In that respect factors like cost difference, quality of (local) infrastructure, availability of labor force and quality of skills, business climate and quality of local companies (as a basis for business

[1] In transition countries inward FDI-stock increased every year by 35% on average, much stronger than the realized growth of exports of goods (7,6%), or services (15,1%), (UNCTAD, 2011).

[2] Before crisis of 2009-2010 foreign assets, sales and employment of 100 largest non-financial MNEs have increased more than similar 'domestic indicators', thus contributing to the increasing transnationality of 100 biggest MNEs (UNCTAD, 2010).

networking) play an important role when deciding where to locate business abroad. However, while enjoying advantages from doing business in a particular region, locating business there doesn't prevent investors from realization of benefits arising from access to wider (national or international) market, like economies of scale or global networking.
By hypothesizing that FDI-inflows at sub-national level are determined by economic performance of a specific region, the aim of the paper is to give theoretical explanation and empirically investigate regional pattern of inward FDI on the case of Croatian counties with reference to inter-regional disparities in the level of development. While taking reference to the existing economic policy measures aimed at attracting FDI, the purpose is to find out effectiveness of the existing economic policy measures and eventually suggest possible improvements which would result in more even regional inflow of FDI and, thus equal opportunities for balanced regional and national development.

The remainder of the paper is organized as follows. After the opening introductory section, the second part included theoretical considerations of motives for and location determinants of FDI, with special reference to sub-national, i.e. regional level of analysis. Third part presents recent developments in FDI-flows, at global, national and regional level, and gives an overview of actual Croatian FDI-legislation with a brief report on its effectiveness. The results of the analysis of FDI-flows to Croatian regions in relation to microeconomic performance of regionl economies are given in the fourth part. The final section concludes.

2. THEORETICAL EXPLANATIONS OF INWARD FDI

2.1. Motives for FDI

Traditionally, the reasons for cross-border capital flows can be found within classical and neoclassical theoretical approach, which speak of factor proportions, and relative returns on production factors, respectively, as the main determinants of investment location abroad. However, significant foreign investments are nowadays realized between countries similar in relative factor endowment and, hence of similar production factor income[3]. By taking motives of foreign investors (primarily MNEs) into account, one can differentiate between resource-seeking, market-seeking, efficiency-seeking and strategic asset-seeking FDI (Dunning, 1993; Dunning, 1997). The former two motives usually dominate with companies at early stage of business internationalization, while the latter two usually refer to mature companies which aim at improving their global position on international markets.

Resource-seeking FDI are focused on acquiring resources which can be efficiently used in the production process, thus contributing to cost effectiveness and international competitiveness of the investing company. Until recently this motive referred almost exclusively to availability of natural resources. However, with the ongoing technological advance (high content of high-value added services in a vertically differentiated production process), 'created resources', incorporated in skilled labour possessing managerial, organizational and operational know-how, have become an increasingly important determinant of FDI. Natural resources as a motive for FDI are nowadays mostly present in case of oil and gas extraction what makes human capital essential factor in achieving global competitiveness in all other

[3] Although less developed and emerging economies are taking increasingly prominent positions not only in respect of inward, but also outward FDI, developed countries still account for three quarters of global outward FDI and half of global inward FDI in 2009. Meanwhile, emerging economies of BRIC realize an increasing amount of FDI-inflow of 17,4% (2009), compared to 13,5% in 1995, as well as an increasing amount of FDI-outflow of 9% (2009), compared to 1,1% in 1995 (UNCTAD, 2011).

sectors. Technological change, together with the MNEs' internalization strategies of ownership advantages, and global trend of economic liberalization and deregulation have made skilled labour a valuable source of competitive advantage for countries aiming at attracting FDI into sectors of higher value added (Wang/Swain, 1995, Barell/Paine, 1999).

The main motivation for market-seeking FDI is entering new markets and supplying them from nearby locations more efficiently than through regular trade flows[4]. The issue of where to locate business activities abroad is closely related with the trade off between transport and transaction costs on one hand and advantages of economies of scale on the other. Accordingly, foreign investors would always prefer large local market with solid growth potential able to offer advantages of large scale production[5]. The dilemma of either spreading economic activities across wider space in order to avoid high transport and transaction costs, or concentrating business activities in a single location by making advantage of economies of scale, reveals potentially strong gravitational pattern between FDI-home and -host countries (Carstensen/Toubal, 2004; Christie, 2003; Fidrmuc/Fidrmuc, 2003). FDI can also be motivated by the desire to preserve the existing backward- and forward-linkages, or to adjust products or services to local tastes and consumer preferences. Referring to the above, the access to a large and growing market, backed by government incentives dedicated to creating business-friendly environment can be regarded as the main location advantage for attracting market-seeking FDI. Dynamic economic restructuring should additionally guarantee positive spill-over effects of FDI on local economy[6].

Technological development and production process differentiation based on the concept of relative factor intensity opened up wider opportunities for realization of efficiency-seeking FDI (Dunning, 1998). Geographical differentiation of stages of production made it possible for investing companies to reduce business risk, better manage their overall specialization pattern and achieve strategic advantage over their competitors. This type of FDI is primarily motivated by differences in relative factor endowment and market size among countries, and is realized under presence of significant economies of scale (Brainard, 1997; 1993). Hence, the objective of efficiency-seeking FDI is to incorporate different production and/or business activities across different countries, into chain of value added, thus enabling local companies to take advantages of business internationalization. Globalization stimulates efficiency-seeking FDI and opens up possibilities for less developed countries to improve their long term competitiveness through accessing new technology, know-how and external markets. The main preconditions for local economies in attracting large amounts of efficiency-seeking FDI would be open and developed markets with substantial absorption capacity in terms of human capital and knowledge creation.

Acquiring assets in order to improve the investing company's ownership advantage and its competitive position in the long run are the main motives for strategic asset-seeking FDI. Accordingly, strategic assets may include: technology and know-how, valuable and rare natural resources with low elasticity of demand, manufacturing products with increasing

[4] On the relation between FDI and trade (substitutes or complements), more in: Bergstrand/Egger, 2007; Clausing/Dorobantu, 2005 and Girma *et al.*, 2002.

[5] Even small economies with relatively modest growth rates and weak absorption capacity of local market can be regarded as potentially attractive investment locations as long as they offer favourable investments climate and an unrestricted access to foreign markets (e.g. through regional trade agreements).

[6] On the role of local institutions in creating channels for efficient technology transfer, more in: Barrios/Strobl, 2002; Braunerhjelm/Svensson, 1996 and Te Velde, 2001.

demand on international market, as well as company's strategic positioning on oligopoly or monopoly markets (e.g. infrastructure as natural monopoly).

2.2. OLI-paradigm and location of FDI

The OLI-paradigm, as an eclectic approach, offers a more general insight into factors which determine foreign investors' decision on locating of economic activities (Dunning, 1998; Tarzi, 2005). In that respect, the general characteristics of a specific location are: availability of resources, price and quality of inputs, labour productivity, trade and transport costs, and also economic-policy measures (investment incentives, trade and FDI-regulation and political stability). When considering specific location as a potential investment site, foreign investors should pay special attention to local economic structure which determines the possibilities for horizontal and vertical integration, i.e. development of backward- and forward-linkages with local partners. In this sense the notion of location may refer equally well to both countries and regions for variety of reasons. Usually, regions differ among themselves in terms of development and growth potentials and, therefore call for different economic policy measures, also regarding FDI[7]. These differences might occur as an outcome of different economic structures (e.g. primary sector or low value added manufacturing vs. knowledge-intensive manufacturing and high value added services) which call for different strategies of attracting foreign investments (by sector of investment and/or country of origin). Since they include microeconomic-level characteristics (productivity, efficiency, business strategy), macroeconomic-level characteristics (macroeconomic stability), together with institutional features of a specific location, regions can be seen as a relevant entity for economic analysis of FDI. Furthermore, appreciation of regional dimension of FDI can lead to straightforward conclusions regarding determinants and effects of foreign investment on national scale (Mullen/Williams, 2005; Berköz, 2005.).

However, the answer to the question regarding regional distribution of FDI is not always straightforward, due to many reasons (see: Boudier-Bansebaa, 2005). According to the idea underlying traditional trade theory, regional distribution of FDI will be determined primarily by intra-regional differences in relative factor endowment. However, increasing amounts of FDI, realized between similar (developed) countries and regions, point at some other determinants of spatial location of FDI. Economic geography, by its agglomeration forces which arise from advantages of internal and external economies of scale, makes some locations more attractive to foreign investors, than others. The advantages of these locations usually include: access to specialized inputs, availability of specialized and skilled labour and elimination of information asymmetry referring to all forms of information, knowledge and technology spill-overs between physically proximate companies. The main benefit of economic agglomeration arise from horizontal and vertical linkages of companies, including not only FDI, but also local companies as well. Under growing international pressure on competitiveness and an increasing role of efficiency-seeking FDI, arises vertical integration which, through linkages of the investing company with 'upstream-' (component and input suppliers) and 'downstream-industries' (final goods consumers), gives regions with their specific economic structure, an additional confirmation of their relevance as final destination for FDI (Du *et al.* 2008; Guimãraes *et al.*, 2000). Finally, dynamically changing international business environment calls for more flexible forms of business organization and internationalization what is reflected in the MNEs decisions regarding location of their

[7] Greenfield FDI, by increasing capital stock, contributing to transfer of technology and know-how and increasing local employment, respond better to development needs of less developed regions, whereas more developed regions can benefit more from investments realized through privatization projects or M&A.

business activities. The reasons for that arise mostly from technical progress and global economic liberalization which make possible business internationalization. By having a global perspective in terms of dispersion of business and economic activities across countries, MNEs indirectly contribute to the convergence in economic structures of countries which until recently were at different poles of economic development (case of China), thus adding to the growing pressure on international competitiveness. Hence, finding location at which it can access specialized inputs, realize scale economies and advantages of spatial agglomeration (e.g. through clustering) becomes a strategic choice for MNEs which increasingly recognize the relevance of 'micro'-location as a host area for their foreign investment.

According to the OLI-paradigm, when trying to find location for their investment, foreign investors are looking for a location which will make it possible for them to efficiently use their firm-specific (ownership) advantages in order to realize a strong competitive position on a new market where they face obstacles like information asymmetry, strong local competition and already established market positions, customer loyalty, or specific customs and tastes. However it is not always simple to say what makes a good investment location as this depends on the motive of FDI and the dominant market structure. Thus, a historical development of preferable location characteristics for FDI is given in Table 1.

Table 1. Historical overview of determinants for location selection by type of FDI.

up to 1990s	1990s to date
resource-seeking	
- availability, price and quality of natural resources	- capacities for processing, transport and export of processed natural resources
- infrastructure for exploitation and export of natural resources	- local partners for capital- and knowledge-intensive resource exploitation
- government restrictions on FDI and repatriation of profits	
- investment incentives (tax reliefs)	
market-seeking	
- access to domestic (occasionally regional) market	- growth rates (on domestic and regional markets)
- labour costs	- availability and cost of hiring skilled workforce
- transport and transaction costs (trade barriers)	- availability of domestic suppliers ('upstream firms')
- government restrictions on FDI and repatriation of profits	- quality of national and local infrastructure and business supporting institutions
	- increasing importance of agglomeration economics and institutional support
	- macroeconomic stability and sound macroeconomic policy
	-increased need for presence close to users in knowledge-intensive sectors
	- growing importance of promotional activities by regional and local development agencies
efficiency-seeking	
- production costs (labour, materials, machinery)	- growing importance of knowledge-intensive sectors and integrated MNE-activities (R&D, production, headquarters services, etc.)
- increasing trade in intermediate goods	- government support to economic restructuring and upgrading the quality of labour force (education, training)
- agglomeration economies (e.g. export processing zones)	- emphasis on entrepreneurship and cooperation within and between firms (specialized clusters in science, industrial parks, service support systems, specialized production factors and other inputs)

- investment incentives (tax brakes, grants, subsidized land)	
strategic-assets seeking	
- availability and price of knowledge-related assets; market access (to enhance ownership advantages)	- geographical dispersion of knowledge-based assets and the need of MNEs to harness it from foreign locations
- institutional infrastructure	- cooperation (synergies) among foreign investors
	- exchange of localized tacit knowledge and ideas; interactive learning
	- different consumer demands and preferences

Source: Dunning, 1998, pp. 53.

From the above table it can be generally said that prior to 1990s the main local competitive advantages in attracting FDI were based on availability, price and quality of inputs and, to a growing extent, on access to external markets. From the 1990s, however, emphasis in searching for an optimal FDI-location have been increasingly put on the level of production finalization, the role of business support institutions at national, regional and local level, the role of knowledge-based business services (e.g. management, marketing, transport and distribution) in creation higher value added and, finally, economic agglomeration and vertical differentiation of production process. Many issues like creating conditions for realization of high-value added production, or efforts in development of good business climate stress the importance of initiatives at regional and local level aimed at improving inflows of FDI[8]. Broadly speaking location can be seen as an interplay between forces of scale economies on one hand and transport and transaction costs on the other which together determine the degree and advantages of spatial agglomeration of business activities (Barry *et al.*, 2003; He, 2003).

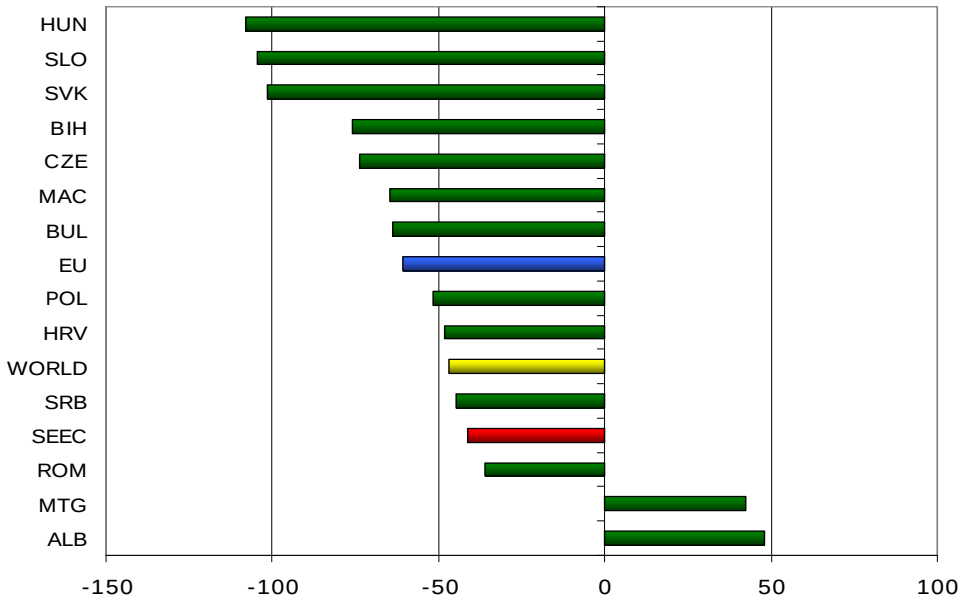
3. INDICATORS OF REAL FDI-FLOWS TO CROATIA AND OTHER COUNTRIES

3.1. FDI in Croatia and other countries and the impact of the current economic crisis

Global economic crisis has significantly reduced global FDI-flows which in 2009 reached only about one half of the value realized in 2007. As expected, the strongest fall occurred throughout developed countries (including the EU) were FDI contracted by app. 60% over a three year period (2007-2009). Meanwhile, developing countries have experienced a fall back of inward FDI by 15% and of outward FDI by 20%. At the same time, the fall of inward FDI in the SEEC was 40% (Figure 1). This negative trend is globally present in all components of FDI (equity investment, reinvested earnings, intra-company loans) and the main reasons for that are scarce financial sources on international market, worsening business conditions and weak optimism regarding future business prospects[9].

[8] *"... location per se as a variable affecting the global competitiveness of firms."*, as in: Dunning, 1998, pp. 60).
[9] The fall in equity investments can be explained through a decreasing number of M&A due to sensitivity of this type of investment to conditions on capital markets and their higher mobility (at least when compared to green-field investment), (UNCTAD, 2010).

Figure 1. Relative change of FDI-inflows into European transition countries (2007=100), 2009.



Source: UNCTAD, 2010.

After a relatively long period of macroeconomic stability and growth, Croatia experienced a strong fall in overall economic activities as a consequence of global economic and financial crisis. Measured in terms of GDP, this fall amounted to -5,8% and -1,5% in 2009 and 2010, respectively, with a weak outlook for 2011 and the estimated growth rate below 0,5%. The main reasons for that is slow economic restructuring, unfavourable business climate and, consequently weak international competitiveness. Reduction of demand for imports, as well as recovery of the main Croatian export markets has contributed to the reduction of both trade and current account deficit. Current account balance has, thus fallen in 2010 on -3,8% of GDP, whereas a few year ago it stood at -9,2% (2008) and -5,2% (2009), (EBRD, 2010). Improved balance of trade in goods (with slight deterioration of the positive balance in services – mostly trade and transport) is the main reason for such favourable developments in Croatian external balance. Despite that, Croatian external debt remained on an increasing path and reached EUR 45,7 bn by the end of 2010, thus slightly exceeding the estimated GDP level by app. 2 p.p. However, net-capital inflows to Croatia have retreated in 2009 and 2010 as an outcome of improved current account balance, fall in external borrowing and a strong decrease in inward FDI. After a long period of steady growth (1995-2008), FDI in Croatian were halved in 2009 and fell further in 2010[10]. Other characteristics of Croatian FDI are: strong reliance on the EU as FDI-source economy, dominance of services sector (financial intermediation, trade and telecommunications) and a modes share of manufacturing (chemicals and oil processing) and a relatively small number of green-field projects (Table 2).

The late 1990s and the following years were marked by dynamic inflows of FDI in the countries of Eastern Europe. The most advanced among them like Hungary, Poland and the Czech Republic have realized the highest amounts of inward FDI, thus taking leading positions with respect to the realized FDI-stock in 2009. Due to sluggish reforms in terms of economic liberalization and institutional change, followed by a slow process of association with the EU, the SEEC haven't realized any significant inflows of FDI until recently, with the

[10] In 2008 FDI covered 74% of Croatian current account deficit, while in 2009 this ratio fell to 49% (EC, 2010).

only exception of Croatia and quite recently Serbia with the annual inflows of FDI higher than USD 1 bn (Table 2).

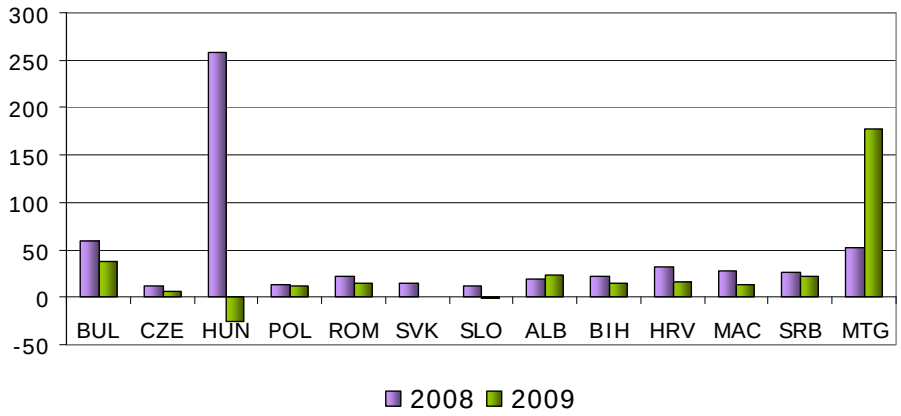
Table 2. Various indicators of FDI for the European transition countries (USD mn).

country	FDI-inflow					FDI-stock	number of FDI green-field projects
	1995-2005 (annual average)	2006	2007	2008	2009	2009	2009
CZE	4.834	5.463	10.444	6.451	2.725	115.899	99
HUN	3.933	19.802	71.485	61.933	-5.575	248.681	106
POL	6.702	19.603	23.561	14.689	11.395	182.799	222
SVK	1.783	4.693	3.581	3.411	-50	50.258	57
SLO	441	648	1.514	1.924	-67	15.237	11
BUL	1.292	7.804	12.388	9.795	4.467	50.727	101
ROM	2.130	11.367	9.921	13.909	6.329	73.983	201
HRV	1.088	3.468	5.023	6.140	2.605	36.602	28
ALB	143	325	662	988	979	3.537	7
BIH	225	766	2.077	1.064	501	7.816	20
MAC	148	424	699	587	248	4.510	18
SRB	507	4.350	3.462	2.995	1.920	20.584	57
MTG	60	618	921	916	1.311	4.579	1

Source: UNCTAD, 2010.

FDI-inflows in transition countries usually make 10-25% of national gross fixed capital formation, although in some countries this indicator goes up to almost 40% or even higher (Bulgaria and Montenegro). However, decline in the share of FDI-inflows in the transition countries' overall investment activities reveals problems on international capital markets and less reliance of these countries on foreign sources of financing economic growth (Figure 2). However, reliance on FDI as a form of external financing is still considerable among transition countries and most pronounced in case of the SEEC where foreign capital contributes up to 20% of total investments, while this indicator falls to 12% in case of the EU and goes to less than 10% for the World on average.

Figure 2. FDI-inflows to European transition countries (% of gross fixed capital formation).

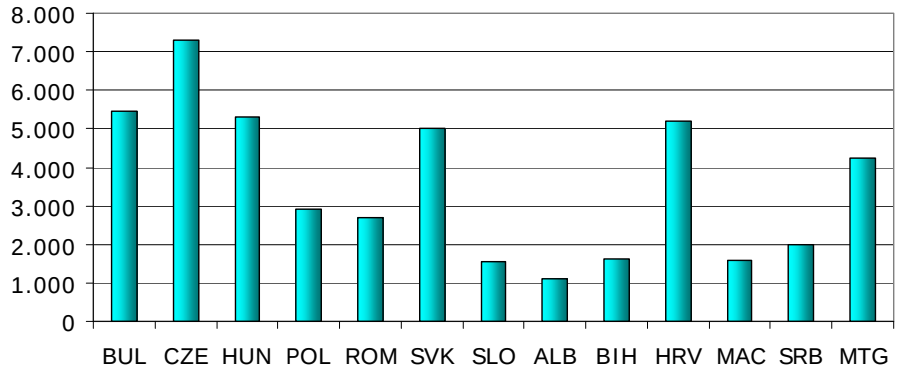


Source: UNCTAD, 2010.

Despite increasing outward investment of some advanced transition countries (Hungary, Slovenia), European transition countries have mostly remained to be net-recipients of FDI.

Relative indicator of cumulative *per capita* net FDI-inflow reveals more accurately the success of individual countries in attracting FDI. In this respect the highest relative inflow is realized by the most advanced transition countries, but also by some less advanced reformers like Bulgaria, Croatia and Montenegro (Figure 3).

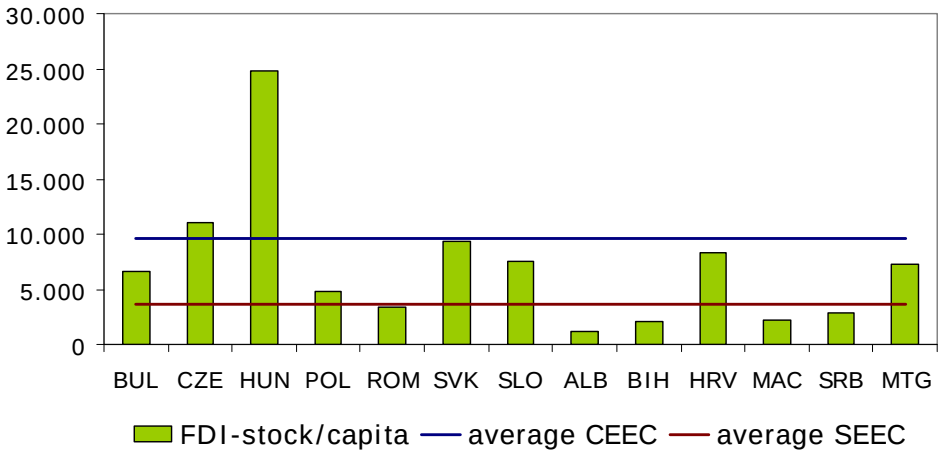
Figure 3. Cumulative net-inflows of FDI per capita of European transition countries (USD), 1989-2008.



Source: EBRD, 2009.

Unlike indicators of FDI-inflows which show the amount and dynamics of inward investments, FDI-stock reveals real effectiveness of the realized investments[11]. Hence, Figure 4 shows that among analyzed countries Hungary and the Czech Republic are the only two countries which surpassed the CEEC average regarding realized FDI-stock *par capita*. The best positions among the SEEC are taken by Croatia and Montenegro which compare well with advanced reform countries like Slovakia and Slovenia.

Figure 4. FDI-stock per capita of European transition countries (USD), 2009.

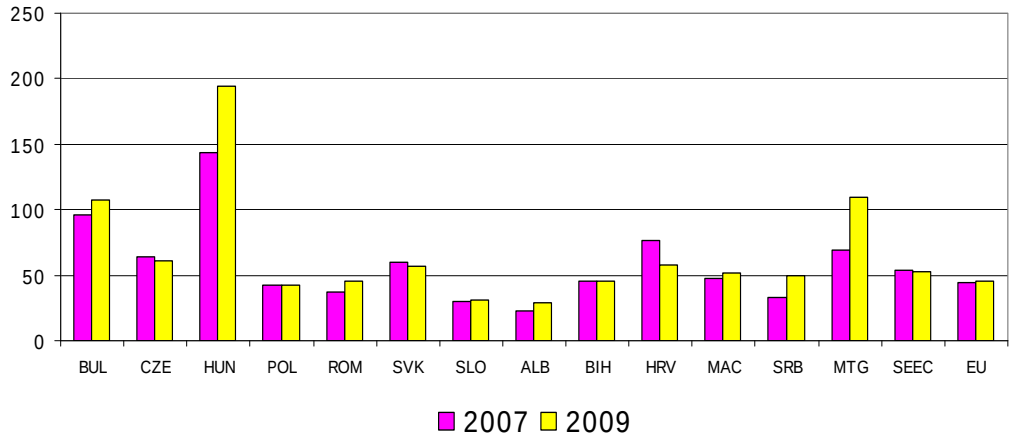


Source: UNCTAD, 2010; EUROSTAT, 2010; WIIW, 2009.

[11] FDI-stock is calculated on the basis of actual (stock) market value of the acquired company share, exchange rate fluctuations and the principle of adding together of individually acquired company shares, which, taken together, might go beyond the threshold of 10% of company shares.

The strongest contribution of inward FDI to GDP is realized in the most advanced CEEC, but also in Bulgaria, Croatia and Montenegro. The remaining countries realized individual values below the average of the SEEC, or the EU (Figure 5).

Figure 5. FDI-stock of European transition countries (% of GDP), 2009.



Source: UNCTAD, 2010.

3.2. Regional structure of FDI in Croatia

Regional structure of FDI across Croatian counties reveals significant differences regarding the amount and economic structure of the realized capital inflows. Out of total net-inflows of FDI (EUR 24 bn), realized by 2010, 75% went to the capital city of Zagreb[12]. Excluding the City of Zagreb, significant annual inflows of FDI (above EUR 1 bn) have realized only three counties – Primorsko-goranska, Splitsko-dalmatinska and Istarska, while the lowest inflow of foreign capital has been achieved by Virovitičko-podravska county. Meanwhile, only Osječko-baranjska county registered negative net-inflow of FDI, i.e. negative balance in international capital flows (Table 3).

Marked outflows of FDI have been realized in several Croatian counties, but not earlier than 2008-2009 what corresponds with the emergence of global economic crisis and a worldwide fall in FDI. Negative balance in FDI-flows can be observed mostly in Croatian inland counties, which are anyway less developed and achieve lower ranking in respect of regional competitiveness (NVK, 2008). It should also be noticed that generally all the counties have experienced increasing inflows of FDI since the beginning of the 1990s, and especially in the period 2000-2005 after which the total annual net-inflow of FDI has tripled (Table 3). Hence, net-outflow of FDI has occurred in the years of global economic crisis and was more pronounced in the counties with weak competitiveness indicators.

[12] As a special administrative unit among 20 Croatian counties, the City of Zagreb hosts the greatest majority of headquarters of many FDI-companies which have business operations throughout Croatia (e.g. national oil industry, telecommunications, banking and finance, etc). This fact 'artificially' increased the amount of inward FDI and other related indicators for the City of Zagreb. On the other hand, the capital city concentrated a great part of Croatian business activities, as indirectly confirmed by top ranking regarding local business sector vitality (entrepreneurial dynamics) and the quality of business environment and the GDP/capita of EUR 18.554, compared to the country's average of EUR 10.682, in 2008 (sources: NVK, 2008; DZS, 2011.).

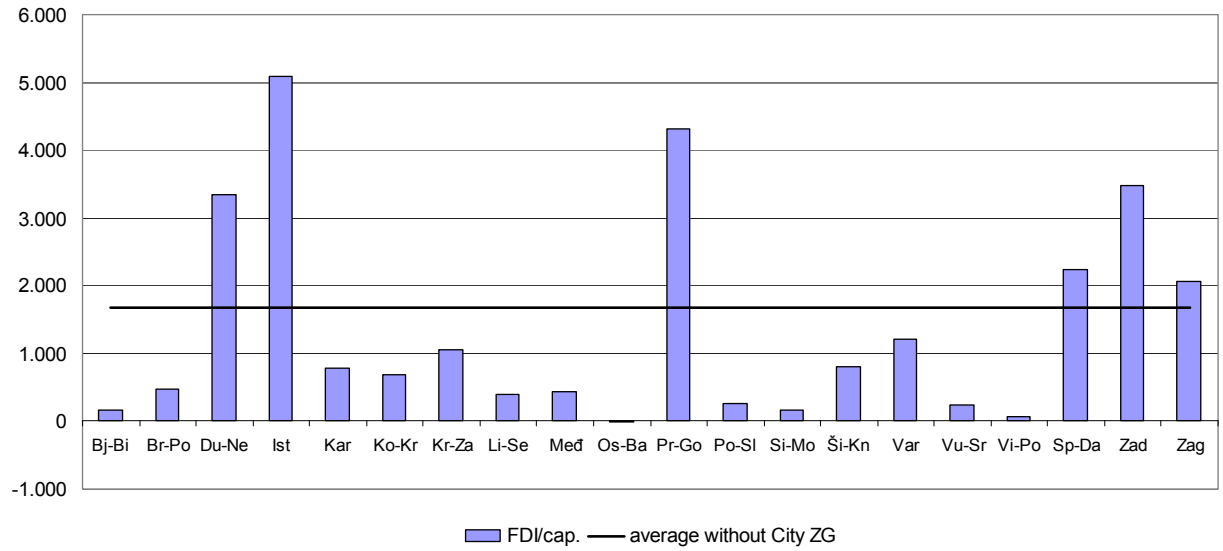
Table 3. Net-inflows of FDI for Croatian counties and the City of Zagreb (EUR mn).

county	1993-1999	2000-2005	2006	2007	2008	2009	2010	TOTAL
Bjelovarsko-bilogorska	6,18	6,90	1,75	2,47	6,93	0,89	-3,64	21,48
Brodsko-posavska	10,25	20,81	2,46	16,93	4,08	26,79	1,66	82,97
Dubrovačko-neretvanska	10,20	98,98	67,14	105,21	41,37	72,57	27,91	423,38
Istarska	133,28	411,19	102,83	3,70	306,41	52,63	78,95	1.088,99
Karlovačka	50,91	50,24	2,22	21,85	-5,92	-5,01	-8,46	105,84
Koprivničko-križevačka	44,48	-10,27	2,54	47,72	0,83	-1,26	-0,89	83,15
KrapinSko-Zagorska	78,56	62,73	20,42	16,19	-30,26	3,79	-6,88	144,55
Ličko-Senjska	-0,14	4,74	0,81	2,47	1,44	2,57	8,19	20,07
Međimurska	2,41	51,69	5,89	-26,40	10,52	2,21	4,77	51,07
Osječko-baranjska	50,82	118,71	36,99	98,14	-6,98	-335,67	32,33	-5,68
Požeško-slavonska	7,68	11,69	-0,38	-0,52	1,53	0,25	1,28	21,54
Primorsko-goranska	76,55	281,94	168,80	289,97	248,88	103,88	144,32	1.314,34
Sisačko-moslavačka	4,62	12,29	2,43	6,20	-3,55	-1,62	8,71	29,07
Splitsko-dalmatinska	57,86	449,25	73,46	195,01	121,17	94,93	84,01	1.075,71
Šibensko-kninska	3,86	49,31	-2,29	8,80	19,53	1,66	9,88	90,74
Varaždinska	22,28	29,84	21,96	81,34	27,83	26,79	9,04	219,08
Virovitičko-podravska	-5,18	-4,53	0,79	0,24	-0,02	0,02	14,38	5,70
Vukovarsko-srijemska	0,27	12,51	2,23	9,02	15,46	1,68	6,00	47,17
Zadarska	13,70	280,01	74,57	110,03	122,12	12,87	-5,47	607,83
Zagrebačka	119,71	366,61	-33,04	57,74	61,45	62,09	41,18	675,74
City of Zagreb	2.663,04	5.606,08	2.186,39	2.603,12	3.146,20	1.907,43	-145,92	17.966,34
TOTAL	**3.351,33**	**7.910,74**	**2.737,99**	**3.649,23**	**4.088,99**	**2.029,48**	**301,35**	**24.069,10**

Source: HNB, 2011.

Average net-inflow of FDI per inhabitant for 21 Croatian administrative units to almost EUR 5.500, but without the City of Zagreb this amount goes down to app. EUR 1.700. Excluding the City of Zagreb the above average net-inflows of FDI per capita are mostly realized by Croatian coastal counties and Zagrebačka county, whereas inland counties register a net FDI-inflow below national average[13] (Figure 6).

Figure 6. Total net FDI-inflows per capita of Croatian counties (EUR), 1993-2010 .



Source: HNB, 2011; DZS, 2009.

[13] Croatian NUTS II region – Adriatic Croatia realizes EUR 3.100 of net FDI-inflow per capita, while the region North-West Croatia (without the City of Zagreb) realizes EUR 1.300 and the region Central and East Croatia only EUR 240 per inhabitant.

According to sectoral structure, the greatest share of inward FDI has gone to services – EUR 17,3 bn (72%), while industry has received app. EUR 6,1 bn out of which EUR 5 bn was realized in manufacturing (20,6% of total net-inflow), (Table 4). Above average inflows of FDI have been realized in the City of Zagreb in all sectors (even in agriculture), but the capital city registered significant amounts of FDI also in oil processing and chemical industry, financial intermediation, trade and telecommunications. Besides, large FDI-inflows in manufacturing have been realized in Istria county (processing of non-metallic mineral products and clothes), Krapinsko-zagorska county (non-metallic mineral products and metal industry), Varaždinska county (textile production and leather processing), Karlovačka county and Koprivničko-križevačka county (food and beverages) and Splitsko-dalmatinska county (non-metallic mineral products, automotive component production and food and beverages). The structure of FDI-inflows by individual economic activities in services is similar across counties with the dominant share of financial intermediation, trade, tourism and real estate activities (mostly in the NUTS II region of Adriatic Croatia). Corporate real estate activities, together with individual real estate investments make app. 7,5% of total net-inflow of FDI (Table A1 in the Annex).

Table 4. Net-inflow of FDI by economic sectors, 1993-2010.

sector	**total** *(000 EUR)*	**per capita** *(EUR)*
primary	103.137,56	23,26
secondary	6.056.369,69	1.365,75
manufacturing	4.948.724,66	1.115,97
tertiary	17.333.568,32	3.908,83
other	196.032,56	44,21
TOTAL	**24.068.552,01**	**5.427,61**

Source: HNB, 2011; DZS, 2009.

3.3. Legal framework for attracting FDI in Croatia and its effectiveness

In the last ten years Croatia has considerably improved its legal basis for attracting FDI by passing a new law in 2006 and amending it in 2011 (MINGORP; 2011). The 'first' FDI-promotion law (2000) was quite general in terms of preferred regional and sectoral structure of inward FDI. It didn't specify either regions or sectors with specific development problems, which would benefit from capital inflows through restructuring of local economy and increasing both regional and national competitiveness. A relatively small number of green-field investments and weak spill-over effects of inward FDI, realized in spite of significant inflows of mostly privatization-based foreign capital, called for further improvements in the legislation. Through a complex set of criteria which include: type of economic activity, development level of a target region and the value of the investment project, the new law on FDI (2006) grants progressive concessions for investments with potentially higher benefits for local economy. The law is fully aligned with the EU-legislation on granting financial support and includes the measures like: profit tax and tariff incentives, financial support for opening new jobs, education and re-training, financial support for establishing technology-innovation centres and offering business support services and financial support for large investments of national interest (more than EUR 15 mn). These measures apply to high value added manufacturing, R&D-activities and business support (headquarters) activities (Table T2 in the Annex). The amount of financial support by the state is based on regional unemployment rate,

while the absolute amount of support is set up by the upper limit of 'qualified investment costs' determined by the regional state support scheme[14].

As an important tool in achieving economic growth and development, FDI-policy is complemented with the range of other policy measures (development of clusters and business zones, support to SMEs, etc.) which aim at creating favourable business environment and are based on the national consensus of attracting foreign capital for productive purposes. Strong institutional coordination[15] is foreseen to contribute to realization of general objectives of economic growth, increasing employment and exports, development of high value added activities, protection of the environmental and contribution to social cohesion and balanced regional development.

As for the effectiveness of the FDI-promotion law, it can be asserted that in the period 2001-2006, referring to the enforcement of the first FDI-promotion law, 57 companies which together invested app. HRK 7 bn (about EUR 950 mn) and created, as estimated, 10.000 new jobs, were beneficiaries of the state investment support scheme. More than half of these companies came from textile industry, metal-, food- and wood-processing industry, as well as from ICT-sector. In the following period (2007 – February 2011) and which the new FDI-promotion law in power, the state granted various types of financial support to 68 projects (out of 170 applications) of total value of HRK 3 bn (EUR 410 mn). The estimated effect of these projects on new employment is 3.721. The greatest part of financial support (HRK 2,9 bn, or EUR 390 mn) went as subsidy to qualified investment costs (Table A2 in the Annex) for projects in the following manufacturing activities: metal-processing (13,6%), production and service of motor vehicles and parts (11,6%), textile (11,1%) and wood-processing industry (8,5%), machinery (5,7%), as well as electric and electronic equipment (4% each). Services sector absorbed 5,6% of state funds dedicated for investment promotion, mostly thorough economic activity of distribution and logistics. Compared to figures from the previous period (2001-2006) one can notice a modest shift towards economic activities of higher value added. As shown in Table 5 the most intense investment activities, both by investment value and the number of projects, have been realized in the region of North-West Croatia, with the leading role of the City of Zagreb. However, significant investment activities have been supported from state funds also in other counties (e.g. Međimurska, Varaždinska, Zagrebačka, Karlovačka, Brodsko-posavska and Istarska county).

[14] According to the state regional support scheme and on the basis of five criteria – unemployment rate, income, local public revenues, demographics and the level of education – Croatian counties are split up into five categories of development. In 2000 this scheme replaced the previous model of 'areas of special state concern' which included counties with more than half of its area (cities or municipalities) regarded as underdeveloped (more in: Table A3 in the Annex).

[15] Between national bodies and regional development agencies (MINGORP – Podloge za FDI strategiju: Konzultativni dokument, 2006).

Table 5. Financial support to new investments (based on estimated qualified investment costs), and the number of projects by Croatian statistical regions and counties, 2007 – February 2011.

statistic region / county	investment *(000 HRK)*	number of projects
NUTS II – Northwest Croatia	**1.747.234,21**	**42**
City of Zagreb	625.117,23	8
Zagrebačka	310.973,27	8
Krapinsko-zagorska	82.182,91	3
Varaždinska	352.897,00	12
Međimurska county	376.063,80	11
NUTS II – Central and East Croatia	**797.768,34**	**18**
Bjelovarsko-bilogorska	61.627,45	2
Požeško-slavonska	10.728,00	1
Brodsko-posavska	215.333,01	8
Osječko-baranjska	98.121,38	2
Vukovarsko srijemska	135.453,07	2
Karlovačka	276.505,43	3
NUTS II – Adriatic Croatia	**339.783,33**	**8**
Primorsko-goranska	86.267,47	3
Zadarska	32.204,80	1
Šibensko-kninska	86.210,53	2
Splitsko-dalmatinska	14.221,59	1
Istarska	120.878,94	1
TOTAL	**2.884.785,88**	**68**

Source: MINGORP, 2011.

Besides subsidies to qualified investment costs, and during the years 2008-2009, investing companies in Croatia also used tax concessions (profit tax) in the total amount of HRK 132 mn (EUR 17,8 mn). One half of the companies which made advantage of this scheme were small companies, while medium and big companies made app. 25% of the population each. Regional distribution of granted tax concessions by counties generally follows the same pattern as that presented in Table 5. During the same period financial subsidies for job creation and training and education of labour were granted in the amount of HRK 1,32 mn (EUR 180.000).

All the above figures refer to both domestic and foreign owned companies (FDI), since Croatia law aims at creating favourable investment conditions for all companies, irrespective of their origin. Hence, about one third of the 'supported' projects (21 out of 68) was realized by the companies which are fully, or only partially in foreign ownership. The total investment value of these companies reached HRK 1,4 bn (app. EUR 190 mn) and, as estimated, contributed to creating 2.025 new jobs (MINGORP, 2011).

4. ANALYSIS OF ECONOMIC DEVELOPMENT AND SUCCESS IN ATTRACTING FDI AT REGIONAL LEVEL

This analysis has been motivated by the idea that regions with higher level of economic development, business activity and concentration *ceteris paribus* have comparative advantage in attracting direct investment over the less developed regions. In other words, we believe that the level of economic activity of a certain location plays an important role for FDI and, therefore shouldn't be ignored as an important location factor for business activities. Our analysis is based on hypothesis that investors recognize locations with more intensive business activity as those which have favorable business and investment climate and are, in

this case, less reluctant when considering investment decision. On the other hand, less developed regions, with low level of business activity are less attractive and have to struggle more to persuade potential investors to make an investment and start business there, sometimes even if they offer significant investment incentives (Crozet *et al.*, 2004; Coughlin/Segev, 2000; Friedman *et al.*, 1999; Chidlow *et al.*, 2009; Levy Yeyati *et al.*, 2003).

Having in mind that all Croatian counties are equally treated within the same legal framework and that tax regulations and incentives only slightly differ form county to county, the different success in attracting inward FDI is expected to occur as an outcome of some specific features of individual regions. Taking into consideration factors important in attracting direct investment, as suggested by vast literature on this topic (Baltagi *et al.*, 2008; Demekas *et al.*, 2007; Buch *et al.*, 2003; Brenton *et al.*, 1999), our impression is that Croatian regions generally offer similar investment conditions and don't differ much regarding determinants of FDI-inflows. However, it shouldn't be overlooked that some intra-regional differences do exist, especially regarding important factors like quality of infrastructure and administrative procedures, but we also believe that a very important aspect of 'regional attractiveness' for FDI is the level of present economic development and business intensity. If this relationship can be established, it should be applied as an important signal to less developed regions, especially those with poor success in attracting FDI, that they should put more efforts in creating investment-friendly environment for doing business. Therefore, in the following analysis we tried to compare the existing success of Croatian regions in attracting direct investment and the corresponding level of regional business intensity and concentration, by using different indicators. As for the indicator of direct investment, we used data on inward FDI in Croatia, broken down by FDI-host regions. The regions are presented on the basis of the official administrative criteria – 20 counties and the City of Zagreb as a separate administrative unit. When deciding on the types of inward direct investment to be included in the analysis, we tried to clear the official data from the influence of those inflows that we believe could make the analysis biased and lead us to wrong conclusions. We decided to include all three components of FDI (equity capital, reinvested earnings and other capital[16]), but at the same time cleared the data from those types of inward FDI which are not a result of regions' specific features or efforts. In that respect, entire amount of privatization-related FDI has been excluded, since they are almost entirely a result of the central government policy. If this category of FDI hasn't been excluded, the final conclusions would have looked quite distorted, as some privatization deals were very huge in amount and thus, would significantly influence the relative relations among the counties. Furthermore, we also decided to exclude trade related activities (retail and wholesale trade) and real estate deals, since they achieve minor contribution to economic growth and prosperity, both regionally and at national level. Finally, total inward direct investment derived in the way described above, we divided by the population of each county, thus providing relative measure of inward FDI per capita as an approximation of success in attracting FDI (Table 6).

[16] Debt transactions between direct investor and its direct investment enterprise.

Table 6. FDI and FDI per capita of Croatian counties, 2011.

region	county		FDI *(000 EUR)*	FDI per capita *(EUR)*
1.	1.	**City of Zagreb**	2.437.632	3.129
2.	2.	**Istarska**	267.254	1.295
	3.	**Varaždinska**	155.879	844
	4.	**Međimurska**	91.068	772
	5.	**Primorsko-goranska**	192.160	629
3.	6.	**Zadarska**	93.717	578
	7.	**Zagrebačka**	175.019	571
	8.	**Šibensko-kninska**	59.653	528
	9.	**Koprivničko-križevačka**	61.157	491
4.	10.	**Splitsko-dalmatinska**	184.714	398
	11.	**Dubrovačko-neretvanska**	46.518	379
	12.	**Karlovačka**	52.447	370
	13.	**Brodsko-posavska**	62.986	356
5.	14	**Krapinsko-zagorska**	46.001	323
	15.	**Osječko-baranjska**	94.374	286
	16.	**Bjelovarsko-bilogorska**	29.422	221
	17.	**Sisačko-moslavačka**	34.841	188
6.	18.	**Ličko-senjska**	9.543	178
	19.	**Vukovarsko-srijemska**	32.119	157
	20.	**Požeško-slavonska**	3.280	38
	21.	**Virovitičko-podravska**	779	8

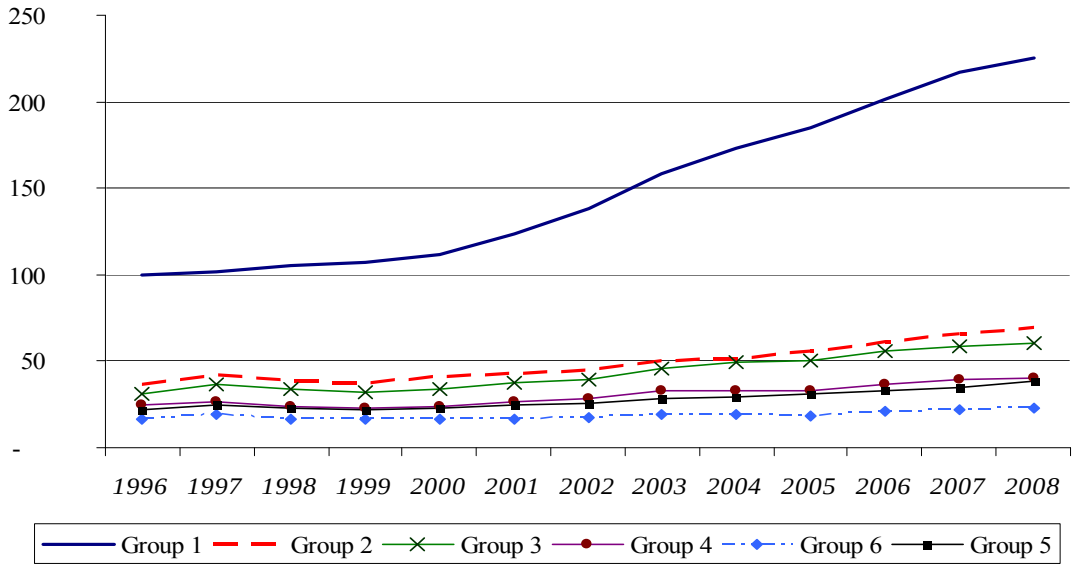
Source: HNB, 2011.

It is clear from Table 5 that the City of Zagreb attracted the majority of FDI. Even taking the relative measure of FDI per capita, Zagreb is still by far the most successful administrative region. In order to get a more insightful picture of the region-level FDI in Croatia, six groups of counties (called regions) were formed according to the level of FDI per capita and were analyzed separately. The first region includes the City of Zagreb solely, as it is clearly isolated as the best performing entity and should, therefore be observed separately from other counties (and regions). The remaining 20 counties are split into five regions consisting of four counties each, according to the FDI per capita. As for local business intensity indicators, we used various absolute and relative measures such as: total sales, total sales per capita, productivity, exports-to-total sales ratio and net-wages per employee over the period 1996-2008. They will all be elaborated subsequently.

Sales per capita

The indicator of sales per capita is used as an approximation of local business concentration and a description of the level of business activity in each region. The indicator of sales is expressed in constant prices, corrected for the annual inflation rate. Figure 7 presents the relative relationships and dynamics of sales per capita for the selected regions with the value of the City of Zagreb in the initial year (1996) as the base index (100).

Figure 7. Sales per capita of selected Croatian regions (constant prices), region 1=100 (1996).



Source: FINA, 2011.

Obviously the level of business activity is highly concentrated in the City of Zagreb, whereas other regions are falling far behind, according to this indicator. In the first year of the observed period (1996), we can notice huge gap between the City of Zagreb and all other groups of counties when their activity reached only between 16% and 37% of the activity of the referent region (the City of Zagreb). The situation is becoming even worse in the next years as this ratio for the City of Zagreb grows much faster, especially from 1999, while other regions (4, 5 and 6) almost stagnated over the same period. This confirms the assumed positive relation between the level of business activities and the region's success in attracting FDI. The City of Zagreb is expectedly by far the most successful administrative unit in Croatia in respect of inward FDI and is also the most exposed as the centre of economic activities in Croatia, relative to other counties. As far as other groups of counties are concerned, regions 2 and 3 are, although far behind the country capital, still much better positioned in the beginning and recorded faster growth, especially from 2002, than the remaining regions. It is also interesting to note that other groups of counties are positioned in the same order as in the table representing the level of inward FDI and that their relative positions remained unchanged throughout the observed period. Table 7 represents the growth of this indicator for all regions with the individual data of 1996 for each region as the base point (100).

Table 7. Sales per capita of selected Croatian regions (constant prices), 1996=100.

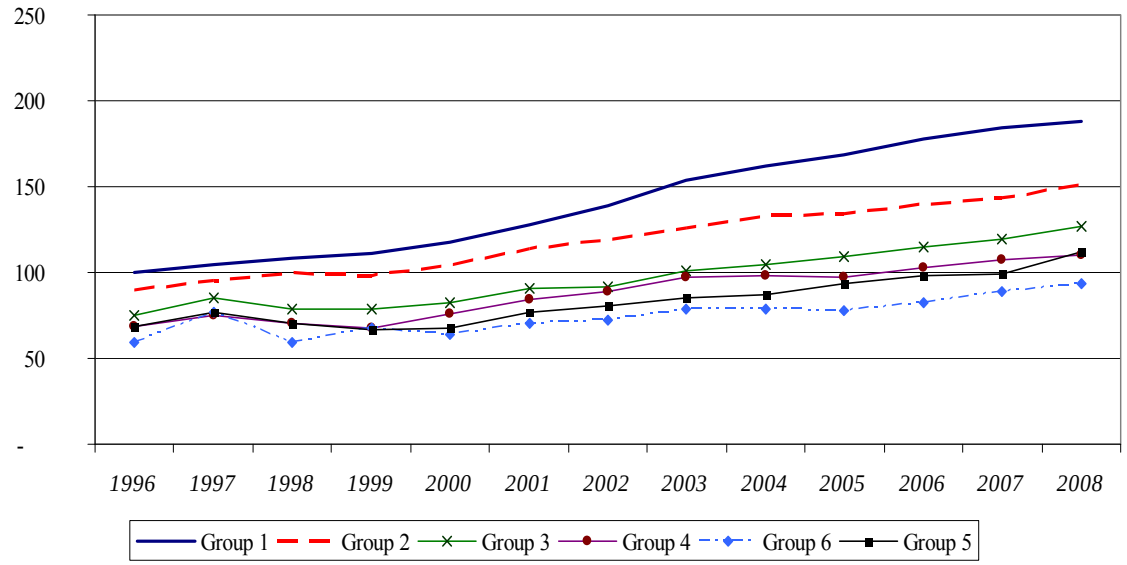
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
group 1	100	116	105	107	112	123	138	162	173	185	202	217	225
group 2	100	114	105	101	112	116	122	137	140	145	156	165	168
group 3	100	117	109	104	110	120	127	149	159	164	179	189	195
group 4	100	108	100	94	97	108	118	135	137	136	150	163	167
group 5	100	112	103	98	102	109	116	125	130	138	150	157	172
group 6	100	120	102	103	100	103	108	121	119	116	128	139	141

Source: FINA, 2011.

Labor productivity

Labor productivity has been derived as total sales per selected region, at constant prices, divided by number of employees in the corresponding region. Labor productivity can be considered as a measure of competitiveness. The initial assumption is that counties with higher level of economic activity and more success in attracting FDI are expected to have higher initial competitiveness due to better business and investment climate. Furthermore, we believe that higher level of FDI attracted by higher level of business activity and labor productivity would eventually lead to faster labor productivity growth. In other words, inward FDI attracted by adequate level of economic activity should eventually produce faster economic growth which would attract more FDI. This interaction between the level of economic growth and inward FDI should eventually widen the gap between the level of labor productivity in regions with high level of inward FDI and those regions which were not that successful. The data can be followed from Figure 8.

Figure 8. Labour productivity of selected Croatian regions (constant prices), region 1=100 (1996).



Source: FINA, 2011.

According to Figure 8, the level of initial labor productivity confirmed the expectations – it was the highest for the City of Zagreb, but the gap towards other regions was not so strong as in the case of sales per capita indicator. Regions 2 and 3 reach 90% and 75%, respectively of the indicator value for the reference region, whereas the remaining regions come close to them, ranging from 59% to 68%. Again, the regions form the similar order as in Table 6. However, the regions with higher level of FDI and economic activity haven't been able to record significantly faster growth than the less active ones. Table 7 shows individual relative growth for all selected regions.

Table 7. Labour productivity of selected Croatian regions (constant prices), 1996=100.

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
group 1	100	116	108	112	117	128	138	153	162	168	177	184	185
group 2	100	121	111	109	116	126	133	140	148	150	156	160	168
group 3	100	114	105	104	110	120	122	131	134	137	142	145	150
group 4	100	111	104	99	111	124	130	143	143	143	151	158	161
group 5	100	112	103	97	99	112	118	124	127	137	143	145	163
group 6	100	130	100	115	107	118	122	133	134	132	140	151	157

Source: FINA, 2011.

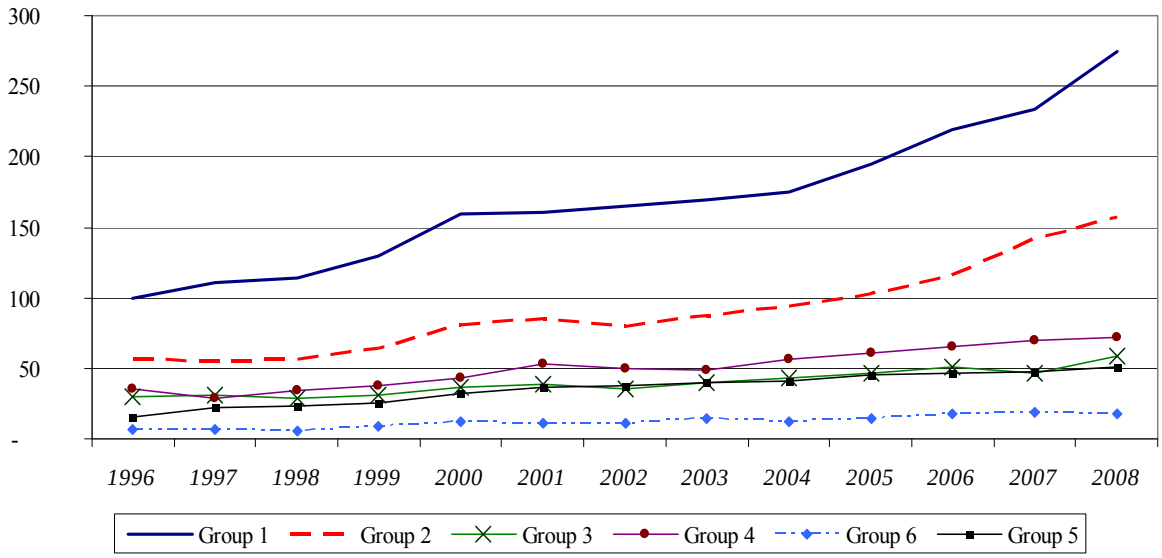
According to Table 7, all regions grew at the similar pace as far as the labor productivity is concerned. Slightly faster growth has been recorded by the City of Zagreb and region 2. However, this growth was not fast as expected regarding much higher level of FDI per capita received by these two regions, compared to the remaining ones. While the value of index for the City of Zagreb in 2008 shows significantly higher growth than for instance for regions 3 or 6, the same indicator for the region 2 shows only slightly faster productivity growth than region 5. It seems that, although region 2 generally received significantly higher level of FDI per capita (compared to regions 5 and 6), it was still not enough to encourage regional economy (or that of a certain county) to grow faster than those which received less FDI.

Exports and exports-to-total sales ratio

The volume of exports and especially indicator of exports to total sales is a reliable indicator of regional competitiveness. Like the companies with higher exports which are usually considered more competitive globally, so the regions, or the counties which export more are considered more competitive internationally and, hence more interesting for foreign investor due to eventually larger economies of scale or at least the possibility of networking with local companies. So, the positive relation between competitiveness (expressed in terms of exports indicators) and FDI-inflow is expected.

Total value of exports per region, as presented in Figure 9, shows that at the beginning of the observed period, companies registered in the City of Zagreb recorded significantly higher exports than those of the remaining regions. However, it is even more important to notice the export dynamics in the years following the initial period. Exports of the 'leading region' of the City of Zagreb grew much faster, compared to other entities analyzed. Furthermore, exports of region 2 grew significantly faster than that for regions 3 through 6, possibly indicating certain interactions between the level of economic development and FDI-inflows implied in the paragraph on labor productivity.

Figure 9. Exports of selected Croatian regions (constant prices), region 1=100 (1996).



Source: FINA, 2011.

Table 8 confirms the above conclusions and shows exports of regions 3 through 6 didn't grew so fast as that of regions 1 and 2.

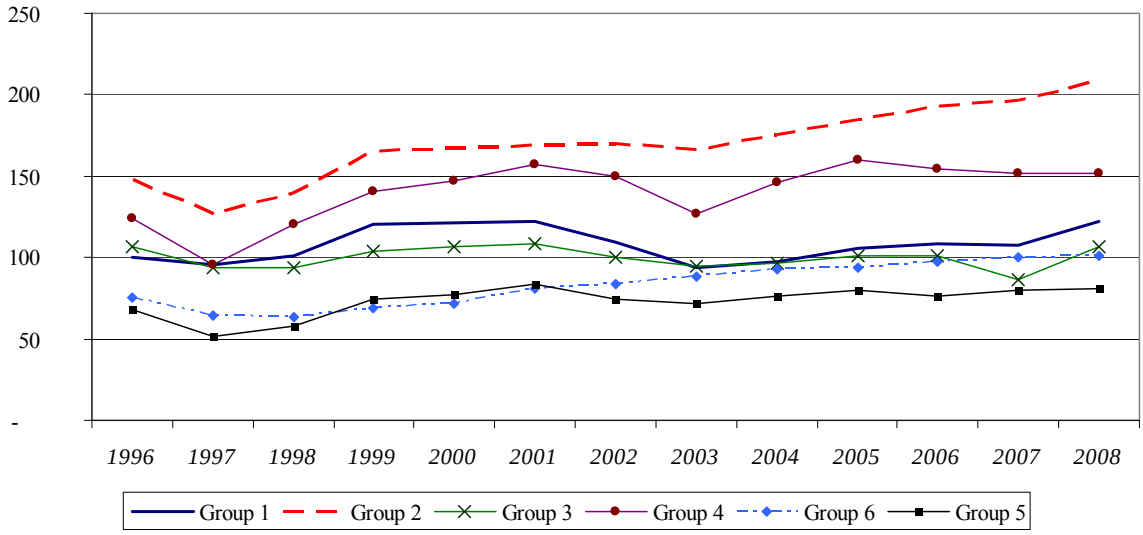
Table 8. Exports of selected Croatian regions (constant prices), 1996=100.

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
group 1	100	111	107	129	159	159	151	153	169	195	219	234	275
group 2	100	98	99	113	143	149	141	153	166	181	204	219	237
group 3	100	103	96	102	124	130	119	133	144	156	170	154	197
group 4	100	83	97	107	122	150	142	138	161	175	186	199	205
group 5	100	107	108	111	125	135	142	148	155	165	178	194	203
group 6	100	103	86	130	172	156	163	207	177	185	195	202	204

Source: FINA, 2011.

The share of exports in total sales should again, indicate the level of regional competitiveness, as higher exports-to-total sales ratio is, expectedly positively related to local companies' productivity. As part of this analysis, it is interesting to see how the line representing this ratio moves in time for the regions (Figure 10).

Figure 10. Export-to-total sales ratio of selected Croatian regions (constant prices), region 1=100 (1996).



Source: FINA, 2011.

Surprisingly, according to this indicator, the City of Zagreb is behind regions 2 and 4 from throughout the observed period and records only average growth of this indicator. However, it can be explained with sharp and extensive expansion of retail sales (large retail chains), starting from the year 2000, located mostly in Zagreb. This contributed mostly to keeping the ratio stable despite significant exports growth (Figure 9). The same is corroborated by the data presented in Table 9.

Table 9. Exports-to-total sales ratio of selected Croatian regions (constant prices), 1996=100.

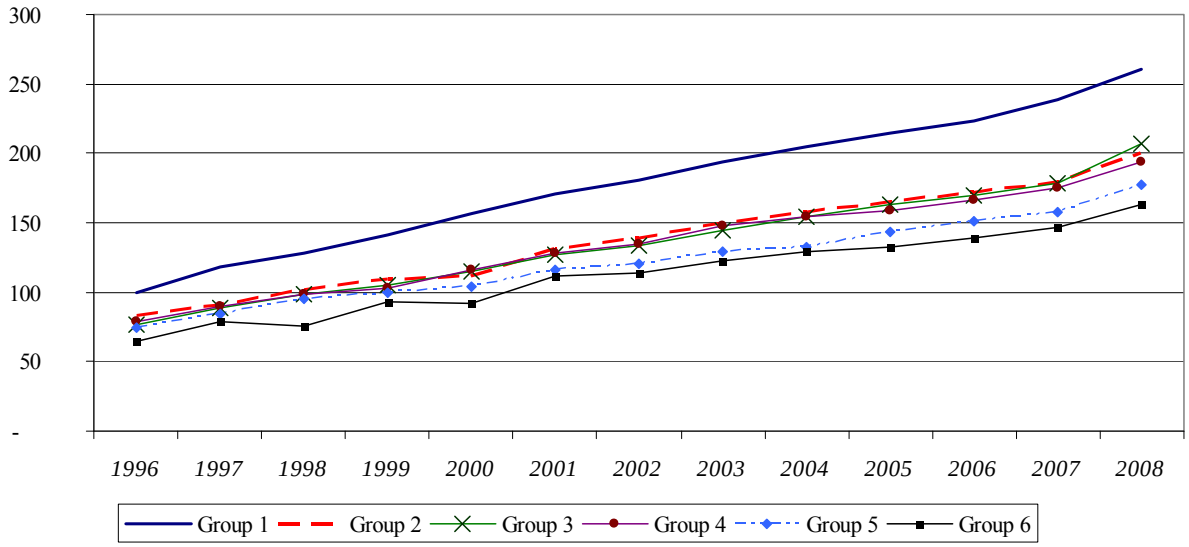
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
group 1	100	96	102	120	121	122	109	94	98	105	109	108	122
group 2	100	86	94	112	113	114	115	112	119	125	130	133	141
group 3	100	88	88	98	100	102	94	89	91	95	95	81	101
group 4	100	77	97	114	119	127	120	102	117	129	124	122	123
group 5	100	76	85	110	115	124	110	106	113	118	113	118	119
group 6	100	85	84	91	95	106	110	117	122	123	129	133	134

Source: FINA, 2011.

Net-wages per employee

This indicator shows that net-wages have been quite similar for all the regions, throughout the analyzed period, except for the City of Zagreb which, expectedly had significantly higher level of net-wages and realized faster growth in this category, compared to the remaining regions (Figure 11, Table 10).

Figure 11. Net-wages per employee of selected Croatian regions (constant prices), region 1=100 (1996).



Source: FINA, 2011.

Table 10. Net-wages per employee of selected Croatian regions (constant prices), 1996=100.

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
group 1	100	119	128	141	157	171	181	194	205	215	223	239	261
group 2	100	110	123	132	135	157	167	180	189	199	207	216	241
group 3	100	116	128	137	149	165	174	189	201	212	221	233	270
group 4	100	114	126	131	147	163	172	188	197	203	212	224	247
group 5	100	114	128	133	139	155	161	173	178	192	203	211	237
group 6	100	122	117	143	142	173	175	189	199	204	214	226	251

Source: FINA, 2011.

5. CONCLUDING REMARKS

The process of globalization on one hand and further progress in economic integration on the other, followed by the implications of the actual technological development (increasing vertical differentiation of the production process), constantly changing consumer preferences, and the MNEs strive for more flexible forms of doing business (internalization of the existing ownership advantages), have promoted regions to relevant entities of economic activities in general and recipients of FDI in particular. The existing theoretical literature on FDI gives a good basis for the analysis of factors which determine FDI-flows at regional level. Despite usually common legal framework and general impact of macroeconomic conditions, intra-regional differences in terms of local microeconomic performance, as well as region-specific institutional factors and other forces behind spatial concentration of economic activities and company networking (agglomeration economics) can influence foreign investor's decision regarding location of business activities abroad.

During and after the 1990s, Croatia realized significant inflows of FDI what, in relative terms (GDP/capita) compares well with the most advanced transition countries and present members of the EU. However, the realized positive (structural and regional) impact of these capital flows on local economy is far below the expectations. FDI predominantly flew to economic activities which offered high profit margins (financial intermediation, telecommunications, pharmaceuticals and oil processing industry), thus disregarding the necessary technological improvements and the lack of new capital in some other sectors and activities (e.g. manufacturing). Similarly, regional distribution of FDI mostly followed the actual regional development pattern of Croatian counties, thus moving to more developed counties with better economic performance indicators and, hence bigger business opportunities. Grouping of Croatian counties into six regions according to their mutual similarity in FDI-indicators reveals strong correspondence between local economies' performance (in terms of sales, labour productivity, exports and net-wages) and the amount of inward FDI. This shows that while Croatian FDI-promotion legislation has been relatively successful in opening new jobs, it failed to distribute more evenly the benefits of foreign investments across region, so that the poor regions remained on the margins of foreign investors' interest for locating their businesses there. However, the new law, in force since the beginning of 2007, has more potential to change such situation and its main characteristics are sectoral and regional aspects which should help directing FDI to the underdeveloped sectors and the 'needed' regions. However, in order to make the law more effective in achieving the above objectives, further activities would be necessary at both national and regional level. These include further development of business climate and investment-friendly environment through reduction of administrative barriers and development of services specifically designed to assist foreign investor in the pre- and post-investment phase. Also, activities should be carried out in order to increase the number of local companies and improve their overall entrepreneurial activities, and support technological development as well as all forms of acquiring new knowledge and skills. Finally, institutional and legal conditions should be created to improve spatial agglomeration of economic activities aimed at creating business-linkages with local suppliers and consumers (e.g. through clusters, business and free zones, etc.). Macroeconomic stability and the prospects for EU-accession could only add further to the success in attracting FDI, both at regional and national level.

BIBLIOGRAPHY

Barrell, R., Pain, N., (1999), **Domestic institutions, agglomerations and foreign direct investment in Europe**, ***European Economic Review***, 43: 925-934.

Barrios, S., Strobl, E., (2002), **Foreign direct investment and productivity spillovers: Evidence from the Spanish experience**, ***Weltwirtschaftliches Archiv***, 138: 459-481.

Barry, F., Görg, H., Strobl, E., (2003), **Foreign direct investment, agglomerations and demonstration effects: An empirical investigation**, ***Review of World Economics***, 139: 583-600.

Bergstrand, J. H., Egger, P., (2007), **A knowledge-and-physical-capital model of international trade flows, foreign direct investment and multinational enterprises**, ***Journal of International Economics***, 73: 278-308.

Berköz, L., (2005), **Location determinants of foreign investors in Istanbul**, ***Journal of Urban Planning and Development***, 140-146.

Boudier-Bansebaa, F., (2005), **Agglomeration economies and location choice**, ***Economics of Transition***, 13: 605-628.

Bloningen, B. A., (2005), **A review of empirical literature on FDI determinants**, Conference Paper, International Atlantic Economic Society, April 2005, Philadelphia.

Brainard, L., (1993), **A simple theory of multinational corporations and trade with a trade-off between proximity and concentration**, National Bureau of Economic Research, Working Paper, No. 4269.

Brainard, L., (1997), **An empirical assessment of the proximity-concentration trade-off between multinational sales and trade**, ***American Economic Review***, 87: 520-544.

Braunerhjelm, P., Svensson, R., (1996), **Host Country Characteristics and Agglomeration in Foreign Direct Investment**, ***Applied Economics***, 28: 833-840.

Carstensen, K., Toubal, F., (2004), **Foreign direct investment in Central and Eastern European countries: A dynamic panel analysis**, ***Journal of Comparative Economics***, 32: 3-22.

Chidlow, A., Salciuviene, L, Young, S., (2009), **Regional determinants of inward FDI distribution in Poland**, ***International Business Review***, 18: 119-135.

Christie, E., (2003), **Foreign direct investment in Southeast Europe**, Wiener Institut für internationale Wirtschaftsvergleiche, Working Paper, No. 24, March 2003.

Clausing, K. A., Dorobantu, C. L., (2005), **Re-entering Europe: Does European Union candidacy boost foreign direct investment?**, ***Economics of Transition***, 13: 77-103.

Crozet, M., Mayer, T., Mucchielli, J.-L., (2004), **How do firms agglomerate? A study of FDI in France**, ***Regional Science and Urban Economics***, 34: 27-54.

Coughlin, C. C., Segev, E., (2000), **Location determinants of new foreign-owned manufacturing plants**, ***Journal of Regional Science***, 40: 323-351.

Du, J., Lu, Y., Tao, Z., (2008), **Economic institutions and FDI location choice: Evidence from US multinationals in China**, ***Journal of Comparative Economics***, 36: 412-429.

Dunning, J, H., (1997), **The European Internal Market Programme and Inbound Foreign Direct Investment**, ***Journal of Common Market Studies***, 35: 189-223.

Dunning, J. H., (1998), **Location and the multinational enterprise: A neglected factor?**, ***Journal of International Business Studies***, 29: 45-66.

Dunning, J. H., (1993), **International Enterprises and the Global Economy**, Addison-Wesley, Workingham.

DZS (Državni zavod za statistiku): **Statistički ljetopis Republike Hrvatske 2009**, Zagreb, 2010.

EBRD (European Bank for Reconstruction and Development): **Transition Report 2009: Transition in crisis**, London, 2009.

EBRD (European Bank for Reconstruction and Development): **Transition Report 2010: Recovery and reform**, London, 2010.

EC (European Commission): **Croatia 2010 progress report**, Commission staff working document, SEC (2010), 1326.

EUROSTAT (Statistical Office of the European Union), http://epp.eurostat.ec.[accessed: 20. December 2010].

Fidrmuc, J., Fidrmuc, J., (2003), **Disintegration and trade**, ***Review of International Economics***, 11: 811-829.

FINA (Financijska agencija): **Business indicators database**, 2011.

Friedman, J., Gerlowski, D. A., Silberman, J., (1992), **What attracts foreign multinational corporations? Evidence from branch plant location in the United States**, ***Journal of Regional Science***, 32: 403-418.

Girma, S., Greenaway, D., Wakelin, K., (2002), **Does antidumping stimulate FDI? Evidence from Japanese Firms in the UK**, ***Weltwirtschaftliches Archiv***, 138: 414-436.

Guimarães, P., Figueiredo, O., Woodward, D., (2000), **Agglomeration and the location of foreign diredt investment in Portugal**, ***Journal of Urban Economics***, 47: 115-135.

He, C., (2003**), Location of foreign manufacturers in China: Agglomeration economies and country of origin effects**, ***Papers in Regional Science***, 82: 351-372.

HNB (Hrvatska narodna banka): **FDI database**, 2011.

IMF (International Monetary Fund): **International financial statistics**, New York, March 2011.

Levy Yeyati, E., Stein, E., Daude, C., (2003), **Regional integration and the location of FDI**, Inter-American Development Bank, Working Paper, No. 492.

MINGORP (Ministarstvo gospodarstva, rada i poduzetništva): **Konačni prijedlog zakona o izmjenama i dopunama Zakona o poticanju ulaganja**, Zagreb, 2011.

MRRŠVG (Ministarstvo regionalnog razvoja, šumarstva i vodnog gospodarstva): **Odluka o razvrstavanju jedinica lokalne i područne (regionalne) samouprave prema stupnju razvijenosti**, www.mrrsvg.hr [accessed 10. January 2011].

MRRŠVG (Ministarstvo regionalnog razvoja, šumarstva i vodnog gospodarstva): **Uredba o indeksu razvijenosti**, www.mrrsvg.hr [accessed 10. January 2011].

Mullen, J. K., Williams, M., (2005), **Foreign direct investment and regional economic performance**, ***Kyklos***, 58: 265-282.

NN (Narodne novine): **Zakon o poticanju ulaganja**, No. 73, 2000, www.nn.hr [accessed 02. February 2011].

NN (Narodne novine): **Zakon o poticanju ulaganja**, No. 138, 2006, www.nn.hr [accessed 02. February 2011].

NVK (Nacionalno vijeće za konkurentnost): **Regionalni indeks konkurentnosti Hrvatske 2007**, Zagreb, 2008.

Tarzi, S., (2005), **Foreign direct investment flows into developing countries: impact of location and government policy**, ***Journal of Social, Politican and Economic Studies***, 30: 497-515.

Te Velde, D. W., (2001), **Foreign direct investment and factor prices in U.S. manufacturing**, ***Weltwirtschaftliches Archiv***, 137: 622-643.

UNCTAD (United Nations Conference on Trade and Development), Database on FDI, www.unctad.org, [accessed: 05. February 2011].

UNCTAD (United Nations Conference on Trade and Development): **World Investment Report 2010: Investing in a low-carbon economy**, New York, 2010.

Wang, Z. Q., Swain, N. J., (1995), **The determinants of foreign direct investment in transforming economies: empirical evidence from Hungary and China**, ***Weltwirtschaftliches Archiv***, 131: 359-382.

WIIW (Wiener Institut für internationale Wirtschaftsvergleiche): **Handbook on statistics: Countries in transition 2009**, Vienna, 2009

ANNEX

Table A1. Net-inflows of FDI in five most important economic activities of Croatian counties; NACE 2002 (% of total net-inflows of FDI), 1993-2010.

economic activity	%	economic activity	%
Bjelovarsko-bilogorska county		**Brodsko-posavska county**	
26 Manuf. of other non-metallic mineral products	43,0	**28** Metal prod., without machinery and equip.	70,6
15 Manuf. of food and beverages	34,8	**40** Electricity, gas, steam and hot water supply	11,1
74 Other business activities	5,6	**45** Construction	4,9
18 Manuf. of clothes, finishing and dying of fur	5,4	**27** Manuf.of basic metals	4,1
70 Real estate activities	4,0	**20** Manuf. of wood and prod, without furniture	3,2
Dubrovačko-neretvanska county		**Istarska county**	
70 Real estate activities	47,0	**26** Manuf. of other non-metallic mineral products	36,9
55 Hotels and restaurants	35,5	**70** Real estate activities	18,1
51 Wholesale and trade intermediation	15,6	real estate investments	16,9
45 Construction	2,9	**92** Recreational, culture and sports activities	3,2
25 Manuf. of rubber and plastic products	0,4	**18** Manuf. of clothes, finishing and dying of fur	3,0
Karlovačka county		**Koprivničko-križevačka county**	
15 Manuf. of food and beverages	72,8	**15** Manuf. of food and beverages	74,1
25 Manuf. of rubber and plastic products	21,0	**21** Manuf. of pulp, paper and paper products	15,2
29 Manuf. of machinery and equipment	13,2	**26** Manuf. of other non-metallic mineral products	7,5
24 Manuf. of chemicals and chemical products	4,5	**74** Other business activities	1,2
45 Construction	2,9	**20** Manuf. of wood and prod, without furniture	0,9
Krapinsko-zagorska county		**Ličko-senjska county**	
26 Manuf. of other non-metallic mineral products	70,2	real estate investments	42,5
28 Metal prod., without machines and equipment	16,3	**28** Metal prod., without machines and equipment	29,1
21 Manuf. of pulp, paper and paper products	9,2	**55** Hotels and restaurants	19,4
17 Manuf. of textile	9,1	**27** Manuf. of basic metals	9,2
55 Hotels and restaurants	3,0	**14** Other mining and quarrying	4,3
Međimurska county		**Osječko-baranjska county**	
17 Manuf. of textile	88,1	**21** Manuf. of pulp, paper and paper products	46,9
15 Manuf. of food and beverages	22,0	**18** Manuf. of clothes, finishing and dying of fur	10,9
19 Manuf. of leather and related products	5,1	**51** Wholesale and trade intermediation	9,5
70 Real estate activities	4,9	**29** Manuf. of machinery and equipment	9,4
27 Manuf. of basic metals	3,6	**15** Manuf. of food and beverages	8,8
Primorsko-goranska county		**Požeško-slavonska county**	
65 Fin. intermed., except insurance & pens. funds	48,4	**29** Manuf. of machinery and equipment	54,2
70 Real estate activities	18,5	**26** Manuf. of other non-metallic mineral products	27,3
55 Hotels and restaurants	7,9	**01** Agriculture, hunt and related activities	12,9
real estate investments	7,1	real estate investments	4,6
52 Retail trade and repair of household items	5,3	**50** Trade of motor vehicles, repair	0,7
Sisačko-moslavačka county		**Šibensko-kninska county**	
15 Manuf. of food and beverages	57,3	**26** Manuf. of other non-metallic mineral products	40,5
26 Manuf. of other non-metallic mineral products	26,8	real estate investments	27,3
70 Real estate activities	17,5	**55** Hotels and restaurants	10,3
11 Extraction of crude petroleum and natural gas	17,4	**40** Electricity, gas, steam and hot water supply	6,2
51 Wholesale and trade intermediation	8,6	**52** Retail trade and repair of household items	4,7
Varaždinska county		**Vukovarsko-srijemska county**	
65 Fin. intermed., except insurance & pens. funds	30,8	**29** Manuf. of machinery and equipment	59,9
19 Manuf. of leather and related products	29,2	**40** Electricity, gas, steam and hot water supply	34,0
17 Manuf. of textile	16,8	**24** Manuf. of chemicals and chemical products	17,4
26 Manuf. of other non-metallic mineral products	5,6	**20** Manuf. of wood and prod, without furniture	2,7
24 Manuf. of chemicals and chemical products	5,2	**18** Manuf. of clothes, finishing and dying of fur	0,2
Virovitičko-podravska county		**Splitsko-dalmatinska county**	
01 Agriculture, hunt and related activities	254,0*	**65** Fin. intermed., except insurance & pens. funds	41,3
20 Manuf. of wood and prod, without furniture	10,7	**70** Real estate activities	11,7
70 Real estate activiti	9,2	**26** Manuf. of other non-metallic mineral products	11,2

45 Construction	2,0	**55** Hotels and restaurants	7,7
65 Fin. intermed., except insurance & pens. funds	0,5	**34** Manuf.of motor vehicle., trailers&semi-trailers	5,0
Zadarska county		**Zagrebačka county**	
65 Fin. intermed., except insurance & pens. funds	53,3	**52** Retail trade and repair of household items	39,5
61 Maritime transport	16,2	**74** Other business activities	12,0
25 Manuf. of rubber and plastic products	10,6	**26** Manuf. of other non-metallic mineral products	6,7
real estate investments	7,1	**70** Real estate activities	5,2
35 Manuf. of other transport equipment	6,3	**01** Agriculture, hunt and related activities	4,9
City of Zagreb			
65 Fin. intermed., except insurance & pens. funds	40,1		
51 Wholesale and trade intermediation	13,8		
23 Manuf. of coke and refined petroleum products	8,7		
64 Postal and telecommunication services	7,0		
24 Manuf. of chemicals and chemical products	6,0		

***** *Data are originally given as net-FDI flows and due to negative balance of some economic activities, the positive balance of some other activities can lead to individual shares which exceed 100%.*

Source: HNB, 2011.

Table A2. Comparative analysis of Croatian FDI-promotion legislation (2000, 2006).

<table>
<tr><th>category</th><th>first FDI-promotion law (2000)</th><th colspan="4">new FDI-promotion law (2006)</th></tr>
<tr><td>amount of invested capital</td><td>min. HRK 4 mn</td><td colspan="4">min. EUR 300.000 (app. HRK 2,2 mn)</td></tr>
<tr><td>qualified investment costs (QIC)</td><td>- capital, rights and liabilities of capital stock</td><td colspan="4">a) real assets and equipment,
b) intangibles (up to 50% of a)),
c) cost of hiring (gross wages for 2 years)</td></tr>
<tr><td>incentive holders</td><td>- new companies with the exception of existing companies in tourism</td><td colspan="4">a) new company,
b) investments in existing companies,
c) investments in new products or production process (rationalization, diversification, modernization)</td></tr>
<tr><td>economic activities</td><td>- not specified (all activities)</td><td colspan="4">a) manufacturing,
b) technology-intensive activities,
c) business support activities</td></tr>
<tr><td>amount of incentive</td><td>- max. 100% of QIC</td><td colspan="4">a) max. 50% of QIC for big enterprises,
b) max. 60% of QIC for medium enterprises,
c) max. 70% of QIC for small enterprises</td></tr>
<tr><td>incentives for job creation</td><td>- HRK 15.000 for each newly employed</td><td>county unemployment rate</td><td>incentive (% of the hiring costs)</td><td>incentives for strategic business support services</td><td>incentives for technology R&D-centres</td></tr>
<tr><td></td><td></td><td>- 10%</td><td>10% - max. EUR 1.500</td><td>35% - max. EUR 1.875</td><td>85% - max. EUR 2.250</td></tr>
<tr><td></td><td></td><td>10-20 %</td><td>15% - max. EUR 2.000</td><td>40% - max. EUR 2.500</td><td>90% - max. EUR 3.000</td></tr>
<tr><td></td><td></td><td>20% -</td><td>20% - max. EUR 3.000</td><td>45% - max. EUR 3.750</td><td>95% - max. EUR 4.500</td></tr>
<tr><td>incentives for education</td><td>- max. 50% of the cost for education or re-training</td><td rowspan="2">type</td><td colspan="3">incentive (% of QIC)</td></tr>
<tr><td></td><td></td><td colspan="2">big enterprises</td><td>small/medium enterprises</td></tr>
<tr><td></td><td></td><td>general</td><td colspan="2">max. 60%</td><td>max. 80%</td></tr>
<tr><td></td><td></td><td>specialized</td><td colspan="2">max. 35%</td><td>max. 45%</td></tr>
<tr><td>tax incentives</td><td>- reduction of the profit tax from 20% to 7%, 3% and 0% depending on the invested capital amount and new jobs created</td><td>amount</td><td>new jobs</td><td>max. duration (years)</td><td>reduced tax rate</td></tr>
<tr><td></td><td></td><td>EUR 0,3-1,5 mn</td><td>10</td><td>10</td><td>by 50%</td></tr>
<tr><td></td><td></td><td>EUR 1,5-4 mn</td><td>30</td><td>10</td><td>by 65%</td></tr>
<tr><td></td><td></td><td>EUR 4-8 mn</td><td>50</td><td>10</td><td>by 85%</td></tr>
<tr><td></td><td></td><td>EUR 8 - mn</td><td>75</td><td>10</td><td>by 100%</td></tr>
<tr><td>tariff incentives</td><td>- 0%-tariff on imports from chapters 84.-90. of the Customs tariff</td><td colspan="4">- 0%-tariff on imports from chapters 84.-90.of the Customs tariff (until accession in the EU)</td></tr>
<tr><td>big investments – projects of special interest</td><td>- not foreseen</td><td colspan="4">- counties with unemployment rate above 20%
- includes: investments in fixed assets (min. EUR 15 mn), opening of at least 100 new jobs, creation of new technologies
<table><tr><th>type of incentive</th><th>incentive (% of QIC)</th></tr><tr><td>- new plant
- new equipment</td><td>5% - max. EUR 1 mn</td></tr><tr><td>- infrastructure
- infrastructure connections</td><td>5% - EUR 0,5 mn</td></tr></table></td></tr>
</table>

Source: NN, 2000, 2006

Table A3. Classification of Croatian counties according to regional development index, 2011.

county	development index (standardized) (%)
1. group: up to 75% of Croatian average ***(supported areas)***	
Virovitičko-podravska*	20,51
Vukovarsko srijemska*	20,57
Brodsko-posavska*	33,36
Bjelovarsko-bilogorska	35,17
Požeško-slavonska*	43,95
Sisačko-moslavačka*	48,50
Osječko-baranjska*	52,88
Karlovačka*	54,52
Ličko-senjska*	55,48
Šibensko-kninska*	63,30
Koprivničko-križevačka	64,32
2. group: 75-100% of Croatian average	
Međimurska	75,11
Zadarska*	75,59
Krapinsko-zagorska	87,72
Splitsko-dalmatinska	89.09
Varaždinska	96,30
3. group: 100-125% of Croatian average	
Dubrovačko-neretvanska	107,93
Zagrebačka	123,22
4. group: more than 125% of Croatian average	
Primorsko-goranska	142,32
Istarska	156,13
City of Zagreb	187,54

* Up to year 2000 these counties offered more favourable conditions for doing business and investments (mostly through tax concessions) as 'regions of special state concern.

Source: MRRŠVG, 2011.

THE ROLE OF THE GOVERNANCE IN COMPETITIVENESS GROWTH
/Two Cases: Slovenia and Croatia/

Mirjana Dragičević
Full Professor, Faculty of Economics and Business Zagreb
Trg J.F. Kennedya 6
Phone: +385 1 238 3180; Fax: +385 1 233 5633
E-mail: mdragicevic@efzg.hr

Paula Letunić
Teaching and Research Assistant, Faculty of Economics and Business Zagreb
Trg J.F. Kennedya 6
Phone: +385 1 238 3129; Fax: +385 1 233 5633
E-mail: pletunic@efzg.hr

Velibor Mačkić
Teaching and Research Assistant, Faculty of Economics and Business Zagreb
Trg J.F. Kennedya 6
Phone: +385 1 238 3129; Fax: +385 1 233 5633
E-mail: vmackic@efzg.hr

Key words: *Governance, "Good" governance, Competitiveness growth, Governance quality, Governance efficiency*

ABSTRACT

The purpose of this paper is to analyse and explain the role of the governance in competitiveness growth in two small countries. Governance matters significantly in the last fifteen years and it became a key issue of strategies and policies for competitiveness growth and economic development, throughout the world. "Good" governance is just the part of the conditionality policies created by international organisations that throughout this concept standardised government's functions. The strategic capability of the governments that govern the competitiveness building in a country, should be based on its governance competence in creating strategic vision, strategies, followed by policies, instruments and actions.

In the first part of the paper the role of the governance in competitiveness growth would be analysed. The analysis would critically evaluate the concept of "good" governance.
In the second part, comparative analysis of the governance quality in Slovenia and Croatia should be carried out. It will be based on the sub-indexes of the international competitiveness indexes (WEF, IMD), dealing with the quality of governance, and on the Worldwide Governance Indicators, both during the period 1996-2009. The third part of the paper will present the research results taken by authors (2008-2010). The research is based on the evaluation of the results of the questionnaires dealing with the problem of the governance and competitiveness growth in Croatia.

1. INTRODUCTION

The concept of governance is wider than that of government. The latter conventionally refers to the formal institutional structure and location of authoritative decision-making in the modern state. Governance, on the other hand, refers to a looser and wider distribution of both internal and external political and economic power. In this broad sense, governance denotes the structures of political and, crucially, economic principles, relationships and rules by which the total productive and distributive life of a society is governed. In broad terms, governance is about the institutional environment in which citizens interact among themselves and with government agencies/officials.

The role of governance is a central concept for understanding the process development in last fifteen years, and it is also considered as the crucial factor to support competitiveness growth. However, apart from the universal acceptance of its importance, differences prevail in respect to theoretical formulations, policy prescriptions and conceptualization of the subject itself.

All transition countries of Central and Eastern Europe and EU candidate states in general, during the last fifteen years, have adopted the most up-to-date legal frameworks as standardised preconditions for governance building.

Governance was (and still is) of a crucial importance for competitiveness growth in transition countries. Most of them were lagging behind the developed countries, according to their competitiveness achievements. The governments were the key "players" that created, or missed to create, the prerequisites and the environment: institutional, legal etc., for competitiveness growth. According to this fact, the achievements in their competitiveness level could be explained by their "good" or "bad" governance. Most countries introduced the "good" governance concept as the result of the pressure from the outside (international organizations), but their recent history demonstrates that some of them created strategic capacity to govern (strategic governance) the competitiveness growth according to the country's specific opportunities and threats (the case of Slovenia) and some of them have demonstrated the lack of such a capacity, and slowly and mostly formally adopted some of good governance functions (the case of Croatia).

In this paper the focus is to compare the achievements in governance strengths or weaknesses that encouraged or discouraged the competitiveness growth in Slovenia and Croatia.

2. THEORETICAL FRAMEWORK OF GOVERNANCE AND "GOOD GOVERNANCE"

2.1. Governance

Governance as a term was introduced in the literature in the early 1980s, when in the developed countries the conceptual and organisational shift form "public administration" to "new public management" took place (Dunleavy and Hood, 1994). Management principles from the private sector were implemented to public sector deliveries.

Swilling (1997) asserts that the term governance is defined in a number of different ways in the literature. He identifies four basic positions. First, the crude prescriptive positions of many international development agencies equate "good governance" with the classic liberal

democratic model (Swilling, 1997:4). The second focuses on state-society relations. The third views governance as an ideological device chosen by post-Cold War Western Governments to mask the imposition of capitalist market policies. The fourth approach goes beyond the first three normative and critical approaches by attempting to theorize the "governance realm". (Swilling, 1997:5).

Some scientists define governance in a very simple way, as the level of quality of government. In contrast, World Bank (WB) and United Nations Development Program (UNDP) use a normative approach to describe governance and "good" governance, focusing on state capabilities, building institutions, strengthening capacities, encouraging transparent activities and management factors to promote competitiveness growth and social activities.

According to UNDP (1995), governance is defined as "…the exercise of economic, political and administrative authority to manage a country's affairs at all levels. It comprises mechanisms, processes and institutions, through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations and mediate their differences". It ensures that political, social and economic priorities are based on broad consensus in society and that all groups in society participate in decision making process over the allocation resources which support competitiveness growth and sustainable and balanced development.

As it is mentioned, UNDP's definition of governance encompasses the state, private sector and civil society as equally important factors for competitiveness growth and sustainable development. The role of the state is recognized through creating stable political and legal environment, while civil society institutions and organizations promote building and strengthening social capital in economic, social and political activities.

The World Bank defines governance as "…the manner in which power is exercised in the management of a country's economic and social resources for development." (WB, 1992:1) This definition implies that the concept of governance is related directly with the management of the development process, involving both the public and the private sectors. The role of the governance is central to creating and sustaining an environment which fosters strong and equitable development and it is an essential complement to sound economic policies". (WB, 1992, 1994, 1997)

Governance building is a complex two stage process, which includes creating or strengthening core governmental institutions such as the security apparatus, judiciaries, economic agencies, and social-welfare systems, including education and health care. (Fukuyama, 2004) The first phase covers country's stabilization by establishing law and order and rebuilding basic infrastructure. After implementing the first phase, second phase should follow by creating self-sustaining political and economic institutions that will ultimately permit governance and economic growth to take place (WB, 2000). Finally, the governance deficit is a problem not only in weak and failed states. Many functioning states also face challenges to effective governance. To reverse this process and consolidate governance and the rule of law, requires building state capacity.

The governance deficit that characterizes so many developing and transitional countries, weak and arbitrary governance, weak protection of civil liberties, and inadequate regulatory and legal framework to guarantee property rights, enforce contracts, and reduce the transaction costs deprive these countries of needed productive investment and economic growth.

Analyzing the context for change directs attention to existing state capacities, while the content of the proposed intervention determines the ease or difficulty of undertaking such changes. Two analytical frameworks are helpful in this regard: one that focuses on assessing the strengths and weaknesses of states and the other that provides insight into the sources of change that might exist in particular environments. As the notion of fragile states suggests, states differ in terms of their institutions, organization and legitimacy. At a very general level, weak states are characterized by low structural/institutional stability, low organizational capacity, and strongly questioned legitimacy. In contrast, stronger states demonstrate higher levels of structural/institutional stability, organizational capacity and legitimacy. It is reasonable to assume that such characteristics set the general constraints within which governance interventions can be successfully introduced and carried out. Thus, practitioners concerned about matching interventions to the characteristics of particular countries might begin by assessing the strength and coherence of the state in the particular country. (WB, 1997a, 2000).

2.2. "Good" governance

From a broad systemic point of view, the concept of governance is wider that that of government. (Leftwich, 2000:118) A neutral reading would suggest that regimes may differ greatly and hence cultures of governance may also do. But there can be little doubt that standing behind much of the rhetoric and apparently neutral technical language surrounding the concept of "good" governance in current development usage has been this wider, normative and systemic understanding of the term. Quite simply, it means a democratic capitalist regime presided over by a minimalist state which is part of the wider governance of the new world order. (Leftwich, 2000: 118-119)

Since there is no universal definition of governance and the perception of governance may differ among countries at different levels of development, there are four important dimensions for "good" governance that are common and universally recognized: accountability, participation, predictability, and transparency. Accountability refers to the imperative to make public officials answerable for government behaviour as well as responsive to the entity from which they derive their authority. The principle of participation derives from the acceptance that people are the centre of development. People need to have access to the institutions that promote it. Predictability refers to the existence of laws, regulations, and policies to regulate society and their fair and consistent application. Transparency refers to the availability of information to the general public and clarity about government rules, regulations and decisions (OECD, 1995). These four elements of "good" governance are considered as „four pillars, which are universally applicable regardless of the economic orientation, strategic priorities on policy choices of the government". (WB, 1994, 2000)

Literature review shows that above mentioned recommendations can be divided in two groups the general and the substantive. The general recommendations emphasize "capacity development," which includes both the building of effective states, and an empowered and responsive society which can hold states accountable for their actions. The reports emphasize that inadequate governance may not always be the result of corrupted leadership, but because the state may suffer from weak formal political institutions and lack the resources and capacity to manage an efficient public administration. However, it should be clear that "good" governance cannot be provided on the implementation of bureaucratic and administrative policies. (Sharma, 2007)

The contemporary origins as well as the evolution of the current concerns for governance are well documented in the literature from different perspectives (Leftwich, 2000; Demeke, 2000; Doornbos, 2004; Whitman, 2005). For instance in the British context, Whitman traces the "development' of the 'governance" concept to the publication of a book by former Prime Minister Harold Wilson titled*: The Governance of Britain* (Whitman, 2005:16). According to Leftwich (2000:109-116), the origins and emergence of the concern with "governance" can be attributed to the following four factors.

The first is the experience of structural adjustment in the 1980s and the set of policies of structural adjustment. It involved stabilization, for instance, devaluation and drastic public expenditure cuts; as well as adjustment which sought to transform economic structures and institutions through varying doses of deregulation, privatization, dismantling or diminishing allegedly over-sized and rambling public bureaucracies, reducing subsidies (Leftwich, 2000:10). However instead of being a purely technical/technocratic measure, structural adjustment turned out to be highly political because it resulted in "winners" and "losers". The experience with adjustment in the 1980s confronted the international institutions and bilateral donors with the reality of incompetent and often corrupt government in many developing counties (Leftwich, 2000:111).

Modern administrative development is characterised by two influential doctrines – the new public management and the "good" governance. The new public management doctrine has been very influential. Among the principles of the good governance, the EU emphasises openness, participation, responsibility, effectiveness, and coherency. The new doctrinal orientation emphasises the role of the citizens and civil society, transparency, legitimacy, responsibility, efficiency, human and citizens' rights, the rule of law, better quality of the public services, implementation of the modern information-communication technologies, and better human resources management. Citizens are seen as partners who significantly contribute to the final results of public administration's activities. Citizens need to be informed and consulted; they have to participate in the creation of public policies and in administrative and other public processes (OECD, 2001). Along with the strengthening of the institutional capacity, the doctrine of the good governance states that it is necessary to renew the democratic political legitimacy of the modern countries. It also calls for the strengthening of the policy capacity in public administration, i.e., of its ability to analyse and create public policies. It claims that good results can be achieved through cooperation, supplementation, and harmonisation of the citizens and local self-government and/or central government. Only well-balanced and widely accepted public policies can result in efficient economic and social development. All in all, "good governance is … a combination of democratic and effective governance". (UNDP, 2002: 1).

"Good" governance as participatory politics and (sometimes) democratic government involves a more limited and political meaning of the concept of "good" governance. It also explicitly means a state enjoying legitimacy and authority, derived from a participatory (not always democratic) mandate and built on the traditional liberal notion of a clear separation of legislative, executive and judicial powers. (Leftwich, 2000: 119) "Good" governance as managerial/administrative efficiency and probity. Leftwich asserts that this level represents the lowest, narrowest and most universal common denominator of meaning and usage of the term "good" governance. It is presented (at least from the perspective of the World Bank) as being detached from political considerations (Leftwich, 200:120-121). The World Bank thus focuses on following areas of public administration:

- Accountability;

- A legal framework for development;.
- Information about economic conditions, budgets, markets, and government intentions must be reliable and accessible to all.

All these involves a call for open government, to enhance accountability, limit corruption and stimulate consultative processes between government and the private interests over policy development.

The concept of "good" enough governance provides a platform for questioning the long menu of institutional changes and capacity building initiatives currently deemed important for development. (Grindle, 2007:554)

The importance of governance, and "good governance", in particular, is also recognized in many reports of international organizations. One of the most cited reports that is dealing with the problem of governance, is the United Nations Millennium Project, focusing on the governance of middle income and transitional economies. However, the reports provide little prioritization or guidance for the "good" governance implementation. Also, their approach provides "one size fits all" recommendations, despite the that fact that governance reforms share similarities, but mostly differences, so they should be created and implemented on the country by country basis. (WB, 1997a, 2000, Sharma, 2007)

It should be underlined that the concept of "good" governance is much larger than ordinary administrative reforms, coordination activities and providing technical support. "Good" governance has much to do with the ethical grounding of governance and must be evaluated with reference to specific norms and objectives as may be laid down. Institutional quality, fostered by the government, is therefore necessary to provide a suitable environment for competitiveness growth and development. It raises the confidence of economic agents in the performance of the system in which they operate and gives them incentives to participate in the processes. (Stern et al., 2002:8)

The assumption of the good governance as an important prerequisite for growth is confirmed by the study of Kaufmann and Kraay (2002 and 2003). Their results show not only that governance, i.e. the quality of governance, exerts important influence on medium and long-term growth. The other results point to the conclusion that improvements in the area of governance do not occur only due to the developmental process. In other words, high growth does not entail an improved quality of governance by itself. In accordance to that result, to achieve and improve medium and long-term sustainable levels of growth, the governments have to consciously intervene into structures, processes, institutions, and actors that constitute the state apparatus.

Empirical evidences show, that there is no universal concept of good governance that all successful developing countries have shared. It is also proven that success of governance model implementation in the leading developing countries is primary based on the creativity and strategic vision of domestic capacities not on standardized directions given by the international organizations. The existence of sustained pressure to improve governance is both necessary and desirable but expected results can be achieved only if the governance capacities required for accelerating and sustaining growth are built/created and implemented. Nevertheless, it is clear that governance reforms must be part of sustainable development strategies, not as external conditionality that countries must meet as preconditions for financial support. The challenge for developing countries is to create feasible governance reform agendas appropriate for their own circumstances. The current governance agendas and

strategies proposed by the international organizations do not achieve expected outcomes and may even be doing damage by setting unachievable targets for developing countries and diverting attention from critical governance reforms.

North (1995) points out that every market is different and, to work efficiently, each market must find the right mix of formal and informal rules and the appropriate enforcement mechanisms. Therefore, economic performance is determined not only by the kind and quality of institutions that support markets, but also it depends largely on "adaptive efficiency" or the political system's effectiveness in creating institutions that are productive, stable, fair, broadly accepted, and flexible enough to be changed or replaced in response to political and economic feedback.

3. GOVERNANCE AND COMPETITIVENESS GROWTH IN SLOVENIA AND CROATIA

3.1. Comparison of governance quality

Although, Croatia and Slovenia, two small neighbouring countries, started the transition to a free market economy, at the similar economic development level, in the governance quality and in the global competitiveness comparison they greatly differ in their achievements.

Today, Slovenia is the EU member country with stabile macroeconomic situation and with the respective global competitive position, and, Croatia is highly lagging behind Slovenia. In Croatia from the beginning of the transition until now, there is a huge influence of politics on economy development. From 1990 to 2001, public administration in Croatia developed in the conditions of etatization, centralisation and politicisation of an authoritarian type. Besides an ever-increasing number of civil servants, the characteristics of this period were an insufficient level of professionalism of administrative personnel and politicization of administrative services. Democratic political values were repressed, while law was regarded as the mere instrument of politics. The lack of co-ordination was compensated for by arbitrary, *ad hoc* political interventions. Political-administrative system was closed and bureaucratised, imbued with the climate of secrecy. (Koprić, 2001) Before the first significant reform of the territorial administrative system in 1993, the Croatian state administration had passed through a number of frequent changes and poorly conceived and executed reorganizations characterised by political voluntarism. The model of governance according to the aforementioned characteristics of the "good" governance model should be characterised as the "bad" governance.

Most reforms were externally driven in Croatia. In Slovenia the reforms emerged from the insider's knowledge, government competence and comprehensive strategies. Slovenia developed the institutions necessary for the competitiveness growth, and this structure in Croatia is still not completely developed. Slovenia not only developed "good" governance model, but in its competitiveness growth achievements it demonstrates the strategic competence of its governance model.

3.2. Comparison of governance quality and competitiveness growth

There are extensive studies that show strong correlation between long-term economic performance and "good" governance. In other words, the quality of governance fundamentally determines long-run developmental outcomes.

In 1999 Kaufmann, Kraay and Zoido-Lobaton devised six aggregate governance indicators (Kaufmann, Kraay and Zoido-Lobaton, 1999). They defined governance as traditions and institutions by which authority in a given country is exercised. In fact, six governance indicators are six clusters aimed at capturing how governments are selected, monitored, and replaced; a government's capacity to formulate and implement sound policies; and the respect of citizens and the state for the institutions that govern them. The six measured indicators are: Voice and Accountability; Political Stability and Absence of Violence; Government Effectiveness; Regulatory Quality; Rule of Law; and Control of Corruption. These indicators are based on several hundred variables obtained from 31 different data sources, capturing governance perceptions as reported by survey respondents and public, private and NGO sector experts. The authors conclude that good governance matters, and it is not only critical to development but also that it is the most important factor in determining whether a country has the capacity to use resources effectively to promote competitiveness growth.

Their results show not only that the quality of governance exerts important influence on medium and long-term growth. The other result of the study, points out that improvements in the area of governance do not occur only due to the developmental process, and do not occur spontaneously, which implies that they should be created and implemented individually. According to mentioned above, to achieve and improve medium and long-term sustainable levels of growth the role of governance is to intervene into structures, processes, institutions, and actors that constitute the state infrastructure. (Kaufmann et al., 2002, 2009)

Governance indicators are important measure for this analysis due to the fact that governments had the decisive influence on the development paths in both countries after their independence in the 1990s.

The indicator Voice and Accountability (Table 1) shows ability of country's citizens to participate in selecting their governments. In addition it also represents freedom of expression, association and a free media. In the observed time period, this indicator constantly improved (until 2004), in Croatia, while in Slovenia the situation is more stable with small deterioration in last three years. In the whole period the indicator was significantly higher in Slovenia, but the gap (more than twice worse situation in Croatia in 1996) lowered in 2009, and was less than 20 per cent.

Table 1. The Worldwide Governance Indicators – Voice and Accountability.

Worldwide Governance Indicators	**Croatia**	**Slovenia**
	Voice and Accountability*	**Voice and Accountability***
1996	37,3	82,3
1998	40,4	87,0
2000	61,1	82,7
2002	62,5	83,7
2003	64,9	87,5
2004	71,6	84,6
2005	63,9	82,7
2006	61,1	85,1
2007	61,1	83,7
2008	62,5	77,4
2009	64,9	76,3

*rang in percentiles
Source: The World Bank Group, 1998 – 2010, Worldwide Governance Indicators.

The indicator representing the process by which governments are selected, monitored and replaced and that captures perceptions of the likelihood that the government will be

destabilized by unconstitutional or violent means is Political Stability and Absence of Violence.

Table 2. The Worldwide Governance Indicators – Political Stability and Absence of Violence.

Worldwide Governance Indicators	Croatia	Slovenia
	Political Stability and Absence of Violence*	Political Stability and Absence of Violence*
1996	40,4	80,3
1998	49,0	84,6
2000	57,2	78,4
2002	62,0	88,0
2003	59,1	88,0
2004	62,5	81,3
2005	59,6	81,3
2006	63,0	82,7
2007	67,3	85,1
2008	66,5	88,0
2009	67,5	77,4

*rank in percentiles
Source: The World Bank Group, 1998 – 2010, Worldwide Governance Indicators.

Again, the situation during the whole period is stable and significantly better in Slovenia, while the gap between two countries is not so high : less than 100 per cent in 1996, less than 15 per cent in 2009).

Quality of public and civil services and the degree of its independence from political pressures, quality of policy formulation and implementation, credibility of the government's commitment to such policies are all factors whose perception is captured by the indicator Government effectiveness.

Table 3. The Worldwide Governance Indicators – Government Effectiveness.

Worldwide Governance Indicators	Croatia	Slovenia
	Government Effectiveness*	Government Effectiveness*
1996	55,8	81,6
1998	59,2	83,5
2000	64,1	77,7
2002	66,0	81,1
2003	66,0	83,5
2004	70,4	80,6
2005	69,9	78,2
2006	70,4	82,0
2007	68,6	82,6
2008	70,0	84,1
2009	70,5	84,3

*rang in percentiles
Source: The World Bank Group, 1998 – 2010, Worldwide Governance Indicators.

With the exception of 2007 Croatia has shown continuous improving of the indicator that resulted in almost 15 percentiles better perception in 2009 than in 1996. On the other hand, Slovenia has also a clear advantage in this composite indicator with respect to Croatia. Its Government effectiveness is perceived above 80 percentiles in all years (except 2005), clearly indicating that the government's credibility in policy formulation and implementation together with the quality of public services is at the highest possible level regardless of the political changes at the top of the government.

The indicator capturing the capacity of the government to effectively formulate and implement sound policies is referred to as Regulatory quality. This indicator is especially important in the light of regulations that permit and promote private sector development.

Table 4. The Worldwide Governance Indicators – Regulatory Quality.

Worldwide Governance Indicators	Croatia	Slovenia
	Regulatory Quality*	Regulatory Quality*
1996	47,8	81,0
1998	50,2	85,4
2000	51,7	74,6
2002	62,9	75,6
2003	65,4	75,6
2004	68,8	76,1
2005	65,4	72,2
2006	63,4	72,7
2007	64,6	74,3
2008	65,2	75,4
2009	68,1	77,1

*rang in percentiles

Source: The World Bank Group, 1998 – 2010, Worldwide Governance Indicators.

Croatia started from almost twice worse starting position managed to improve its perception reaching its maximum value in the 2009, while Slovenia actually slightly weakened its reaching 77,1 percentile in 2009 as opposed to 81,0 percentiles in 1996. This indicator demonstrates the lowest gap between two countries. In the whole period, the regulatory quality is higher in Slovenia.

Indicator showing quality of contract enforcement, property rights, the police and the courts is the Rule of Law

Table 5. The Worldwide Governance Indicators – Rule of Law.

Worldwide Governance Indicators	Croatia	Slovenia
	Rule of Law*	Rule of Law*
1996	31,9	83,8
1998	50,5	88,1
2000	57,1	83,3
2002	56,7	82,9
2003	57,1	82,9
2004	59,5	83,3
2005	56,7	77,1
2006	53,3	77,6
2007	55,2	81,0
2008	56,5	82,8
2009	60,4	84,0

*rang in percentiles

Source: The World Bank Group, 1998 – 2010, Worldwide Governance Indicators.

This indicator represents the "Achilles heal" of Croatia. By barely reaching 60 percentiles in 2009 as opposed to Slovenia's 84,0 percentile (which is above 80 percentile almost in the entire observed time period) we can clearly see the respect of citizens and the state for the institutions that govern economic and social interactions. Negative effects of such a

perception are one of the reasons of poor competitiveness level that Croatia currently has achieved.

Even worse situation in Croatia is visible when comparing Control of corruption between the two countries. The extent to which public power is exercised for private gain, as well as "capture" of the state by elites and private interests is the worst perceived indicator by the survey respondents and public, private and NGO sector experts. In addition to the lowest perceived level in 1996 out of all six indicators Croatia unfortunately still has not made significant progress in this area, hence the level of control of corruption even in 2009 has not been perceived above 60 percentiles. Perceived levels in Slovenia in the same time period vary between 87,4 and 79,2 percentiles, in each case significantly above levels in Croatia.

Table 6. The Worldwide Governance Indicators – Control of Corruption.

Worldwide Governance Indicators	**Croatia**	**Slovenia**
	Control of Corruption*	**Control of Corruption***
1996	20,9	87,4
1998	40,3	85,9
2000	57,8	80,1
2002	64,1	81,6
2003	57,8	82,0
2004	61,2	85,0
2005	61,2	80,1
2006	60,7	83,5
2007	60,4	81,6
2008	60,4	79,2
2009	58,6	81,4

*rank in percentiles

Source: The World Bank Group, 1998 – 2010, Worldwide Governance Indicators.

Comparing competitiveness ranking between two countries (IMD, 2006-2010), that is based on four clusters: Economic performance, Government efficiency, Business efficiency and Infrastructure, while Government efficiency is measured through sub-factors: Public finance, Fiscal policy, Institutional framework, Business legislation and Societal framework.

Table 7. World Competitiveness Yearbook – Croatia and Slovenia.

	Croatia				
	Overall performance	**Economic performance**	**Government efficiency**	**Business efficiency**	**Infrastructure**
2006	51	48	48	53	43
2007	53	50	50	55	43
2008	49	40	50	51	40
2009	53	43	51	55	41
2010	56	53	55	58	42
	Slovenia				
	Overall performance				
2006	39	33	43	44	32
2007	40	24	43	43	33
2008	32	25	43	32	29
2009	32	21	38	39	27
2010	52	42	53	57	34

Source: IMD, 2006 – 2009, World Competitiveness Yearbook.

Data confirm that Croatia is lagging behind Slovenia in competitiveness rankings in the observed time period. Moreover, out of the 58 countries, Croatia has "secured" 56th place in the rankings (a drop by 3 places from 2010/09). Slovenia drastically worsened its position: 32 rank 2009 to 52nd rank 2010. With respect to the competitiveness factors shown in Table 7 for Croatia we can see that the only factor that is continuously worsening is actually Government efficiency (7 places from 2006 to 2010). Slovenia is also experiencing the same trend (10 ranks from 2006 to 2010) but unlike Croatia government efficiency is not the factor with the most significant drop. It is Business efficiency which has worsened in the observed time period resulting with 57th place in 2010 as opposed to 44th place in 2006 rankings.

Another measure of one's nation competitiveness is the Global Competitiveness Index: GCI. (WEF, 2002-2010). It is based on a comprehensive model developed by Xavier Sala-i-Martin, which includes a weighted average of many different components, each measuring a different aspect of competitiveness. These components are grouped into twelve pillars of competitiveness that are inter-connected, and a weaknesses in one area often have a negative impact on other areas" (WEF, 2010/2011:8). Thus WEF defines „competitiveness as the set of institutions, policies, and factors that determine the level of productivity of a country" (WEF, 2010/2011:4).

Although, two indexes as the measurement tools of competitiveness differ, the results stay the same. Croatia is lagging behind Slovenia in the observed period with the difference varying from 18 ranks in 2007/2008 to 35 ranks in 2009/2010.. While Slovenia's position throughout the years remained roughly the same (except for the last three years), Croatia has experienced continuous deterioration landing on 77 rank in 2010/2011 report.

Table 9. The Global Competitiveness Index – Croatia and Slovenia.

	Croatia		**Slovenia**	
	rank (out of 139)	1-7	rank (out of 139)	1-7
2001 / 2002*	/		31	
2002 / 2003*	58		28	
2003 / 2004*	53		31	
2004 / 2005*	61		33	
2005 / 2006	64		30	
2006 / 2007	51	4,26	33	4,64
2007 / 2008	57	4,20	39	4,48
2008 / 2009	61	4,20	42	4,50
2009 / 2010	72	4,00	37	4,60
2010 / 2011	77	4,00	45	4,42

* data that refer to "Growth Competitiveness Index"

Source: World Economic Forum, 2002 – 2010, Global Competitiveness Report.

Following tables (9 and 10), contain factors within the twelve pillars that refer to the role of the government in the competitiveness growth. In Croatia only one indicator - Total tax rate within pillar Goods market efficiency is better ranked than the aggregate pillar, thus indicating a competitive advantage, while in Slovenia the number of such factors is much higher. Namely, these are: Intellectual property protection, Irregular payments and bribes and Transparency of government policymaking (within pillar – Institutions), and factors: Number of procedures required to start a business and Time required to start a business (within pillar - Goods market efficiency).

Table 9. The Global Competitiveness Index: 12 pillars of competitiveness and governance - Croatia.

	2010 / 2011	2009 / 2010	2008 / 2009	2007 / 2008
GCI	***77***	***72***	***61***	***57***
Institutions	*86*	*85*	*74*	*65*
Property rights	87	85	84	78
Intellectual property protection	70	68	58	58
Public trust of politicians	96	91	79	69
Irregular payments and bribes	80	-	-	-
Judicial independence	97	98	94	86
Favouritism in decision of government	93	92	86	63
Wastefulness of government spending	121	102	85	75
Burden of government regulation	136	120	107	91
Transparency of government policymaking	71	88	90	80
Goods market efficiency	*110*	*94*	*76*	*71*
Effectiveness of anti-monopoly policy	98	86	86	69
Total tax rate	40	31	25	54
Number of procedures required to start a business	57	60	44	65
Time required to start a business	75	99	92	91
Labour market efficiency	*113*	*92*	*68*	*56*
Rigidity of employment	121	110	106	91
Hiring and firing practices	106	76	68	74
Financial market development	*88*	*77*	*63*	*68*
Soundness of banks	66	56	56	59
Regulation of securities exchanges	74	73	75	70
Innovation	*70*	*61*	*50*	*50*
Government procurement of advanced tech products	121	94	69	80

*Fields that are coloured yellow indicate that the particular element is better ranked than the pillar that it is actually belonging to, thus indicating a competitive advantage for the country in that area.

Source: World Economic Forum, 2007 – 2010, Global Competitiveness Report.

The Labour market efficiency has the most negative trend in the observed time period. It has actually doubled its fall (from 56th position in 2007 to 113th position in 2010 report). All of the selected factors (except Transparency of government policymaking) have also experienced a continuous drop together with the pillar: Institutions itself. Wastefulness of government spending has deteriorated the most (from 75th position in 2007 to 121st position in 2010) and together with Favouritism in decision of government which also experienced a significant drop Burden of government regulation and Public trust of politicians raise an question. If the public continuous to lower its trust in its political elites year after year, what are the goals of its regulation? Both Property rights and Intellectual property protection are also dropping with Judicial independence being almost twice as bad ranked with respect to Slovenia (ranked 97th as opposed to 56th position of Slovenia's courts and justice system).

As stated above Total tax rate is not only the best perceived factor in the pillar Goods market efficiency. In addition to Total tax rate factors Number of procedures required to start a business and Time required to start a business also demonstrate improvements year after year. On the other hand, Effectiveness of anti-monopoly policy again indicates a lack of sound economic policy and "bad" governance in the observed time period and hence can be seen as the generator of the bad performance of the entire pillar. A significant drop can also be seen in the Government procurement of advanced tech products (and 121 rank in 2010), again indicating that the Croatian government is actually doing everything contrary to bust competitiveness growth, in this particular case when it comes to boosting innovation.

Table 10. The Global Competitiveness Index: 12 pillars of competitiveness and governance - Slovenia.

	2010 / 2011	2009 / 2010	2008 / 2009	2007 / 2008
GCI	***45***	***37***	***42***	***39***
Institutions	*50*	*46*	*49*	*44*
Property rights	58	51	57	56
Intellectual property protection	39	38	41	36
Public trust of politicians	70	45	47	38
Irregular payments and bribes	36	-	-	-
Judicial independence	56	51	60	47
Favouritism in decision of government	69	56	62	47
Wastefulness of government spending	92	66	73	65
Burden of government regulation	52	25	41	53
Transparency of government policymaking	23	29	43	47
Goods market efficiency	*39*	*38*	*50*	*39*
Effectiveness of anti-monopoly policy	40	42	48	42
Total tax rate	59	53	54	44
Number of procedures required to start a business	6	16	58	52
Time required to start a business	13	56	110	104
Labour market efficiency	*80*	*56*	*61*	*51*
Rigidity of employment	125	119	121	108
Hiring and firing practices	132	112	118	111
Financial market development	*77*	*48*	*46*	*47*
Soundness of banks	110	77	69	67
Regulation of securities exchanges	66	60	70	64
Innovation	*34*	*29*	*33*	*30*
Government procurement of advanced tech products	64	61	89	76

*Fields that are coloured yellow indicate that the particular element is better ranked than the pillar that it is actually belonging to thus indicating a competitive advantage for the country in that area.

Source: World Economic Forum, 2007 – 2010, Global Competitiveness Report.

In Slovenia, it is obvious that the pillar: Institutions is ranked relatively high (50: 2010), while in Croatia the rank is 96 (2010). Transparency of government policymaking in Slovenia is very high (rank 23-2010), opposite to the low ranking of this sub-index in Croatia (71). Irregular payments and bribes rank 36 (2010), and in Croatia (80: 2010). Although Wastefulness of government spending and Favouritism in decision of government have shown decrease in the past 4 years their current levels are still better ranked then the ones in Croatia (Wastefulness of government spending is ranked at 92nd position in 2010 compared to 121st rank for Croatia). Public trust of politicians has also deteriorated in the time period with the significant drop according to the previous year (rank 70 2010, 45:2009), and in Croatia (rank 96: 2010). Judicial independence ranking is relatively high in comparison with Croatia (the difference in ranking is 41). Number of procedures and time required to start a business are ranked very high, being two elements that are significantly better ranked than the pillar itself. Effectiveness of anti-monopoly policy has slightly improved with its 2010 result (40) being more than double better than in Croatia (98). Total tax rate, Rigidity of employment, Hiring and firing practices and Soundness of banks are the only elements in which Croatia has better ranking than Slovenia. Element Government procurement of advanced tech products shows that Slovenia's ranking is again more than twice better than in Croatia.

According to the aforementioned it could be concluded that the continuous differences between levels of competitiveness between Croatia and Slovenia measured by GCI and its sub-indexes reflecting the quality of governance, demonstrate that governance impact on

competitiveness growth in Croatia significantly lags behind the Slovenia. Sub-indexes that easily spot the difference are: Number of procedures required to start a business and Time required to start a business (part of Goods market efficiency pillar), Wastefulness of government spending, Burden of government regulation, Intellectual property protection, Irregular payments and bribes and Judicial independence (all parts of Institutions pillar). With poor institutions ("bad" judicial system, lack of confidence in both political elites and government policies) on one side and a huge portion of GDP captured by the state on the other, there is no room for optimism unless the governance model changes not only by implementing future structural changes and institutional adjustment according to the EU conditionality policies or in the further implementation of "good" governance model, but in the strategic effort to re-invent actual weaknesses and threats and future opportunities in commitment to further competitiveness building.

4. GOVERNANCE AND COMPETITIVENESS GROWTH IN CROATIA: RESEARCH RESULTS

Although. the interpretation of the international measurement of the governance quality and its positive or negative influence on the competitiveness growth clearly demonstrates the lack of strategic capacity of governance model in Croatia to really govern the process of future competitiveness growth and development in the country, some further confirmation of this finding should be given in the part of the results of the questionnaire analysis, taken by the authors of this paper. These findings refer to the respondents' perception on the role of government and non-government organisations in the competitiveness growth,

The next table presents some findings on the role of various institutions (both governmental and non-governmental) in the competitiveness growth in Croatia. Questionnaire analysis was conducted in 2010 and it included 432 subjects ranging from large corporations and small and medium sized enterprises to development agencies and entrepreneurial zones in all Croatian counties across NUTS II regions (Panonian, Adriatic and North-West Croatia). Questionnaire response rate was 13 % and it was roughly equally distributed across all three NUTS II regions hence allowing the results to be statistically significant.

Table 12. Survey on the role of institutions in competitiveness growth.

GOVERNMENT AND OTHER ORGANISATIONS SUPPORTING COMPETITIVENESS GROWTH	**Adriatic Croatia**	**Panonian Croatia**	**North-west Croatia**	**Croatia**
	Arithmetic mean	**Arithmetic mean**	**Arithmetic mean**	**Arithmetic mean**
Central Government	3,0	2,8	3,0	2,9
Regional Government	3,0	2,8	2,9	2,8
Local Government	3,0	2,6	2,7	2,8
Croatian Employers' Association	2,1	2,1	2,4	2,3
Croatian Chamber of Economy	2,4	2,7	2,8	2,7
Croatian Exporters	2,4	2,3	2,6	2,5
Trade Unions	1,7	1,6	2,1	1,8

Source: Authors' own calculation.

On a Likert scale ranging from 1 (inadequate) to 5 (excellent) respondents were asked to evaluate the role of the organisations (list of the stated organisations is given in Table 10) in competitiveness growth of Croatia. All government institutions received average grades, with central government receiving the highest mark (2,9). The results clearly show that all

respondents perceive the role of the central government as the key in boosting one's competitiveness and taken broadly this can be also shown in the high grades awarded to regional and local government. More detailed analysis, on NUTS II region levels, shows the same results as the national level. In Adriatc and Nort-west region central government received average grade of 3,0 , while in Panonian Croatia it receives 2,7. The underlying reason can be traced to the lower living standards and economic development shown by the GDP per capita level in Panonian Croatia as opposed to the other two regions. In the Adriatic region the respondents evaluated the role of central, regional and local government in supporting the competitiveness growth with the same average grade (3,0).

On the national level the role of organisations (mean of the arithmetic mean) is evaluated with 2,3 with only North-west Croatia giving the 2,5 grade to the role of the these organisations in competitiveness growth and the remaining two regions (less developed then North-west Croatia) giving the grade of 2.2.
According to these finding the role of the governments at different level on strengthening competitiveness growth is not significant.

5. CONCLUSION

The implementation of the "Washington consensus" model in less developed and transitional countries, together with the neoliberal economic development, has also implied the transition from the "bad" to the "good" governance. The concept of the "good" governance centres in the governance ideology of effectiveness and the high-quality public service delivery. The increased effectiveness and capability, however, does not necessarily ensure qualifying governance for a long-term shaping of a state's future. The governance model in transition largely determines the transitional success or failure. The "bad" governance in Croatia is a consequence of low efficiency and rampant corruption as well as of a lack of strategic and creative governance. Contrary, in Slovenia the governance model adopted the "good" governance functions, and created future competitiveness growth and development according to the country's future opportunities. Although the "euro-standardisation" in governance model would bring huge advantages in comparison to the recent governance model in Croatia, formal adaptation to that model would not improve automatically. The strategic competence of the governance model should be built from the "inside" structure.

BIBLIOGRAPHY

Andreon, G., Bache, J., (2010): **Europeanization and Multi-level Governance in Slovenia**, ***Southeast Europe and Black Sea Studies***, 10: 29-43

Beetham, D, (1994): **Key Principles and Indices for a Democratic Audit** in D Beetham, ed**.: *Defining and Measuring Democracy,*** London: SAGE Publications.

Frischtak, L.L. (1994), **Governance Capacity and Economic Reform in Developing Countries**, The World Bank, Washington D.C., Policy Research Working Paper, No. 254, June 1994.

Fukuyama, F., (2004): **State-Building: Governance and World Order in the 21st Century**, Ithaca: Cornell University Press

Grindle, M. S., (2007): **Good Enough Governance Revisited**, ***Development Policy Review,*** 25 (5): 553-574.

IMD (1996-2010), **World Competitiveness Yearbook,** Lausane: IMD.

IMF (2003): **World Economic Outlook**, Chapter III: Growth and Institutions, Washington, D.C.: IMF.

Institute of Macroeconomic Analysis and Development, (2003): **The Report on Development**, Ljubljana: UMAR

Kaufmann, D., Kraay, A., Mastruzzi, M. (2010), **The Worldwide Governance Indicators: Methodology and Analytical Issues**, Development Research Group, Macroeconomics and Growth Team, Policy Research Working Paper, No. 5430, September 2010.

Kaufmann, D., Kraay A., and Mastruzzi, M. (2009), **Governance Matters VIII: Aggregate and Individual Governance Indicators 1996-2008**, The World Bank, Washington D.C., Policy Research Working Paper, No. 4978, June 2009.

Kaufmann, D., Kraay A., and Mastruzzi, M. (2003), **Governance Matters III (Governance Indicators for 1996-2002)**, The World Bank, Washington D.C., Policy Research Working Paper, No. 3106, June 2003.

Kaufmann, D. and Kraay, A. (2002), **Growth Without Governance**, The World Bank, Washington D.C., Policy Research Working Paper, No. 2928, July 2002.

Kaufmann, D., Kraay, A. and Zoido-Lobaton, P. (1999a), **Aggregating Governance Indicators,** The World Bank, Washington D.C., Policy Research Working Paper, No. 2195, October 1999.

Kaufmann, D., Kraay, A. and Zoido-Lobaton, P. (1999b), **Governance Matters,** The World Bank, Washington D.C., Policy Research Working Paper, No. 2196, November 1999.

Knack, S. (1999), **Social Capital, Growth and Poverty: A Survey of Cross Country Evidence**, The World Bank, Social Development Family, Environmentally and Socially Sustainable Development Network, Washington D.C., Social Capital Initiative Working Paper, No. 7, May 1999.

Koprić, I. and Gordana M., (2003): **Education of Administrative Personnel: Experience and Challenges** in I Koprić, ed**.: *Modernisation of the Croatian Public Administration,*** Zagreb: Pravni fakultet u Zagrebu and Konrad Adenauer Stiftung.

Leftwich, A., (2000): **Governance and Development: Leaving Politics Out** in A Leftwich, ed**.: *States of Development: On the Primacy of Politics in Development,*** Cambridge: Polity Press.

March, J. and Olsen J., (1995): **Democratic Governance**, New York: Free Press

North, D., (1995): **The new institutional economics and third world development** in J Harris & others, ed**.: *The new institutional economics and third world development,*** London: Routledge.

OECD, (2001): **Citizens as Partners: Information, Consultation and Public Participation in Policy-Making**, Paris: OECD.

OECD, (1995): **Participatory Development and Good Governance**, Development Co-operation Guideline Series, Paris: OECD

RA-Expert (2002) **Reiting investitsionnoi privlekatel'nosti rossiiskih regionov 2000-2001 gody**, http://www.expert.ru/expert/ratings/regions/reg2001/reg1.htm [Accessed 7.12.2002]

Sharma, S. D., (2007): **Democracy, Good Governance, and Economic Development**, ***Taiwan Journal of Democracy***, Volume 3, No.1: 29-62

Stern, N., Goldin, I. and Rogers, H. (2002), **The Role and Effectiveness of Development Assistance: Lessons from World Bank Experience**, Development Economics Vice Presidency of the World Bank, The World Bank, Washington, D.C., Research Paper.

United Nations (2003) **Millennium Development Goals**, http://www.un.org/millenniumgoals/ [Accessed 01.12.2003]

UNDP (1999), **Public Sector Management, Governance and Sustainable Human Development**, Management Development and Governance Division, UNDP, Discussion Paper.

Vehovar, U., Jager, M., (2003), **Corruption, Good Governance and Economic Growth: the Case of Slovenia**, in: ***International Conference 'Institutions in transition'***, Kranjska Gora, June 19-21, 2003.

World Bank Group (2011), **The Worldwide Governance Indicators 1996 - 2009**, http://info.worldbank.org/governance/wgi/index.asp [Accessed 15.04.2011]

World Bank (2000), **Reforming Public Institutions and Strengthening Governance**, The World Bank, Washington D.C., Strategy Paper.

World Bank, (1997): **World Development Report 1997: The State in a Changing World**, New York: Oxford University Press

World Bank, (1997a): **Annual Review of Development Effectiveness**, Report 17196, New York: Oxford University Press

World Bank, (1994): **Governance: the World Bank experience**, Washington D.C.

World Bank, (1992): ***Governance and Development***, Washington D.C.

World Economic Forum (2011) **The Global Competitiveness Report 2001 - 2010**, http://www.weforum.org/reports-results?fq=report^report_type%3A%22Competitiveness%22 [Accessed 15.04.2011]

THE POSSIBILITIES OF THE APPLIANCE OF FAIR VALUE CONCEPT IN CROATIAN PUBLIC SECTOR

Ivana Dražić Lutilsky, PhD.
University of Zagreb, Faculty of Economics and Business, Department of Accounting
Trg J. F. Kennedya 6, 10000 Zagreb
Phone: ++ 38512383184; Fax: ++ 38512383665
E-mail: idrazic@efzg.hr

Hrvoje Perčević, PhD.
University of Zagreb, Faculty of Economics and Business, Department of Accounting
Trg J. F. Kennedya 6, 10000 Zagreb
Phone: ++ 38512383110; Fax: ++ 38512383665
E-mail: hpercevic@efzg.hr

Key words: *public sector, state budget, fair value, accrual basis, IPSAS, asset, liabilities*

ABSTRACT

The purpose of this paper is to determine the necessary conditions for the appliance of fair value concept in Croatian public sector as well as the possible effects of its implementation for financial reporting of the entities of public sector and on state budget especially in the current conditions of the financial crisis. The main implication of fair value can be seen in valuation of public asset and liabilities, especially debts and sold state bonds. With this paper the authors will try to show that valuation based on fair value concept would show completely different picture about Croatian state budget debt and value of asset.

The implementation of fair value concept in the public sector requires the application of accrual basis accounting and the corresponding accounting standards. The crucial issue in fair value concept is the determination of the fair value. The most critical area of fair value appliance is the measurement of financial instrument. The most objective reliable fair value is the market price of the financial instrument on active markets. If the market of the instrument is not active or there is no market for certain financial instruments, the fair value needs to be assessed. The assessment of fair value should be based on relevant market information with the application of certain valuation model. In the absence of relevant market information, the fair value should be assessed by using the discounted cash flow model. When the fair value of the financial instruments are assessed either by using the appropriate valuation model based on market information or by using the discounted cash flow model based on expected cash flows, the level of fair value reliability is much less than in the case when the fair value is determined on relevant market prices. The application of fair value concept in valuating financial instruments can create significant impact on financial position and income of the certain entity. The objectivity of the financial position and income of the entity depends on the reliability of the fair value valuation models.

1. INTRODUCTION

This paper is result of rethinking about public debt and Croatian state budget in global financial crisis. Due to the financial crisis in 2010, the budget deficit grew to roughly 5 percent of GDP, while a gradual decrease is expected only after 2012. This increased Government's borrowing needs in Croatia and abroad, so public debt rose from 29.3 percent of GDP in 2008 to 41.6 percent in 2010. In the coming years it is expected to reach 50 percent of GDP. In its strategy, the Government didn't forget about state guarantees, which were increased from HRK 12.4bn in 2005 to HRK 43.4bn in 2010. At the same time, the debt of the Croatian Bank for Reconstruction and Development (HBOR) was up from 7.6bn in 2005 to 13.7bn in 2010. This indicates that apart from direct liabilities, the Government will also face conditional liabilities based on financial guarantees for public companies, particularly shipyards. (www.banka.hr, retrieved 25 of March 2011.)

It is strictly theoretical thinking about possible appliance of fair value concept into Croatian public sector and what are the preconditions for possible appliance of fair value concept and where it could be used. This paper will observe those preconditions and they are: the acceptance of accrual basis for Croatian public sector and full appliance of International Public Sector Accounting Standards (further in text IPSAS). Those preconditions will have great impact on Croatian public debt and state budget but also on all entities which are depending on state budget and are using budgetary accounting.

The concept of fair value is generally accepted concept of financial reporting companies listed on global capital markets. Although the current crisis due to many accounting theorists and practitioners began to advocate the suspension of the concept of fair value, relevant world accounting regulators (FASB and IASB) have objected to such ideas and have started the initiative for more specific and consistent definition and application of the concept of fair value in financial reporting entities. FASB has gone the furthest by issuing SFAS 157 - "Fair value measurement" standard that uniquely and consistently regulate issue of fair value measurement of assets and liabilities. The IFRS / IAS have a fair value measurement dispersed through a range of standards. The IPSAS has the same way in treatment of fair value concept and it is shown through set of standards which is also showing some connection between IFRS/IAS and IPSAS. In undertaking the process of developing the IPSAS, the IPSASB attempts, wherever is possible, to maintain the accounting treatment and original text of the IAS or IFRS unless there is a significant public sector in which needs a divergence (as example, the recognition principles for tax revenues). There is no specific IFRS / IAS or IPSAS that uniquely and consistently regulate the issue of defining and measuring the fair value of assets and liabilities. For this reason, the IASB launched an initiative for transparent and consistent regulation of the problem of measuring the fair value of assets and liabilities in the IFRS / IAS. In fact, as a basis for discussion has served the American SFAS 157 and IASB agreed with the majority views expressed in SFAS 157. Cooperation between FASB and IASB is increasingly erasing the differences between U.S. GAAP and IFRS / IAS, which creates a solid basis for uniformed international accounting standards.

Although the concept of fair value is set as the basis for financial reporting on a global level, the determination of fair value of each asset or liability is still a major challenge. In determining the fair value as the most reliable measure, fair value of assets or liabilities is considered as cost of that asset or liability in an active market. For all those assets or liabilities for which no active market exists, fair value must be assessed and based on all available market information. The fair value should reflect the price that could be received when selling

the property or pay transfer liabilities in the ordinary transaction between market participants at the measurement date.

Change in fair value of assets and liabilities may have a direct impact on the financial situation and performance of the subject. Impact of changes in fair value of assets or liabilities on its financial position and performance of the entity depends on the accounting and recording changes regarding fair value. If the change in fair value of assets or liabilities is expressed through profit or loss, then this change will directly affect the performance of the subject. If the change in fair value of the asset or liability is accounted for and reported in equity (as a revaluation reserve), then the change in fair value affect the financial situation of the subject as it will be shown in the balance of the subject under capital items.

2. FRAMEWORK FOR FAIR VALUE CONCEPT

The concept of fair value is the foundation of the modern system of financial reporting. By applying the concept of fair value, assets and liabilities companies must in financial statements show at their fair values. The main problem of the concept of fair value is to determine the objective fair value of an asset or liability that is recognized in the financial statements. Objective and reliable fair value is based on current market prices of assets and liabilities. In a situation where an active market exists for a particular asset or liability, then the market price of the asset or liability is reached on the so-called capital market and it is also a fair amount for which an asset or a liability is recorded in the financial statements. However, the situation in the absence of an active market, fair value of assets or liabilities must be estimated using relevant and reliable techniques and methods of assessment which opens the possibility of manipulation with fair value. In order to avoid manipulation associated with the determination of fair values was developed by FASB SFAS 157 "Fair value measurement" which thoroughly defines fair value, and sets the method for determining the reliability of fair value level. FASB SFAS 157 encouraged the IASB to redefine fair value set out in IFRS / IAS and it was intended to specifically define transparent and fair value method of its determination and its application in financial reporting. The result of the redefinition of the fair value of the IASB is showing prospect for the future convergence of IFRS / IAS and FASB's standards-based GAAP's. At the world level the process of harmonization of the two most important accounting standards has been commenced long ago and the difference are more and more erased between the FASB's standards and IFRS / IAS. In February 2006 the IASB and the FASB published a Memorandum of Understanding which confirms the desire to reconcile the U.S. GAAP and IFRS / IAS and achieving the common goal of joint development in high quality accounting standards that will apply to international capital markets. One of the most important questions raised in the memorandum was a question of fair value measurement as the basis of international accounting standards. Although the FASB's standards and IFRS are based on applying the concept of fair value, this concept has caused and still causing some controversy among the world theoreticians and accounting practitioners. The concept of fair value has never been "unanimously" accepted as a fundamental concept of valuation of assets and liabilities of companies by accounting experts. With the arrival of recession and breakdowns in capital markets, critics of the concept of fair value have become more numerous and appeared currently that emphasized the need for suspending fair value and return to the concept of cost. Although the recession has, among everything else, caused the crisis and the concept of fair value, the U.S. Securities and Exchange Commission strongly objected to the suspension of the fair value, but it stressed the need for concrete defining and determining the fair value measurement with which would fair value be enhanced and improved and it would ultimately resulting in higher quality and more reliable financial

reporting. For this purpose, the FASB has developed SFAS 157 which defines fair value, and set the framework for measuring fair value. IASB has recognized the need to develop similar standards that would bring attention about measuring fair value and it's regulation through a single standard that will be harmonized with U.S. GAAP. For this reason, the IASB took advantage of SFAS 157 as a basis for consideration of fair value measurement in IFRS / IAS and highlighted key points in the harmonization of measuring fair value in FASB's standards and IFRS / IAS.

2.1. Definition and harmonization of measuring fair value in SFAS 157 and IFRS / IAS

Issuance of SFAS 157 the FASB has defined fair value and established a framework for measuring fair value in financial reporting. With these standards, fair value is definitely set as the basic concept of measuring assets and liabilities and their publication in the financial statements of companies. IFRS required for certain assets, liabilities and equity instruments measured at fair value in certain circumstances. However, determining the fair value measurement is dispersed through the numerous IFRS / IAS and it isn't always consistent.

For this reason, the IASB has taken the position that would set uniformed guidelines for measuring fair value under IFRS / IAS; they would simplify and improve the quality of the information on the fair value in financial statements. Concise definition of fair value combined with consistent guidelines for determining fair value would clearly indicate the aim of the fair value concept and eliminate the need for considering and studying the guidelines of fair value set in the various IFRS / IAS. Uniform guidelines on defining and measuring the fair value incorporated into a single standard would significantly improve and simplify the process of financial reporting. In fact, it will specifically, precisely and clearly define fair value, and elaborate methods, procedures, requirements and capabilities in determining the fair value measurement. IASB aims to codify, explain and simplify the existing guidance on determining fair value that are dispersed through the existing IFRS and develop a uniform standard that will provide uniform guidance for all fair value measurement under IFRS / IAS. Since the FASB has issued SFAS 157 and unified guidance on determining fair value, that is the standard that will be used in the IASB as a basis for considering the development of a unified standard of the fair value. The IASB has noted that the adoption of SFAS 157 represent significant progress in applying the concept of fair value even though it has not revealed all of the provisions contained in SFAS 157, but only on some. According to the FASB's SFAS 157 fair value is defined as "the price that would have been achieved at the sale of an asset or paid to transfer the obligations in the ordinary transaction between market participants at the measurement date." With this definition FASB has set the output market price as fair value.

Under existing IFRS, fair value is usually defined as "the amount for which an asset could be replaced or a liability settled between knowledgeable, willing parties in an arm's-length transaction." These two definitions of fair value are different in the three key elements:

1) the definition of fair value in SFAS 157 explicitly output (e.g. retail market) price. The definition of fair value in IFRS is not any exit or entry (purchase) price.

2) the definition of fair value in SFAS 157 explicitly refers to market participants. The definition of fair value in IFRS relates to the informed and prepared by the arm's-length transaction.

3) for liabilities, the definition of fair value in SFAS 157 is based on the view that the liabilities have been transferred (liabilities are not settled, but still there). The definition of fair value in IFRS refers to the amount by which the liabilities could be settled between knowledgeable, willing parties in an arm's-length transaction.

The definition of fair value which was set up in FASB SFAS 157 is based on the output (sales) price that is considered from the perspective of a market participant that holds the assets or obligations. Accordingly, the objective of measuring fair value is in determining the price that would have been received for the asset or paid to transfer the obligation at the measurement date. FASB noted that the output (sales) price is suitable as the basis for the definition of fair value because it embodies the current expectations of future inflows associated with the asset and the future outflows associated with the obligations observed from the perspective of market participants. Also, the output price is in accordance with the definitions of assets and liabilities listed in the FASB's concept "Elements of Financial statements" and under IFRS. It is the alignment of output (sales) prices with the definitions of assets and liabilities as one of the main reasons why the definition of fair value is based on the output price. Most members of the IASB believes that the fair value measurement based on output prices is perfect since the output prices are in line with the definitions of assets and liabilities and it is reflecting current market expectations based on the movement of economic benefits in or outside the company. However, it should be noted that there are some members who believe that the input (purchase) price also reflects current market expectations based on the movement of economic benefit into or out of society and that measurement of fair value should be based on input prices, especially due to the fact that the fair value of certain IFRS is based precisely on the entrance price. Input prices are defined as "the price that would be paid to acquire assets or received for the commitment in the ordinary transaction between market participants at the measurement date." Input and output prices may not always be the same, since the company may buy property or assume an obligation at one market and sell the asset or transfer the liability to other markets. However, by excluding input prices from the definition of fair value it will be necessary to correct certain IFRS.

SFAS 157 emphasizes that fair value measurement should be based on assumptions that market participants take into account when pricing the asset or liability. Market participants are thereby defined as buyers and sellers on the most important (or most favourable) market assets or liabilities which are:

a) independent of the reporting entity and are not related parties;

b) informed and have all the knowledge of the asset or liability that is the subject of the transaction, which is based on all available information including information that can be obtained through due diligence;

c) able to do a transaction with an asset or liability;

d) willing to conduct transactions with the property or that they are motivated by an obligation, to perform the transaction, and not forced or otherwise compelled at the transaction.

According to the IFRS definition of fair value includes informed and willing parties in arm's-length transaction. In IAS 40 „Investment Property" it is described as informed and willing parties in arm's-length transaction. The term "informed" means that parties are ready and willing, that the buyer and seller are well informed about the nature and characteristics of investment and property, about its actual and potential use and market conditions at the

balance sheet date. A willing buyer is motivated, but is not compelled to buy. This buyer is neither over-eager nor willing to buy at any price. The supposed buyer wouldn't pay a higher price than the one relevant for informed and willing buyers and sellers which they require. Willing seller is not overly zealous or forced seller and it isn't willing to sell at any price, nor is it prepared to demand a price that is not considered realistic in the current market conditions. Willing seller is motivated to sell the investment property at market conditions at the best price that can be achieved. The factual circumstances of the actual owner of investment property are not part of this charge because the alleged owner is supposed willing seller (eg, willing seller would take into account the specific tax circumstances of the actual owner of investment property). The definition of fair value refers to the transaction at market conditions. Transaction at market terms is a transaction between parties who have no particular or special relationship to the cost of these transactions accounted for unspecified market conditions. It is assumed that the transaction is conducted between unrelated and independent parties. Based on comparison of definitions and descriptions of market participants in SFAS 157, and knowledgeable, willing parties in IAS 40, IASB issued a preliminary opinion that the concept of market participants from SFAS 157 in accordance with the concept of informed and willing parties in an arm's-length transaction (the transaction according to market conditions) as defined in IAS 40. IFRS defines fair value of liabilities as the amount by which the liabilities could be settled between knowledgeable, willing parties in arm's-length transaction. SFAS 157 defines fair value of liabilities as the price that could be paid for the transfer of liabilities in the normal transaction between market participants. FASB standard is using the term transfer of liabilities and not liability payment because the liability is transferred to market participants and thus it remains unpaid. IASB in its preliminary view about this issue agreed with the statement that the term "transfer liabilities" is more convenient and more accurate in terms of objective measurements of fair values in IFRS.

In addition to these differences in the definition of fair value between SFAS 157 and IFRS, the IASB has noted several points that should consider and adopt the appropriate attitude in order to continue the process of harmonization of GAAP and IFRS / IAS. The points emphasized by the IASB, which are important for the harmonization process are as follows:

1. SFAS 157 and guidelines for measuring fair value in the existing IFRS;
2. Differences in the definition of fair value in SFAS 157 and IFRS;
3. Transaction price and fair value on initial recognition;
4. Most important (or most advantageous) market;
5. Specific characteristics of the asset or liability;
6. Valuation of liabilities;
7. "Presumption of evaluation in use" vs. "value in use";
8. Hierarchy (levels) in fair value;
9. Greater number of specific financial instruments (blocks);
10. Measuring fair value in the range of buying - selling price;
11. Publication;
12. Application guidelines;
13. Other.

2.2. Effects of fair value measurement of success and financial situation of the subject

Changes in the fair value of assets and liabilities have a direct impact on the success and financial situation of the subject. Impact of changes in fair value of certain assets or liabilities in the financial situation and performance of the entity, depends on the accounting recording

changes in fair value and its disclosure in the financial statements. If the change in fair value of certain assets and liabilities accounted for over revenues and expenditures and reported through the profit and loss, then the change in fair value directly affect the success of the business entity or profit or loss for a specific accounting period, and, indirectly, the financial situation of the subject through the operating result recorded in the balance sheet under capital items. If the changes in fair value accounting are expressed directly in equity (such as a revaluation reserve), then the change in fair value directly affect the financial situation of the subject as it will be shown in the balance sheet under capital items (mainly as a revaluation reserve).

Although the concept of fair value extends through most of the IFRS / IAS, accounting categories (elements of financial statements), in which changes in fair value of commonly affects the financial situation and the success of the subject are as follows:

- Intangible assets;
- Tangible assets;
- Investment in real estate;
- Financial assets;
- Financial liabilities.

Intangible and tangible assets are initially measured at cost. However, the subsequent measurement of intangible assets and IAS 38 - "Intangible Assets" and IAS 16 - "Property, Plant and Equipment" allow to subject a choice between the measurements at cost less accumulated depreciation and impairment losses (cost model) and measurement through revalue amount (revaluation model). If an entity applies the revaluation model, then the fixed and intangible assets are subsequently measured at fair value on the date of measurement and reporting. In this case, increase in value of intangible and tangible assets to fair value accounting will be recorded as an increase in capital (i.e. a revaluation) and thus directly affect the financial situation of the subject.

However, if you increase the value of intangible and tangible property wholly or partially, you will cancel the previously reported loss (or expense) to reduce the value of the property, and this increase in value will be reported as income and affect the operating results of the subject. In the case of impairment of intangible and tangible assets, this impairment will be recorded as an expense accounting or as a loss and will thus directly affect the operating results of the subject. However, if it is previously found to increase the value of intangible and tangible assets and if it was reported in the paragraphs of the revaluation reserve, this reduction in value shall be recorded as a revaluation decrease, but mostly to the extent that the revaluation reserve previously established. In this way, reducing values of intangible and tangible assets will affect the financial situation of the subject.

According to IAS 40 - "Investment Property", the investment in real estate refers to property (land or buildings, or part of a building, or both) held (by the owner or lessee in finance leases) to earn rental income or because of increase in value of capital assets, or both, and not because:

a) to use in the production or supply of goods or services or for administrative purposes, or

b) to sell it in the ordinary course of business.

Investing in real estate is initially measured at cost. When measuring IAS 40 - "Investment Property" allows to the subject a choice between models of cost and revaluation models. If the subject chooses the cost model, investment in property will be subsequently carried at cost less accumulated depreciation and impairment losses. However, in applying the revaluation model, investment property will be subsequently measured and carried at fair value. In this case, all changes in fair value of investments in real estate accounting will be reported through the profit and loss, and thus directly affect the operating results of the accounting period. Increase in fair value of investment properties will be shown as income in the profit and loss statement, as reduction of an expense.

According to IAS 32 - "Financial Instruments: Disclosure and Presentation" financial instrument is any contract that arises due to an entity's financial assets and financial assets or equity instrument of another entity. In accordance with IAS 39 - "Financial Instruments: Recognition and Measurement", an entity initially measure a financial asset or financial liability at its fair value plus (except in the case of financial assets at fair value through profit or loss) for transaction costs directly related to the acquisition and delivery of financial asset or financial liability. For subsequent measurement of financial assets, it is necessary to classify any financial assets in one of four categories of financial assets as defined in IAS 39, the classification of financial assets in various categories, depends, on its subsequent measurement and accounting. Categories of financial assets are as follows:

1. Financial assets at fair value through profit or loss;
2. Held to maturity;
3. Loans and receivables;
4. Financial assets available for sale.

Financial assets at fair value through profit or loss and available-for-sale are subsequently measured at fair value, while the investment to maturity and loans and receivables are subsequently measured at amortized cost. However, accounting recording changes in fair value of financial assets at fair value through profit and loss and financial assets available for sale are different. Changes in the fair value of financial assets at fair value through profit and loss accounting is reversed through the income statement, which means that they directly affect the business result of the subject in the accounting period. Increase in fair value of financial assets at fair value through profit or loss is recorded as revenue, a reduction of an expense is disclosed in the income statement. For financial assets available for sale fair value accounting are carried through the capital and are presented as a revaluation reserve and thus directly affect the financial situation of the subject, as the item of the balance sheet under capital items. Increase in fair value of financial assets available for sale is recorded as an increase in the revaluation reserve, while the decrease is recorded as a revaluation decrease. During the subsequent measurement of financial liabilities it is necessary to see any financial obligation as a component of a financial instrument classified into one of the following two categories:

1. Financial liabilities at fair value through profit or loss; or
2. Financial liabilities at amortized cost using the effective interest method.

Financial liabilities that are classified as financial liabilities at fair value through profit or loss are subsequently measured at fair value, with changes in fair value of these financial liabilities and are accounted for through profit and loss account and that is how they directly affect operating result in the accounting period of the subject.

3. APPLIANCE OF FAIR VALUE CONCEPT IN CROATIAN PUBLIC SECTOR

SFAS 157 and IFRS 13 set up the fair value as the appropriate measurement method for financial reporting in profit sector. Besides, IFRSs and US GAAP are going through the process of convergence which aim is to eliminate the significant differences between IFRSs and US GAAP. Based on IFRSs, IFAC is developing International Public Sector Accounting Standards (IPSAS) which purpose is to enable international harmonization and comparability of financial reports of public sector entities. Since, IPSASs are mainly determined on IFRSs, fair value as the concept of subsequent measurement of assets and liabilities is assumed in IPSAS. Fair value as the concept of measurement and financial reporting in public sector entities can be applied. The basic assumption of applying fair value concept in public sector entities is the implementation of accrual basis of accounting in public sector. The majority of EU members still didn't introduce the accrual basis in public sector accounting. Most of EU members apply modified accrual basis of accounting in public sector. Fair value as the concept of measurement can apply only if financial reporting is based on accrual basis of accounting. Therefore, if IPSASs are the instrument of harmonization of public sector entities financial reporting at international level, fair value will become the global concept of financial reporting in profit and public sector. But, it is important to emphasise that IPSASs are still not applied in the majority of EU members as well as in other countries. The full application of IPSAS, and therefore fair value, will require significant changes in accounting and financial reporting systems in public sector entities, since the majority of countries still don't have implemented accrual basis of accounting in their public sectors. The adoption and application of fair value measurement in public sector will equalize accounting and financial reporting of entities in private and public sector. That will enable comparability of their financial reporting. But certain problems with fair value determination could occur in public sector entities. Since public sector entities often provide certain activities and services that are of public interest, the fair value of such services would be very difficult to determine, because in this circumstances there are no relevant observable inputs for fair value determination. Fair value based on unobservable inputs (Level 3 inputs) has the lowest priority and therefore that fair value might not be objective and reliable. Besides, public sector entities are not oriented on markets and their basic purpose is not profit but providing activities and services that are of public interest. Determining the fair value in the same way in private (profit) sector and public sector might not be appropriate. However the problem of accounting and financial reporting of public sector entities is still open. IPSASs are the first and very important step in harmonization and convergence of financial reporting of public sector entities. But the full adoption of IPSASs and therefore fair value measurement requires significant changes in accounting systems of public sector entities.

3.1. Preconditions for fair value appliance in Croatian public sector

As it has been said earlier preconditions are existing for fair value appliance in Croatian public sector and those preconditions are: the acceptance of accrual basis for Croatian public sector and full appliance of International Public Sector Accounting Standards (IPSAS). In connection with implementation of IPSAS in public sector, the most important precondition is use of accrual basis of accounting in public sector. Also, over the last three decades public sector has been affected with requirements for reforms in public sector in order to be able to deal with increasing government expenditures in conditions of limited public resources. So, to be able to fulfill those goals and to be ready to implement IPSAS, it is necessary to move from traditional public sector accounting – cash accounting to a modern one - accrual

accounting. Transition from cash basis to accrual basis is very demanding and complicated process and because off that it is very important to know advantages and disadvantages of both (Vašiček, V., Dragija, M., Hladika, M., 2010).

Until the end of year 2001, the Republic of Croatia has used cash basis in the government accounting. This basis, as it was mentioned, has many advantages and disadvantages, but the main characteristic is that accounting based on cash basis reports primarily about receipts, expenditures and changes in public cash and cash equivalents (Vašiček, 2004). The system based on cash basis didn't give any information about financial position, assets, receivables, liabilities and costs of provided services.

So in the spirit of public sector reforms, with emphasis on harmonization and standardization at the international level, and because of mentioned disadvantages of the accounting system based on the cash basis, Croatia has abandoned this system and now it is going in the direction of introducing principle of accrual basis of accounting which reflects a complete economic reality.

So, the Republic of Croatia applies from 01.01.2002 modified accrual basis in government accounting. All the Governement entities are using modified accrual basis but the State Budget of Croatia is still preparing at cash basis. In relation to the application of full accrual, this accounting basis is marked with following adjustments (Vašiček, D., Mrša, J., Dragija, M., 2009):

- Revenues of public sector entities are recognized when the cash is received, therefore, the cash basis.
- Expenses of current non-financial assets are recognized at the time of purchase, therefore not at the time of actual consumption.
- The costs of procurement of fixed asset with small value are not capitalized, because they are entirely presented as expense at the time of purchase.
- The costs of procurement of fixed asset are not capitalized and they are not systematically apportioned on a time or functional basis as expenses during the period of useful life. Therefore, does not calculate the annual amount of depreciation but the cost of asset become expense of reporting period when the asset is purchased. This principle applies to advances that have been given in the process of procurement as well as investments in progress, so regardless what the process of procurement are not completed, or that asset is not ready for use.
- Increase in assets during the procurement fixed non-financial assets without the costs (capital received donations) are not recognized as revenue but directly increased the sources of ownership (public capital).
- Spending fixed non-financial assets during the administration estimated life is expressed as the expense of the sources of ownership (public capital) using proportional basis of value adjustment.
- Residual value of fixed non-financial asset that is sold or decommissioned is not reported as an expense, which arises from the fact that the total expense was recognized at the time of purchase.
- The changes in value and volume of assets and liabilities are not reflected in the financial result but they directly reflect on the value of sources of ownership (public capital).

Thus defined and set budget accounting system provides a significantly expanded volume of information which is primarily seen in the available information, especially information about

obligation and on the condition and changes in the value of assets and receivables. Available information is necessary to determine the financial position of the government unit. Reliable records on these obligations is extremely important at the stage of budget execution and treasury, because it enables the exercise of control of money in correlation with future liabilities and oversight of current liabilities enables monitoring their effect on cash flow projections in the Single Treasury Account (Vašiček, V., Dragija, M., Hladika, M., 2010).

Problems associated valuation of long term non-financial assets (how to identify and value existing assets in public sector?), while in public sector mentioned assets in most cases is not in function of achieving future economic benefits (like in business sector), because this assets are in function of main government functions execution. Also, we have assets that are characteristic only for public sector, like infrastructure assets, heritage assets, military assets, natural resources such as mineral reserves and forest. So, it isn't easy to measure these assets in financial reports and there are many disagreements about the valuation methodology and which assets to value. An issue that appears is a valuation issue. What base should be taken for valuation of assets; historic cost or current value? Some believe that historic cost is better because is based on assets valued at their acquisition costs with subsequent depreciation, but the problem with historic cost is that original acquisition cost is often not known or that the assets value is out-of-date. Current value eliminates problems of historic cost but has problems with valuation because requires many professional judgments to be made. There are number of different methodologies for applying current valuations; depreciated replacement cost, value in use and net realizable value. Each of mentioned methodologies has their own problems, so it isn't easy to decide which basis is right one. Also, important problem that appear in connection with current valuation is fluctuation of value from one year to another and this can reflect very negative on financial reporting in public sector.

A high degree of normative framework is deemed as one of the most important features of government accounting system, both in Croatia and all over the world. Since the accounting framework in Croatia has been set up as a law – based system and since governmental activities have been financed through the Budget, the legislative framework regarding governmental accounting development was determined by the Budget Act and other additional set of regulations. Those additional regulations (decrees, instructions, and policies) define and analyze certain parts of the main Act more precisely and thus enable faster and easier qualitative adoption of regulated solutions (Roje G., Vašiček V., Vašiček D. 2008). The most important legislative documents that regulate the existing Croatian government accounting system are as follows:

- The Budget Act (Croatian Official Gazette, No. 87/2008.),
- The Policy for determining budget users and managing the Registry of budget users (Croatian Official Gazette, No.80/2004.),
- The Policy for budgetary accounting and Chart of Accounts (Croatian Official Gazette, No. 27/2005, No 127/2007.),
- The Policy for financial reporting in budgetary accounting (Croatian Official Gazette, No. 27/2005, 2/2007.),
- The Policy on budget classification (Croatian Official Gazette, No. 94/2007.).

A complete set of basic financial statements that public sector entities should assemble, according to IPSAS 1, are (IPSAS 1 Presentation of Financial Statements):

- The statement of financial position
- The statement of financial performance
- The statement of change in net assets/equity
- The cash flow statement and
- Accounting policies and Notes.

Appropriate reporting system is defined in accordance with the settled accounting information system which is based on modified accrual basis. Entities that are obliged to prepare the basic financial statements are the state budget, budgets of local and regional governments and extra-budgetary users. A complete set of financial statements comprises (Vašiček, V., Dragija, M., Hladika, M., 2010).

- The balance sheet,
- The report on changes in assets' and liabilities' volume,
- The report on revenues, expenditures, cash receipts and expenses,
- The cash flow statement, and
- The notes.

Together with preparing the aforementioned financial statements, budget users compose additional financial statements. These are:

- The statement of expenditures according to functional classification,
- The statement of liabilities, and
- The statement of revenues and expenditures of budget users (Vašiček, V., Dragija, M., Hladika, M., 2010).

According to the above, it is clear that the basic financial statements in government accounting in the Republic of Croatia are only partial complied with the basic financial statements according to IPSASs. A main difference is in the quality of presented information as a result from different applied accounting basics. Also, the difference is in part of additional financial statements (Vašiček, V., Dragija, M., Hladika, M., 2010).

The necessity of strictly determination the coverage of the general government sector particularly is evident when determining the entities who are obliged to apply government accounting. Entities that are obliged to use government accounting are defined in The Budget Act[1]. Government accounting is obliged to use all the state budget users[2] and users of local or

[1] The Budget Act, Croatian Official Gazette, No. 87/2008, article 99.

[2] According to the Policy for determining budget users and managing the Registry of budget users (Croatian Official Gazette, No.80/2004.), it is prescribed that *budgetary units* are those entities: 1. whose founder is the government and/or local government, 2. whose income source is the government budget and/or local government budget in the amount of 50% or more, and 3. who are listed in the registry of budgetary units. *Extra-budgetary users* are those entities: 1. where government and/or local government have a decisive influence on the management, 2. where one of source of founding is a dedicated income, and 3. who are listed in the registry of budgetary users. At central government level, governing ministries and their budgetary beneficiaries are covered. Among extra-budgetary units of the Republic of Croatia (at central government level) count extra-budgetary funds and some of the corporations controlled by the government. Extra-budgetary entities at local government level are only county road administrations.

regional budget and their budget users. Extra-budgetary users are obliged to use government accounting only in part of financial reporting. For this purpose, in the Republic of Croatia was established the registry of budgetary users based on criteria that are consistent with the requirements of the international system of the financial statistics (Vašiček, V., Dragija, M., Hladika, M., 2010).

Provisions of IPSAS have been implemented in articles of regulations, laws and ordinances that regulate the area of application of government accounting. There is no legal obligation to use IPSASs, but solutions that are recommended in IPSASs are applied in government accounting in the Republic of Croatia. All participants in the budgetary process are obliged to apply the prescribed chart of accounts and recording schemes. The application of uniform methodology allows identification of data and indicators of financial performance of general government sector (Vašiček, V., Dragija, M., Hladika, M., 2010).

IPSAS is considering application of full accrual basis and under that basis some of the IPSAS are supporting the fair value concept. Fair value concept in public sector could be used for measurement after initial recognition for:

- Asset (financial and non-financial asset but it can't be used for heritage asset);
- Liabilities or obligation, especially debts and sold state bonds but also guarantees and debts of budget related entities.

Certain types of assets and liabilities that is specific just for public sector and doesn't exist in business sector. These include heritage assets, military assets, infrastructure asset and social insurance program. The main problem is how to measure and recognize these assets because of their special characteristics that aren't present in business sector; very long life cycle, their value increase over the year, they don't have replacement value and their acquisition costs are not known. The similar problem exists with recognition of military assets. Every country can define military assets on specific way. For example, the United States divide military assets on military's general purpose assets and specific military assets (Vašiček, V., Dragija, M., Hladika, M., 2010). Infrastructure assets are also assets that exist only in public sector and it is very difficult to measure. This asset has extremely long live cycle and it isn't easy to separate original investments and maintenance costs. So, in recognition of the mentioned assets and costs associated with its use there are certain dilemmas: regarding the recognition in the financial statements and regarding with reliable and measurable value at which those assets can be followed in the accounting records and financial statements. Problem of moving on accrual basis exist also for obligation that are specific for public sector like social insurance programs. Social insurance programs represents obligation for the government in the future even though some believe that that social insurance programs should not be treated as liability for the government. The main problem with this program is how to recognize current liability based on current level of benefits, because social insurance programs are not contractual exchange transactions. It is noted that these programs are income transfers financed by compulsory taxation (contributions) and that level of benefits often bears a very indirect or even disproportionate relationship to the levels of taxes actually paid (Vašiček, V., Dragija, M., Hladika, M., 2010).

Table 1. IPSAS that are presuming the usage of fair value concept

IPSAS	**The usage of fair value concept**	**Similarity to IFRS/IAS**
IPSAS 9 – Revenues from Exchange Transactions	Fair value is the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction.	IAS 18
IPSAS 13 - Leases	interest rate implicit in the lease	IAS 17
IPSAS 15 – Financial instruments: Disclosure and Presentation	financial liability	IAS 32
IPSAS 16 – Investment Property	Cost - the amount of cash or cash equivalents paid or the fair value of the other consideration given to acquire an asset at the time of its acquisition or construction.	IAS 40
IPSAS 17 – Property, plant and equipment	Recoverable amount (of property, plant, and equipment)	IAS 16
IPSAS 21 – Impairment of non-cash generating assets	1. fair value less costs to sell is the amount obtainable from the sale of an asset in an arm's length transaction between knowledgeable, willing parties, less the costs of disposal. 2.recoverable service amount	IAS 36
IPSAS 26 – Impairment of cash generating assets	Recoverable amount (of an asset or a cash generating unit)	-
IPSAS 29 – Financial Instruments: Recognition and Measurement	1. available-for-sale financial assets 2. financial asset or financial liability at fair value through surplus or deficit 3. A group of financial assets, financial liabilities or both is managed and its performance is evaluated on a fair value basis, in accordance with a documented risk management or investment strategy, and information about the group is provided internally on that basis to the entity's key management personnel. 3. hedged item, hedge effectiveness, hedging instrument 4. loans and receivables	-
IPSAS 30 – Financial instruments: Disclosures	1.currency risk 2.interest rate risk 3.market risk 4.other price risk	-

Source: IFAC – IPSASB: IPSAS, www.ifac.org ; author's treatment.

3.2. State budget and public debt

State budget is prepared under cash basis. Cash basis is very efficient basis for tracking realized imbursements/ consumptions in relations with planned, what is a starting point for determination of future demands and responsibility of financial management. But it isn't reliable basis for evaluating and measuring public debt or better yet to measure state obligations because they will be visible only when they are paid. The cash basis of accounting recognizes transactions and events only when cash and cash equivalents is received or paid by the entity. So, revenues will not be recognized until the cash is received (receipts) and expenses will not be recognized until the cash is paid (expenditure). In the moment of asset acquisition, a purchase cost becomes expenditure and it is recognized as one in the period of acquisition (there is no capitalisation). So, there is no expenditures recognized as an asset which is transferred to the future period and there is no depreciation. Liabilities are not recognized until they have to be paid and then they are recognized as expenditure. Explicit usage of cash basis decreases the quality of accounting information because it is based only on cash flow transactions. Part of business events and transactions occurred in reporting period stay unrecorded but that doesn't mean that those events will not reflect on movement in future period when receipts or expenditure will follow based on those events. Cash basis advantages are:

- Simplicity and accuracy in presentations of elements in financial statements;
- Possibility to adapt in budget restrictions;
- Control over money collection and consumption.

Cash basis shortcomings are:

- doesn't report about financial position – deficient of double entry recording and asset valuation makes impossible to prepare report about financial statement. Cash basis does not provide information about total borrowings and indebtedness. Information about total assets and equity are not presented and that does not provide possibility to evaluate financial position of government entity.
- doesn't present financial result – financial result, that reflect entity activity, achieved or loosed in reporting period is not estimated. Because of that it is impossible to see the effect on equity and changes of equity.
- impossible to present performance indicators – since economic flows are not estimated, there is a shortage information about expenses, revenues and matching principle, there are restrictions of economic and financial performance indicators. For example, relations between individual or total revenues and expenses, revenues or costs by employee and etc.
- impossible to measure costs of provided services – information about cost of provided services is necessary. The determination of prices which government units charge for providing services (e. g. passport issuance, company registration) is partly a political or social question, but the quality evaluation of full costs of a provided service is necessary for comparison and evaluation of different options in business policies. The determination of prices is necessary because of internal performance evaluation.

If the Croatian state budget would be prepared under accrual basis and under IPSAS measure its asset (except heritage asset) and liabilities, it would bring a totally different meaning for public debt and for managing with public debt including risks that should be managed. Public

debt is representing an alternative way for financing public expenditures which is based on voluntary and market based principles as a relation between creditor and Croatia under which Croatia is obligated to return debt increased for interest rate (Bajo, et al, 2011). Public debt could be financed by debiting at central bank, by selling state property, by debiting at domestic financial market or by debiting abroad. Nevertheless, financing out public debt include selling of state securities which are reflecting as financial liability under accrual basis and potential interest rate that should be paid is shown as financial expense. Market prices on active markets are the best representation of fair value but it doesn't have to be the same value. Measuring and reporting assets and liabilities at their market (or fair) values is appropriate only if these market prices are determined on active markets for the same or very similar assets or liabilities. In the absence of market prices or active markets, fair value needs to be determining on the basis of all relevant observable and unobservable inputs. When fair value needs to be determining on the basis of relevant observable and unobservable inputs and by using certain valuation techniques based on discounted cash flows, the objectivity and reliability of fair value is relatively low and the risk of manipulation of financial reporting is very high. Valuation techniques based on discounted cash flow seriously decrease the objectivity of fair value and open the large number of manipulation with financial statements. Fair value based on market prices on active markets was relatively acceptable measurement method for financial reporting.

4. CONCLUSION

Fair value concept is the modern concept of financial reporting system which is implemented through the International Financial Reporting Standards as well as US GAAP. Fair value as the basis of subsequent measurement of assets and liabilities was firstly introduced through IAS 39 Financial Instruments: Recognition and Measurement. Since its adoption, fair value was the matter of great conflicts between accounting experts and practitioners as well as between relevant accounting associations. Fair value as the concept of measurement has been introduced due to the increased growth and rapid development of capital markets, when majority of financial statement users found out that historical cost as the basis of subsequent measurement of financial instruments isn't appropriate in modern conditions and therefore cannot provide the fair and objective information regarding company's financial position, profitability and cash flows. According to that statement, the new approach of measurement is necessary in order to obtain fair and objective financial reporting of listed companies and such aims can be achieved by measuring and disclosing assets and liabilities at market prices on the reporting date. Fair value based on market prices on active markets was relatively acceptable measurement method for financial reporting. But, when global financial crises occurred, all problems and disadvantages of fair value broke out. In the time of financial crises, market prices cannot be treated as appropriate fair value due to the significant changes in conditions on markets. Financial crises gave the additional arguments to opponents of fair value concept for suspension of fair value concept and return on historical cost. But, relevant international accounting associations (FASB, IFAC, IASB) retained the concept of fair value and worked out on improvement of fair value measurement in new conditions. The first reaction on fair value determination in the conditions of financial crises was from FASB. The FASB issued Statement of Financial Accounting Standards No. 157 „Fair Value Measurement“ which established a single definition of fair value together with a framework for measuring fair value for US GAAP (IASB, Fair Value Measurements, Discussion Paper, 2007). The IASB recognised the need for guidance on measuring fair value in IFRSs and for increased convergence with US GAAP. Consequently, the IASB decided to use the FASB's standard as the starting point fot its deliberations (IASB, Fair Value Measurements, Discussion Paper,

2007). IFRSs require some assets, liabilities and equity instruments to be measured at fair value in some circumstances, but guidance on measuring fair value is dispersed throughout IFRSs and is not always consistent (IASB, Fair Value Measurements, Discussion Paper, 2007). Therefore, IASB started to work on single IFRS which will provide the guidance on all fair value measurements. A concise definition of fair value combined with consistent guidance that applies to all fair value measurements would more clearly communicate the objective of fair value measurement and eliminate the need for constituents to consider guidance dispersed throughout IFRSs. This process of fair value concept implementation carries several very important changes for public sector and two most important are; implementation of International Public Sector Accounting Standards (IPSAS) who are approaching and are based on IAS/ IFRS and moving on accrual basis of accounting. The main implication of fair value can be seen in valuation of public asset and liabilities, especially debts and sold state bonds.

BIBLIOGRAPHY

Adhikari, P. and Mellemvik, F.: International Trend in Government Accounting, International Journalon Governmental Financial Management – 2008, http://www.scribd.com/doc/10269017/Adhikari-Mellemvik-International-Trends-inGovernment-Accounting [Accessed 26.02.2010.]

Bajo, A., Primorac, M., Andabaka Badurina, A.,(2011): Osnove upravljanja javnim dugom, Institut za javne financije, Zagreb.

Blondal, Jon R. (2003), Accrual Accounting and Budgeting: Key Issues and Recent Developments, *OECD Journal on Budgeting*, Volume 3, No.1

Blondal, Jon R. (2004), Issues in Accrual Budgeting, *OECD Journal on Budgeting*, Volume 4, No.1, p. 105

Bolton, L. The big picture, Accountancy, January 2006, London, str. 88-91. Budget Law of the Federation of BiH, Official Gazette FBiH 19/06

Bunea-Bontas, C. and Petre, M. C. (2009.): Arguments for introducing accrual based accouniting in the public sector, University of Pitesti, Workong paper, http://ssrn.com/abstract=1491663 [Accessed 26.02.2010.]

Chan, J. (2003). Changing Roles of Public Financial Management, pp. 101-111, in Bouvaird, T. and Loeffler, E. (eds.), Public Management and Governance, London: Rutledge

Duhovnik, M. (2007): The Problems of Accounting in a Public Institution: The Case of Slovenia, *Financial Theory and Pratctice* 31 (4), p. 423-424.

Hladika, M. (2009): „Računovodstveni vs. statistički pristup konsolidaciji u sustavu proračuna", u: Zbornik III. konferencija „Hrvatski javni sektor – u aktualnim gospodarskim uvjetima", Hrvatska zajednica računovođa i financijskih djelatnika, Zagreb; Opatija, 2.-3. travanj, 2009

Hladika, M. (2009): Utjecaj računovodstvenih i statističkih standarda na kvalitetu konsolidiranih izvještaja proračuna". Specijalistički poslijediplomski rad, Ekonomski fakultet, Zagreb

IASB Expert Advisory Panel: Measuring and Disclosing the Fair Value of Financial Instruments in Markets that are No Longer Active, Draft Document, 16. September 2008.

IASB, Fair Value Measurements – Part 1: Invitation to Comment and relevant IFRS guidance, IASCF, November 2006.

IASB, Fair Value Measurements – Part 2: SFAS 157 Fair Value Measurements, IASCF, November 2006.

IFAC – IPSASB: IPSAS, www. ifac.org;
IPSAS: Adoption by Government, www.ifac.org.

Jakir Bajo, I. et al. (2008) Primjena računskog plana proračuna 2008./2009.. Zagreb: Hrvatska zajednica računovođa i financijskih djelatnika.

Međunarodni standardi financijskog izvještavanja 2004., IASCF, prijevod HZRiF, Zagreb, 2005.

Roje G. and Vašiček V. and Vašiček D. (2008) Development of Governmental Accounting", *Proceedings of the 12th World Congress of Accounting Historians – Accounting History and Culture: From the Past to the Present.* Istanbul: Turkey. ISBN 978-975-01960-7-2, pp. 2253-2570.

Roje, G. (2008) *New Public Management: concept of modern management in public sector,* RIF 2008, 11, pp. 53-61

Vašiček, D. et al. (2007) Računovodstvo proračuna – osnove sustava, primjeri knjiženja, propisi, računski plan. Zagreb: Hrvatska zajednica računovođa i financijskih djelatnika.

Vašiček, D., Mrša, J., Dragija, M.,(2009): Depreciation and the price of public services: Croatian experience, *8th International Symposium ECONOMY & BUSINESS, Economic Development and Growth,* Marijan Cingula (ur.), Sunny Beach: Bulgarian Academy of Sciences, pp.570-581

Vašiček, V. (1997): Računovodstvena osnova kao determinata oblikovanja financijskih izvještaja proračuna (Accounting basis as a determinant of forming budgetary financial reports), *XXXII simpozij HZRFD, Računovodstvo, financije i revizija u suvremenim gospodarskim uvjetima, Pula,1997.* Zagreb:Hrvatska zajednica računovođa i financijskih djelatnika.

Vašiček, V. (2000): Perspektive primjene načela nastanka događaja u proračunskom računovodstvu (engl. The perspective of implementation of accrual basis of accounting in government accounting), *XXXV simpozij HZRFD, Računovodstvo, financije i revizija u suvremenim gospodarskim uvjetima, Pula, lipanj 2000*. Zagreb:Hrvatska zajednica računovođa i financijskih djelatnika.

Vašiček, V. (2004) : Stanje i pravci razvoja računovodstva proračuna (Current situation and possible development of government accounting) . U: Tadijančević, S., Cota, B., ur. XXXIX. simpozij, Pula. *Financijski i računovodstveni aspekti korporativnog upravljanja u profitnim i neprofitnim subjektima.* Zagreb: Hrvatska zajednica računovođa i financijskih djelatnika, p. 192.

Vašiček, V., Dragija, M., Hladika, M.(2010):Convergence of financial reporting in the public sector to the practice of business sector // *ICES 2010: Economic Development Perspectives of SEE Region in the Global Recession Context* / Trivun, Veljko ; Djonlagic, Dzenan ; Mehic, Eldin (ur.).Sarajevo : School of Economics and Business, Sarajevo, 2010.

Vašiček, V., Vašiček, D., Roje, G. (2009): Međunarodni računovodstveni standardi za javni sektor (IPSAS) vs. računovodstvena regulativa u tranzicijskim zemljama (International public sector accounting standards (IPSAS) vs. accounting regulations in transition countries), Zbornik referata IV. Međunarodnog *Simpozija "Međunarodni standardi u sektoru financija i računovodstva vs. nacionalna praksa*", Mišić, Augustin (ur.).Mostar: Fircon d.o.o Mostar, p.148

Wynne, A. (2004.): Is the Move to Accrual Based Accounting a Real Priority for Public Sector Accounting?, http://www.accaglobal.com/doc/publicsector/ps_doc_008.pdf [Accessed 19.03.2010.]

LESSONS FROM THE CRISIS IN THE OLD AND NEW COHESION COUNTRIES[1]

Beáta Farkas
University of Szeged
Kálvária sgt. 1. H-6720 Szeged, Hungary
Phone: ++3662544219; Fax: ++3662544499
E-mail: bfarkas@eco.u-szeged.hu

Key words: *Varieties of capitalism, Competitiveness, Cohesion countries, Economic and financial crisis*

ABSTRACT

The convergence of old cohesion countries was regarded as a success story. In a similar way, the catching up of new Member States with the old ones seems to be impressive. The economic and financial crisis in 2008 broke these promising trends. The old cohesion countries and some of the new Member States have become the most vulnerable in the EU during the crisis. The question rises whether there are deeper institutional causes of this vulnerability.

The school of Varieties of Capitalism has developed a theoretical framework for comparative analysis, which is used for studying developed national economies. The cluster analysis shows that the decisive factors of competitiveness and long run growth, R&D, innovation and education systems are much less developed in the Mediterranean and Central and Eastern European countries than in the other Member States.

The Lisbon strategy aimed at strengthening competitiveness in the EU. Results of the strategy depended on the reforms of the national governments. The national reform programmes and their achievements had been evaluated by the European Commission and research institutes as well. These evaluations of Lisbon reforms indicate that Nordic and North-western Member States performed well and the Mediterranean and Central and Eastern European countries rather poorly. The "puzzle" is the current situation of Ireland, according to institutional approaches it seems to be integrated into North-western Member States perfectly.

The warning signs of institutional or structural investigations could be neglected in the period of quick or relatively quick growth. However, now the common structural causes of greater vulnerability of these countries have to be revealed via comprehensive comparison of the elements of the crisis. In the literature the old and new cohesion countries are investigated separately from each other. The analysis indicates that the old and new cohesion countries have common underlying weaknesses which were exacerbated by the crisis. Despite the long period of EU membership even the old cohesion countries including Ireland were not able to build an internationally competitive, innovation driven indigenous economy prior to the crisis.

[1] The study has been made in the framework of the Project named „TÁMOP-4.2.1/B-09/1/KONV-2010-0005 – Creating the Center of Excellence at the University of Szeged" which is supported by the European Union and co-financed by the European Regional Development Fund.

1. THE INSTITUTIONAL SYSTEM OF MARKET ECONOMY AND THE LISBON PERFORMANCE OF THE OLD AND NEW COHESION COUNTRIES

The convergence of old cohesion countries was regarded as a success story. In a similar way, the catching up of new Member States with the old ones seems to be impressive. The economic and financial crisis in 2008 broke these promising trends. The old cohesion countries and some of the new Member States have become the most vulnerable in the EU during the crisis. The question rises whether there are deeper institutional causes of this vulnerability. This paper overviews the institutional system of market economy and the performance of Lisbon reforms in these countries. It investigates how the institutional approach predicts the vulnerability of these countries, following which the main features of the current crisis will be studied. After that the article analyses the connection between the catching-up model of the cohesion countries and the causes of the crisis. Finally the lessons for these countries and European economic governance will be summarized. Two countries, Cyprus and Malta had to be left out because several data were missing in the investigation of institutional systems.

1.1. Varieties of capitalism in the European Union

The globalisation and the fall of the Soviet Empire have made it timely to the question whether countries are heading for the only one model of capitalism as a result of the international competition. Both comparative economics and sociology show interest in the different institutional solutions of capitalism.

The school of Varieties of Capitalism has developed a theoretical framework for comparative analysis, which is used for studying developed national economies. One of the most influential classifications is Bruno Amable's work (2003). He examines five defining institutional areas: product markets, the labour market, the financial sector, social protection - the welfare state and the education system. He finds four models of capitalism in Europe: the market-based, the social democratic, the continental European, the Mediterranean. It complies with the usual classification of literature: Anglo-Saxon, Nordic, Continental, Mediterranean (e.g. Sapir 2006). I extended Amable's investigation to the Central and Eastern European Member States and I studied the sector of R&D and innovation as an independent subsystem. In the cluster analysis 112 indicators were used (Farkas 2011).

Table 1. Clusters of EU25.

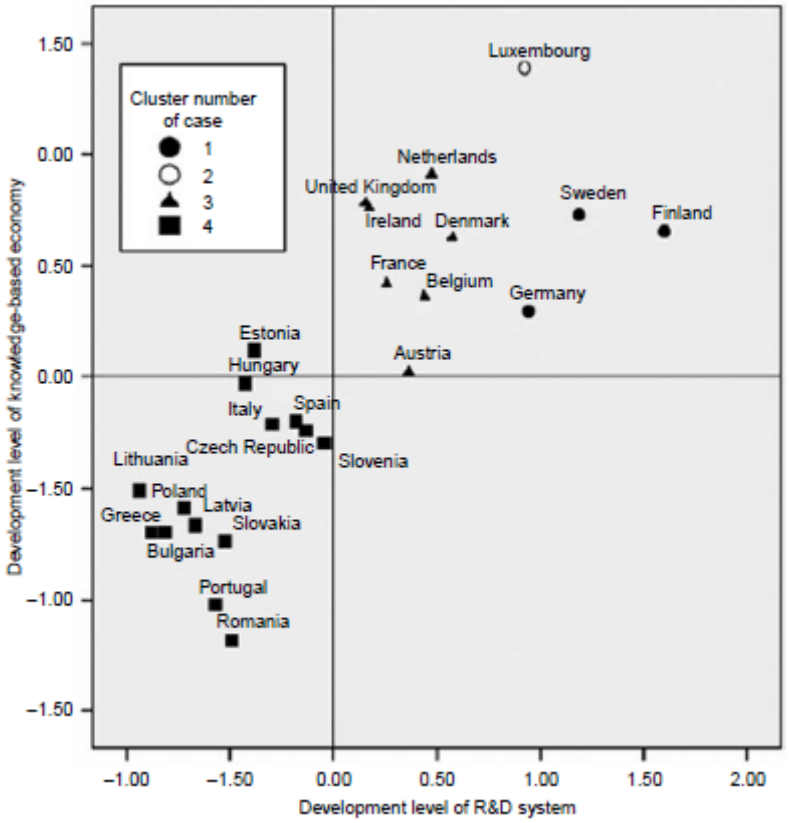
Cluster 1	Austria, Belgium, Denmark, France, Germany, Ireland, Netherlands, United Kingdom
Cluster 2	Greece, Italy, Portugal, Spain
Cluster 3	Finland, Luxembourg, Sweden
Cluster 4	Bulgaria, Czech Republic, Estonia, Poland, Hungary, Latvia, Lithuania, Romania, Slovakia, Slovenia

Source: Farkas (2011) p. 29.

On the whole, the classification of Member States matches the old models of capitalism which were quoted from the literature, apart from the missing Anglo-Saxon model (Table 1). The analysis suggests that an independent Central and Eastern European model is eligible for existence despite the fact that there are important differences among these post-socialist countries. Only Slovenia is a borderline case and it seems to move to the North-western countries. The analysis also indicates that the Mediterranean and post-socialist Member States

form clearly different groups from the Nordic and North-western Member States. The deepest gap between the Nordic, North-western and the Mediterranean, Central and Eastern European clusters is in R&D and innovation (Figure 1). The other decisive factor of competitiveness and long run growth, namely the education system is much less developed mainly in the Mediterranean but also in the Central and Eastern European countries than in the Nordic, North-western Member States. The lagging R&D, innovation and education systems predict the limits of catching up of these two groups of countries with the more developed ones.

Figure 1. The system of R&D and innovation in two-dimensional MDS configuration.



Note: MDS = multidimensional scaling.
Indicators of the cluster analysis are between 2002 and 2007.
Source: Farkas (2011) p. 20.

1.2. Lisbon performance of the Member States

The ten-year Lisbon strategy aimed at strengthening competitiveness in the EU. At the mid-stage point of the Lisbon strategy, it had been realized that the success of the Lisbon strategy depended on the performance of the Member States. Therefore the Union tried to improve the effectiveness of policy delivery at the national level, to enhance the Member States' ownership of the reform process. The Commission assessed the national reform programmes and their implementation in a verbal analysis because in the re-launched Lisbon strategy the proposal to 'name, shame and fame' was strongly rejected. This have made the comparison of countries difficult (Farkas 2008). However, the Centre for European Reform prepares a Lisbon scorecard each year which gives an overview of the EU's record on economic reform. The 'Lisbon league table' provides an assessment of a country's overall Lisbon performance. The table is based on the EU's short list of structural indicators, which measures the

countries' performance in economic, social and environmental categories.[2] Table 2 comprises the ranks from 2005 to 2009.

Table 2. Overall Lisbon performance, 2005-2009.

	Rank 2009	**Rank 2008**	**Rank 2007**	**Rank 2006**	**Rank 2005**
Sweden	1	1	2	2	2
Austria	2	4	3	5	3
Denmark	3	2	1	1	1
The Netherlands	4	3	4	3	5
Finland	5	5	5	6	6
Germany	6	8	8	9	10
Ireland	7	6	6	8	7
United Kingdom	8	7	7	4	4
France	9	10	9	11	8
Czech Republic	10	9	14	10	12
Slovenia	11	14	10	12	11
Luxembourg	12	12	12	7	9
Belgium	13	13	13	13	13
Cyprus	14	15	15	14	14
Estonia	15	11	11	15	16
Lithuania	16	17	18	20	20
Latvia	17	16	17	18	19
Slovakia	18	18	20	23	22
Spain	19	19	16	17	21
Portugal	20	21	21	16	18
Poland	21	24	26	27	26
Greece	22	20	19	22	17
Hungary	23	23	22	19	15
Italy	24	22	23	21	23
Romania	25	25	24	25	25
Bulgaria	26	26	25	24	24
Malta	27	27	27	26	27

Source: Barysch et al. (2007) p. 12, (2008) p. 12, Tilford – Whyte (2010) p. 11.

The ranking of the Member States shows a similar picture as the previously cited cluster analysis. The Mediterranean and Central and Eastern European countries (CEEC) are in the second half of the list. Within five years only three countries, the Czech Republic, Slovenia and Estonia could reach at least 9-11th places. Both the institutional investigation and the performance of Lisbon economic reforms refer to vulnerability of the two groups of countries. In both approaches Ireland seems to be integrated into North-western Member States perfectly.

[2] List of Lisbon indicators: GDP per capita; Labour productivity; Employment rate; Employment rate of older workers; Female participation rate; Educational attainment; Research and Development expenditure; Business investment; Comparative price levels; At risk-of-poverty rate; Long-term unemployment rate; Dispersion of regional employment rates; Greenhouse gas emissions; Energy intensity; and Volume of freight transport.

2. THE CRISIS OF 2008-2009 IN THE OLD AND NEW COHESION COUNTRIES

2.1. Impact of the crisis on the cohesion countries

In this section the global financial and economic crisis had not been analysed, we have only overviewed its consequences on the cohesion countries' growth rate, unemployment rate and their public finance. Although the crisis meant a symmetric shock but it has hit the various Member States to a different degree. In the majority of the cohesion countries contractions exceeded the EU27 and EU15 average in 2009; and their real GDP growth rate is below the EU average in 2010, the only exception was Poland. The decline of the output was extremely sharp in the Baltic States, Ireland, Slovenia and Hungary. The unemployment rates were also higher than the EU average and they further increased in 2010. Only in three countries, in the Czech Republic, Romania and Slovenia had lower unemployment rate than the EU average (Table 3).

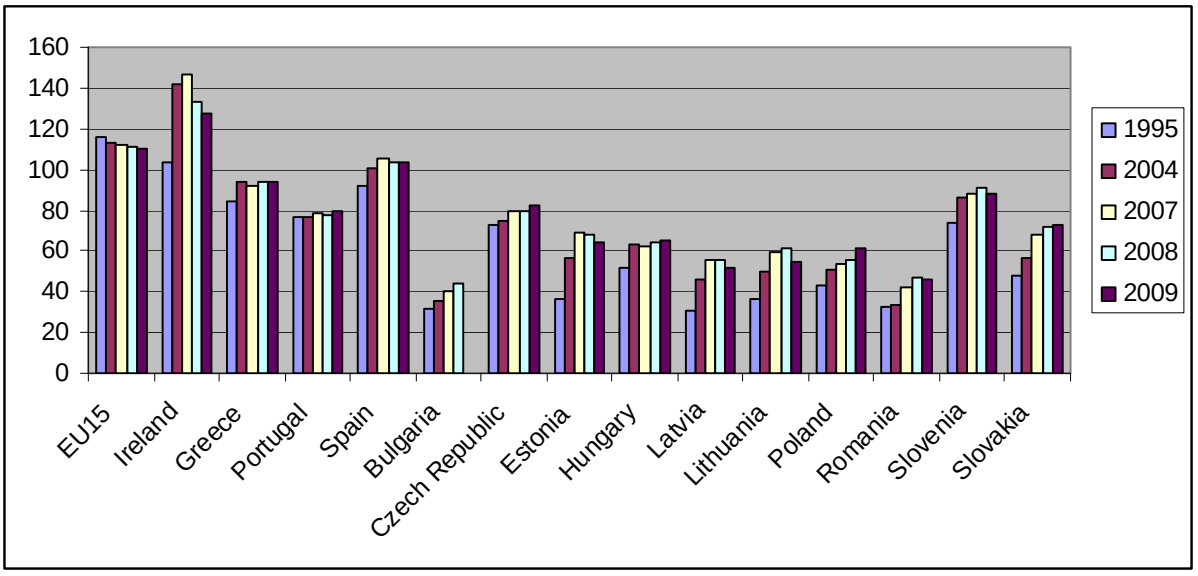
Table 3. Real GDP growth rate and unemployment rate, 2008-2010.

	Real GDP growth rate			**Unemployment rate**		
	2008	**2009**	**2010**	**2008**	**2009**	**2010**
EU27	0.5	-4.2	1.8	7	8.9	9.6
EU15	0.2	-4.3	1.8	7.1	9.1	9.5
Old cohesion countries						
Ireland	-3.5	-7.6	-1	6.3	11.9	13.7
Greece	1	-2	-4.5	7.7	9.5	12.6
Portugal	0	-2.5	1.3	7.7	9.6	11.0
Spain	0.9	-3.7	-0.1	11.3	18.0	20.1
New cohesion countries						
Bulgaria	6.2	-5.5	0.2	5.6	6.8	10.2
Czech Republic	2.5	-4.1	2.4	4.4	6.7	7.3
Estonia	-5.1	-13.9	3.1	5.5	13.8	16.9
Hungary	0.8	-6.7	1.2	7.8	10.0	11.2
Latvia	-4.2	-18	-0.3	7.5	17.1	18.7
Lithuania	2.9	-14.7	1.3	5.8	13.7	17.8
Poland	5.1	1.7	3.8	7.1	8.2	9.6
Romania	7.3	-7.1	-1.3	5.8	6.9	7.3
Slovenia	3.7	-8.1	1.2	4.4	5.9	7.3
Slovakia	5.8	-4.8	4	9.5	12	14.4

Source: Eurostat.

Over the last fifteen years almost all of the cohesion countries' GDP per capita converged to the EU average. Portugal stood at 77% of the EU average in 1995 and at 80% in 2009 that means stagnation. Since 2002 Hungary has not made any progress as well. Already in 2009, the effect of the crisis as divergence from the EU average could be measured in Ireland, the Baltic States, Romania and Slovenia (Figure 2).

Figure 2. GDP per capita in PPS (EU27=100).



Source: Eurostat.

Public finances came under severe strain in all countries. General government deficit exceeded the EU average largely in the old cohesion, Latvia, Lithuania and Romania. Apart from Hungary, the level of the gross government debt is not high in the CEEC but rapidly growing (Table 4). In 2008 Hungary and Latvia received a combined credit package from the International Monetary Found, the EU and the World Bank. The downturn led also Romania to approach the IMF for a loan in March 2009 (Marer 2010, OECD 2010b).

In three old cohesion countries the government debt is critically high. They had no other choice but to request financial assistance. In 2010 the Greek government has received a loan from the EU and the IMF, following which the European Financial Stability Facility was set up with the participation of the IMF. The financial assistance programme for Ireland was accepted in November 2010, for Portugal in April 2011.[3]

In the cohesion countries the crisis caused not only contractions but so severe financial crisis that six of the fourteen Member States were forced upon international assistance till April 2011. In the next section we study the development model of these countries in order to define whether there are common roots of the vulnerability.

[3] http://www.efsf.europa.eu/about/index.htm

Table 4. General government debt and gross government debt as % of GDP, 2008-2010.

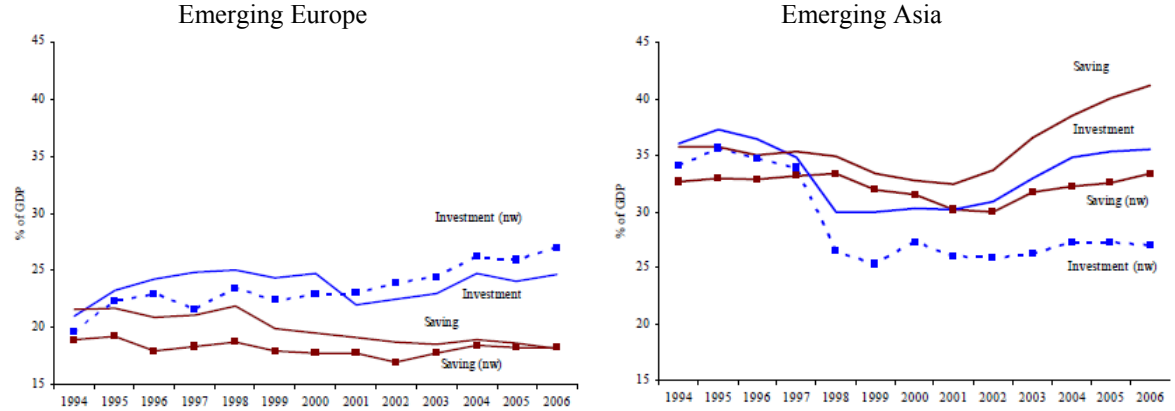
	General government deficit			Gross government debt		
	2008	**2009**	**2010***	**2008**	**2009**	**2010***
EU27	-2.3	-6.8	-6.5	61.8	74.0	79.1
Euro area (15)	-2.0	-6.3	-	70.1	79.5	84.1**
Old cohesion countries						
Ireland	-7.3	-14.4	-32.3	44.3	65.5	97.4
Greece	-9.4	-15.4	-9.6	110.3	126.8	140.2
Portugal	-2.9	-9.3	-7.3	65.3	76.1	82.8
Spain	-4.2	-11.1	-9.3	39.8	53.2	64.4
New cohesion countries						
Bulgaria	-1.3	-6.0	-3.8	13.7	14.7	18.2
Czech Republic	-2.7	-5.8	-5.2	30.0	35.3	40.0
Estonia	-2.8	-1.7	-1.0	4.6	7.2	8.0
Hungary	-3.7	-4.4	-3.8	72.3	78.4	78.5
Latvia	-4.2	-10.2	-7.7	19.7	36.7	45.7
Lithuania	-3.3	-9.2	-8.4	15.6	29.5	37.4
Poland	-3.7	-7.2	-8.0	47.1	50.9	55.5
Romania	-5.7	-8.6	-7.3	13.4	23.9	30.4
Slovenia	-1.8	-5.8	-5.8	22.5	35.4	40.7
Slovakia	-2.1	-7.9	-8.2	27.8	35.4	42.1

*forecast
**Euro area (17)
Source: Eurostat, European Commission (2010c).

2.2. Catching-up model of the old and new cohesion countries and the main elements of the crisis

As the term "cohesion countries" indicates, one of the strategic aims of the EU is the catching up of the less developed Member States. The characteristic feature of the European catching-up model is that the source of it is not only domestic savings but foreign capital. In the literature the emerging Europe (the post-socialist new members with candidate countries, Herrmann–Winkler 2009) or the new Member States (European Commission 2009) are usually compared to emerging Asia that the level of saving and investment is much higher, and saving rate is higher than investment rate in the later (Figure 3).

Figure 3. Saving and investment rates in emerging Europe and emerging Asia, weighted and non-weighted averages (nw), 1994-2006



Source: Hermann–Winkler (2009) p. 12.

Although statistical data indicate that there is a similar gap between the saving and investment rates in the old cohesion countries as in the new ones, at European level the difference is not more than 2 percentage points. Before the crisis the saving rates were extremely low in Greece, in the Baltic States, Romania and Bulgaria compared not only to Asian countries but to the EU average. The saving rates in the Czech Republic, Hungary, Slovenia and Slovakia complied with the EU average (Table 5).

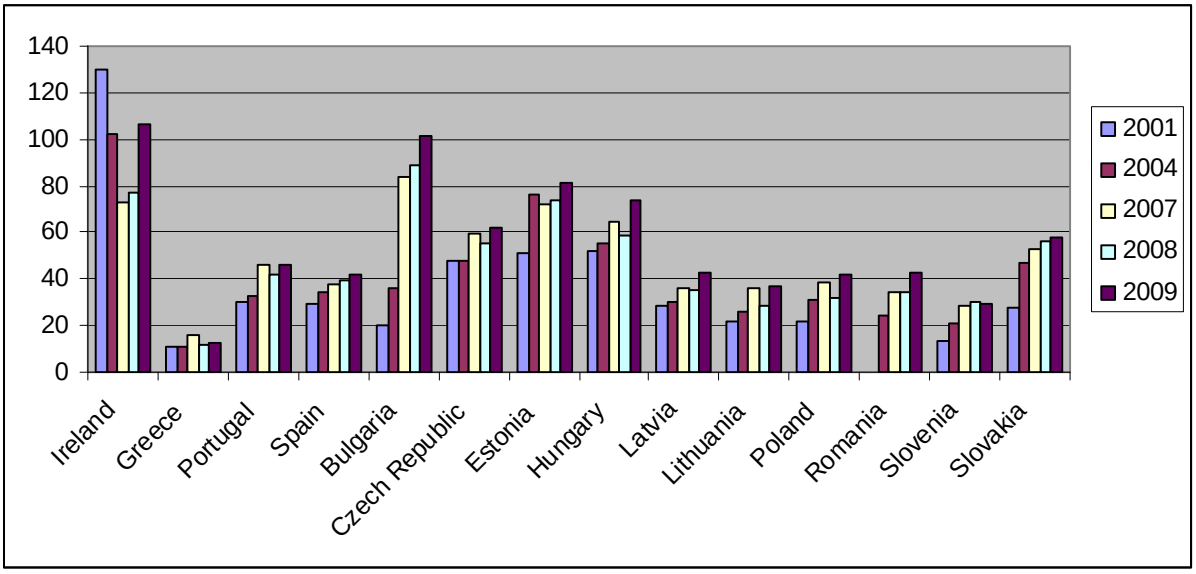
Table 5. Gross saving of the private sector and gross fixed capital formation (investments), % of GDP, 2002-2010.

	2002-06 average		**2006**		**2007**		**2008**		**2009**		**2010**	
	S	**I**	**S**	**I**	**S**	**I**	**S**	**I**	**S**	**I**	**S***	**I**
EU27	*19.5*	19.7	*18.9*	20.7	*19*	21.3	*19.2*	21.1	*20.5*	19.1	*20.8*	18.5
Euro a.	*20.4*	20.4	*20*	21.4	*19.9*	21.8	*19.7*	21.6	*20.7*	19.7	*21.1*	19.2
Old cohesion countries												
Ireland	*18.4*	23.8	*18.6*	27.1	*17.5*	26.4	*17.8*	22.1	*19.2*	15.5	*19.2*	11.3
Greece	*12.5*	21.9	*11.6*	20.9	*10.6*	20.9	*10.9*	19.1	*14.7*	17.1	*11.4*	14.7
Portugal	*16.8*	23.9	*14.1*	22.4	*13.1*	22.2	*12*	22.5	*15.8*	19.9	*14.8*	19
Spain	*17.8*	28.3	*15.6*	30.6	*14.1*	30.7	*18.4*	28.7	*24.1*	24	*22*	22.5
New cohesion countries												
Bulgaria	*8.2*	20.8	*4.7*	27.6	*-0.5*	28.7	*6.6*	33.6	*13.8*	28.9	*19.4*	23.5
Czech R.	*19.8*	26.2	*21*	24.7	*19.7*	25.2	*21.5*	23.9	*21.5*	22.5	*20.7*	21.8
Estonia	*16.7*	31	*16.2*	36	*14.4*	34.4	*17.4*	28.6	*22.3*	21.6	*24.5*	18.6
Hungary	*19.3*	22.7	*20.3*	21.8	*16.9*	21.4	*17*	21.4	*20.5*	20.9	*21.1*	19.3
Latvia	*17.2*	26.6	*11.7*	32.6	*12.3*	33.7	*17.5*	29.3	*33.8*	21.5	*26.7*	18
Lithuania	*13.5*	21.6	*12.9*	25.2	*12.2*	28.3	*12.6*	25.4	*19.6*	17.1	*21.3*	16.1
Poland	*17.9*	18.3	*17.4*	19.7	*16.9*	21.6	*17.8*	22.3	*20.2*	21.2	*20.8*	19.5
Romania	*13.9*	22	*11.6*	25.6	*13.2*	30.2	*18.8*	31.9	*23.5*	26.2	*22.4*	22.7
Slovenia	*23*	24.3	*23.7*	26.5	*22.5*	27.7	*21.5*	28.8	*22*	23.9	*23.2*	22.3
Slovakia	*19.9*	25.6	*19.9*	26.5	*21.9*	26.1	*20.1*	24.7	*20.3*	20.6	*24*	20.3

Note: S = gross saving rate of the private sector, I = gross fixed capital formation rate.
*Gross saving rate 2010: forecast.
Source: Eurostat, European Commission (2010c).

The huge capital inflows relaxed the domestic savings constraints on capital accumulation and investment largely surpassed savings. The ratio of the FDI stock compared to GDP is different across the countries but it was below 34% only in Greece and Slovenia, between 34 and 46% in Portugal, Spain, Latvia, Lithuania, Poland, Romania and over 50% in Ireland, Bulgaria, the Czech Republic, Estonia, Hungary, Slovakia (Figure 4).

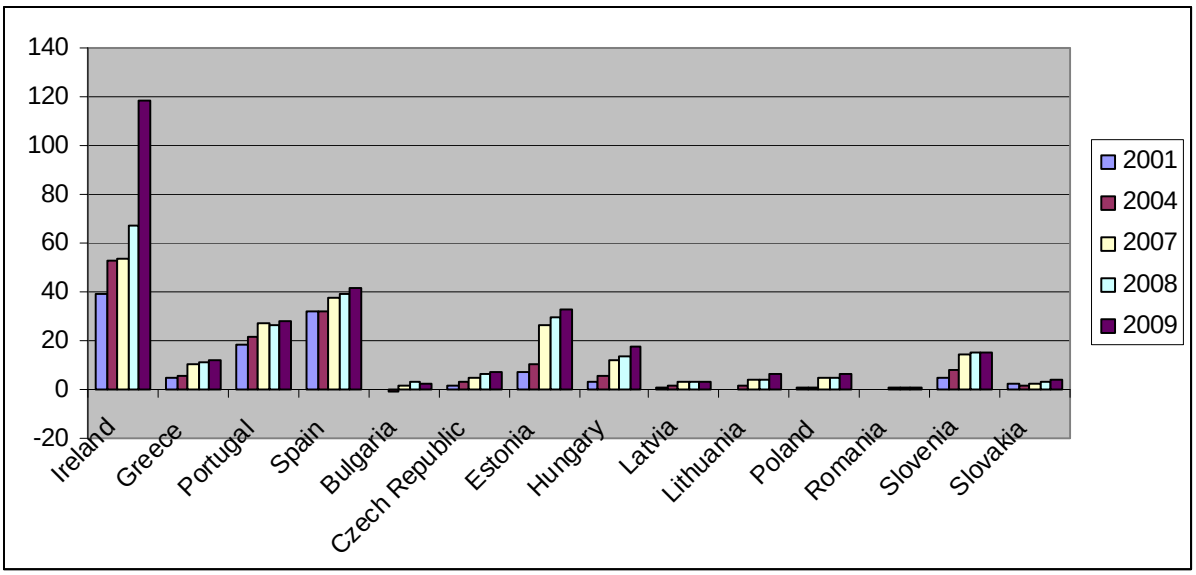
Figure 4. Direct investment stocks in the reporting country as % of GDP (2001, 2004, 2007-2009)



Source: Eurostat.

The significant difference between the old and new cohesion countries is that the old ones: Ireland, Spain and Portugal deliver substantial FDI abroad. Estonia is the only country which has heavily invested abroad recently and its FDI stock as percentage of GDP has reached the Portugese level (Figure 5).

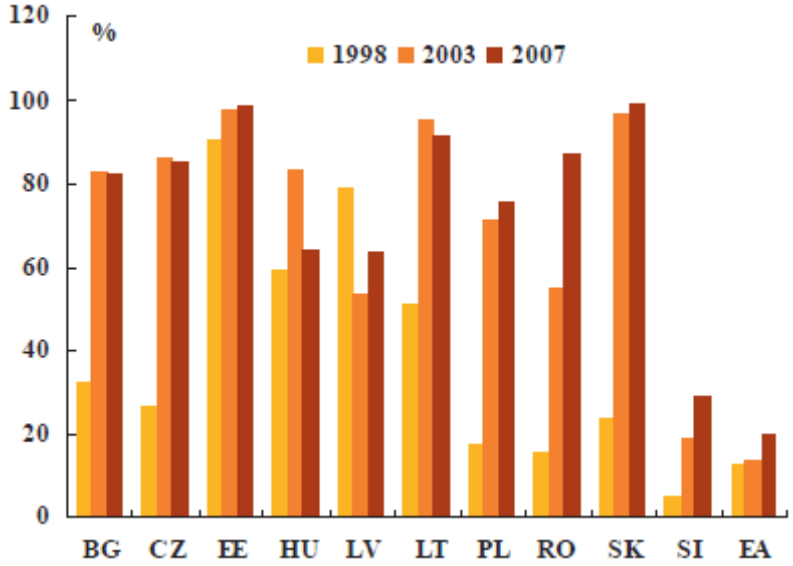
Figure 5. Direct investment stocks abroad as % of GDP (2001, 2004, 2007-2009)



Source: Eurostat.

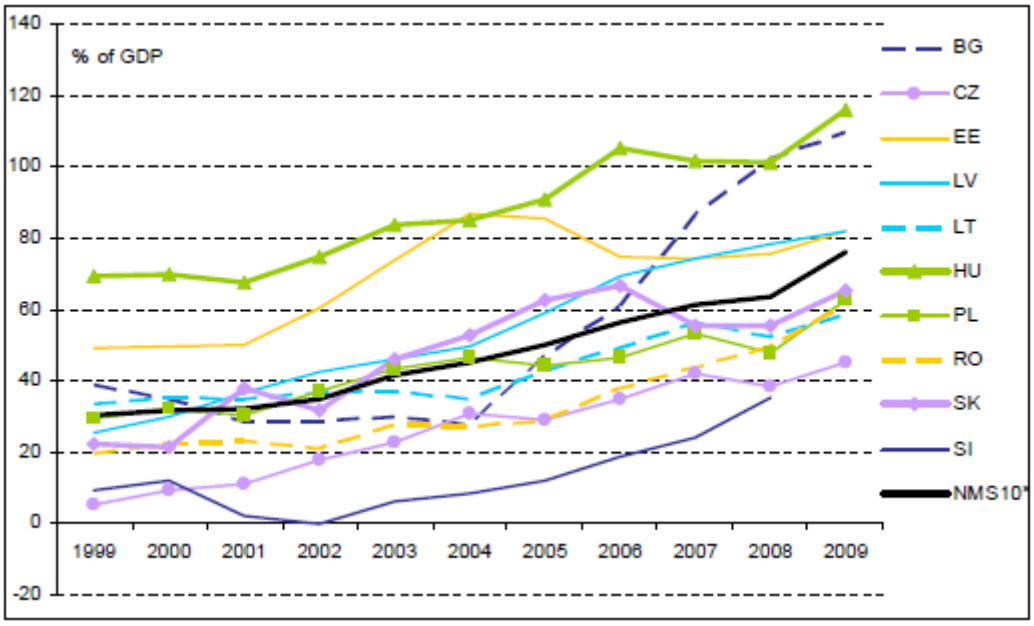
FDI has also been strong in the financial sector of the new cohesion countries and has resulted in a dominance of foreign-owned banks (Figure 6). However, financial integration and globalization has led to a large increase in cross border holdings of foreign assets and liabilities. Net foreign liabilities have already increased in the majority of the cohesion countries prior to the crisis (Figure 7), in three old cohesion countries, in Greek, Portugal and Spain reached 80-100% of GDP (European Commission 2010d).

Figure 6. *Foreign ownership in the banking sector in the new Member States (1998, 2003, 2007).*



Note: EA - un-weighted average at 12 members.
Source: European Commission (2009) p. 6.

Figure 7. *Evolution of net foreign liabilities from 1999 to 2009*



Note: *Un-weighted average: for Slovenia, the latest available data are for 2008.
Source: Jevčák et al. (2010) p. 6.

As a consequence of the catching-up model, the merchandise trade balances and the current account balances have had substantially more deficit than the EU average in all cohesion countries over the last decade; the only exception is Ireland with large trade surplus. The deficit has been at relatively moderate level in the Czech Republic, Poland and Slovenia, and the trade deficit seems to be sustainable in Hungary. It is not surprising after the transition from a socialist system to a market economy that in the new Member States economic growth has been mainly driven by domestic demand while net exports have contributed negatively to economic expansion between 2003 and 2007, apart from the Czech Republic, Hungary and

Slovakia (European Commission 2009). Nevertheless it requires further explanation that the composition of growth is similar in the Mediterranean countries after twenty five or thirty years of EU membership.

The strong fall of world trade and the tightening credit rules have hit these economies seriously but in eight countries the decrease of import was even larger than the decrease of export and both trade and current account balance have improved slightly by 2010 (Table 6).

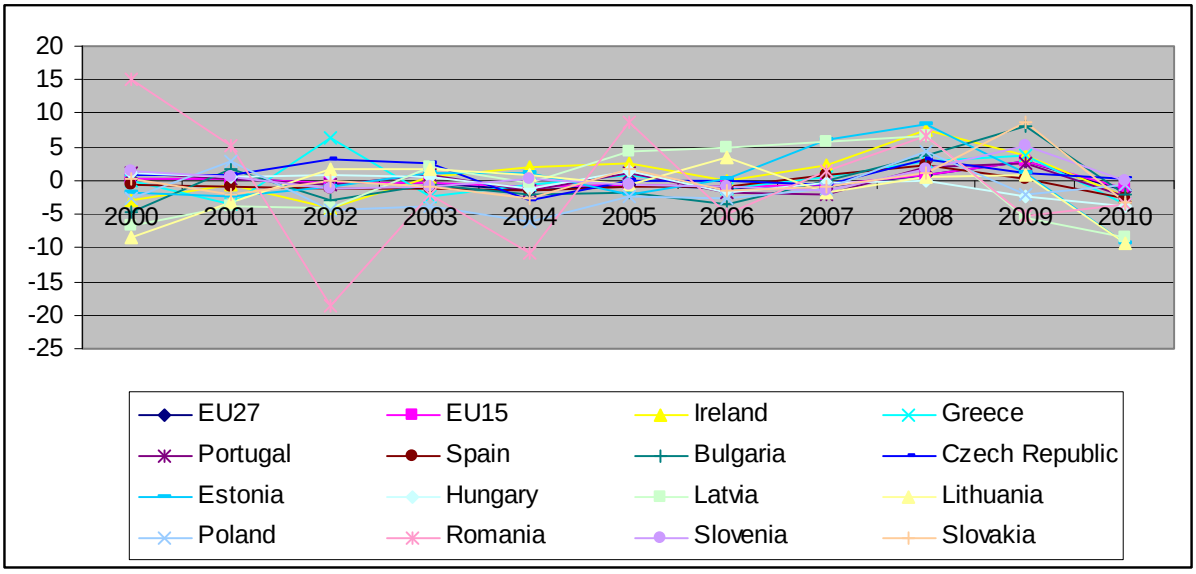
Table 6. Merchandise trade balance and current account balance as % of GDP, 2002-2010.

	2002-06 average		2006		2007		2008		2009		2010*	
	T	**CA**	**T**	**CA**	**T**	**CA**	**T**	**CA**	**T**	**CA**	**T**	**CA**
EU27	*0.3*	0.0	*-0.6*	-0.4	*-0.7*	-0.5	*-1.1*	-1.0	*-0.2*	-0.6	*-0.3*	-0.5
Euro a.	*1.5*	0.5	*0.6*	0.3	*0.8*	0.2	*0.2*	-0.8	*0.7*	-0.7	*0.6*	-0.5
Old cohesion countries												
Ireland	*20.6*	0.5	*13.2*	-1.3	*10.5*	-3.7	*13.2*	-5.5	*20.3*	-3.1	*22.9*	-1.1
Greece	*-18.2*	-11.8	*-18.1*	-12.8	*-19.7*	-15.7	*-20.5*	-16.4	*-16.4*	-14.0	*-13.1*	-10.6
Portugal	*-10.1*	-8.9	*-10.9*	-10.8	*-10.9*	-10.2	*-12.9*	-12.5	*-10.1*	-10.4	*-10.8*	-10.7
Spain	*-6.5*	-6.0	*-8.4*	-9.0	*-8.6*	-10.0	*-7.8*	-9.6	*-4.2*	-5.5	*-4.3*	-4.8
New cohesion countries												
Bulgaria	*-16.8*	-8.6	*-21.1*	-17.4	*-23.6*	-20.1	*-24.3*	-20.6	*-11.7*	-8.4	*-6.8*	-3.3
Czech R.	*-0.4*	-4.4	*2.0*	-2.1	*3.4*	-2.6	*2.7*	-0.8	*4.5*	-1.2	*5.0*	-1.9
Estonia	*-15.7*	-11.8	*-17.3*	-15.7	*-17.2*	-17.2	*-12.2*	-8.8	*-3.9*	4.5	*-4.7*	4.1
Hungary	*-3.3*	-8.1	*-2.8*	-7.7	*-0.2*	-7.0	*-0.6*	-6.9	*3.5*	-0.4	*4.9*	0.8
Latvia	*-19.7*	-12.5	*-25.6*	-22.5	*-23.9*	-22.3	*-17.7*	-13.1	*-7.1*	8.6	*-7.7*	3.9
Lithuania	*-10.8*	-7.4	*-13.9*	-10.4	*-15.0*	-15.1	*-13.0*	-13.1	*-3.1*	2.6	*-1.1*	2.6
Poland	*-2.3*	-2.4	*-2.0*	-3.0	*-4.0*	-5.1	*-4.9*	-4.8	*-1.0*	-1.9	*-1.6*	-2.7
Romania	*-8.8*	-6.3	*-12.0*	-10.6	*-14.3*	-13.6	*-13.6*	-11.4	*-5.8*	-4.5	*-4.6*	-5.5
Slovenia	*-2.9*	-1.4	*-3.8*	-2.4	*-4.9*	-4.5	*-7.2*	-6.8	*-2.1*	-1.3	*-2.1*	-0.7
Slovakia	*-5.2*	-7.5	*-5.4*	-8.3	*-1.8*	-5.1	*-1.6*	-6.9	*1.5*	-3.4	*1.7*	-2.9

Note: T = merchandise trade balance, CA = current account balance.
*2010 forecast
Source: European Commission (2010c).

The large deficit of current account refers to problems in competitiveness. Real unit labour cost points out if the growth of wages outpaces productivity growth that undermines cost and price competitiveness. During the last decade the gap between wages and productivity were not significant. For some years prior to the crisis, the growth of compensation per employees has exceeded the growth of productivity in Ireland, Latvia and Estonia. Fluctuation of real unit labour cost growth was large in Romania (Figure 8).

Figure 8. Real unit labour cost growth, 2000-2010.



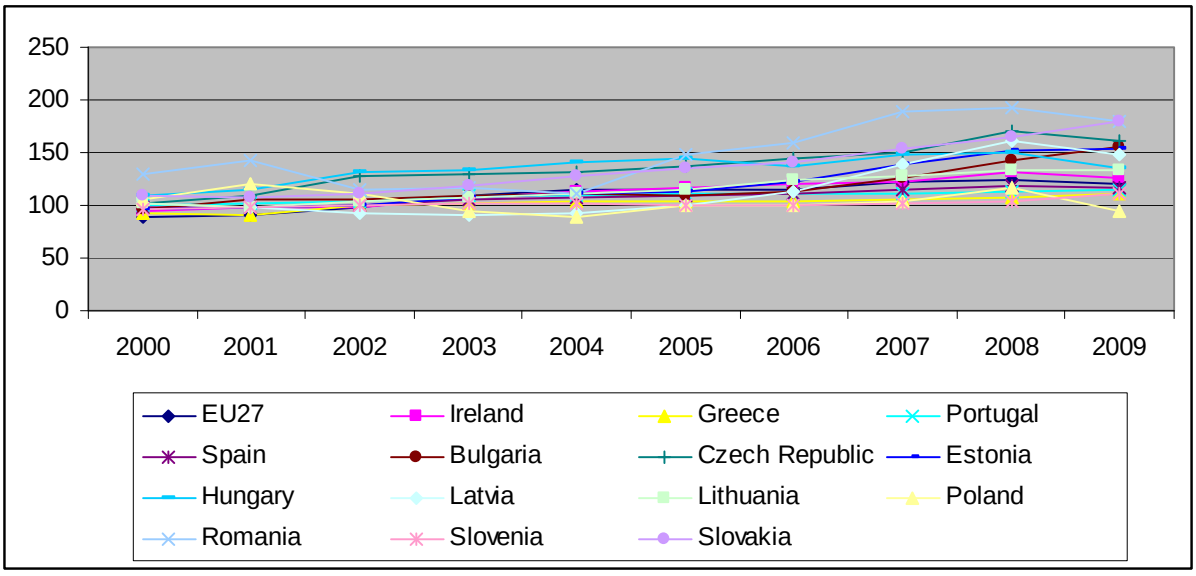
Note: Growth rate of the ratio: compensation per employee in current prices divided by GDP in current prices per total employment.
Source: Eurostat.

The explanation of competitiveness problem lies in the eroded external competitiveness relative to core European countries, mainly to Germany. In the decade preceding the crisis the EU experienced significant and persistent divergence in its Member States' competitiveness. It is measured by real effective exchange rates (REER). The REER aims to assess a country's price or cost competitiveness relative to its principal competitors in international markets.

Considering the birth of euro as a starting point, all countries' REER significantly increased that is the countries experienced appreciation (Figure 9). It is thoroughly discussed in the literature that in the euro area depreciation of nominal exchange rates is not eligible for accommodation to external competition anymore and the old cohesion countries could not give appropriate response to country-specific shocks (European Commission 2010d).

In the less developed Member States the Balassa-Samuelson effect can play role which would imply a rise in relative price levels and an appreciating real rate without a corresponding weakening of cost competitiveness. Investigations state that evidence does not support the view that Balassa-Samuelson effects were the main explanation for the significant real appreciation in the majority of cohesion countries (European Commission 2010a, 2010b). Before the crisis Poland and Slovenia preserved the lowest REER (103 and 101 in 2007 relative to 1999).

Figure 9. Real effective exchange rate (2000-2009), index 1999 = 100.

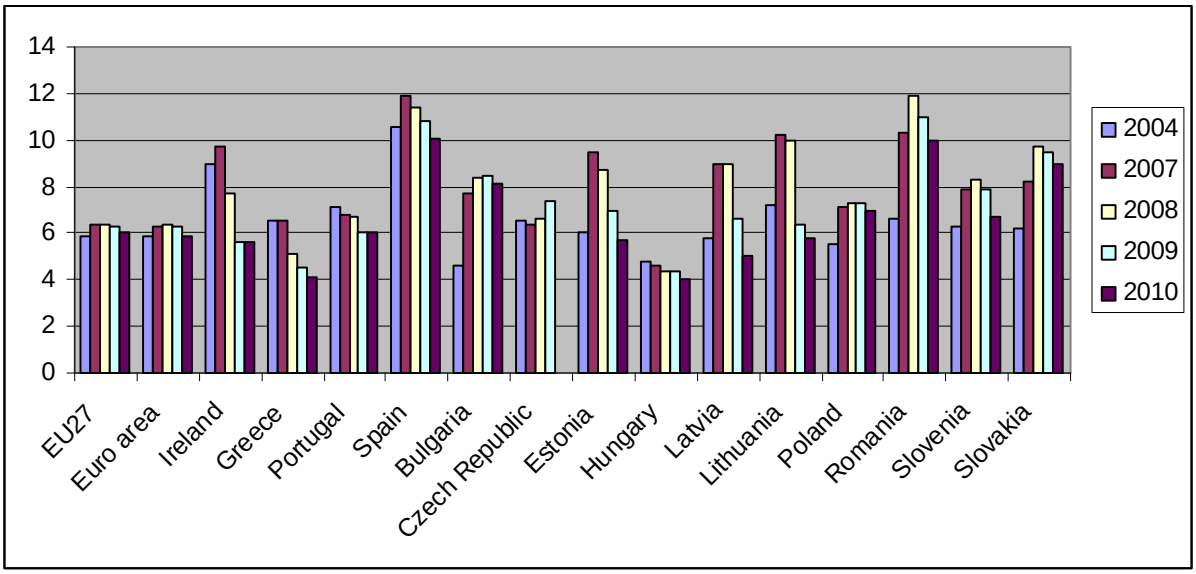


Note: The REER is deflated by nominal unit labour costs (total economy) against a panel of 36 countries (= EU27 + 9 other industrial countries: Australia, Canada, United States, Japan, Norway, New Zealand, Mexico, Switzerland, and Turkey).

Source: Eurostat.

In some countries the overheated housing investment boom and the resulting fall in house prices aggravated the crisis. Ireland, Spain and the Baltics had been hit the most severely (Figure 10). Despite the high share of construction in Romania, real estate bubbles have not evolved in housing market.

Figure 10. Construction - gross value added, at current basic prices and current exchange rates as % of all branches.



Source: Eurostat.

2.3. The building up of economic imbalances

After reviewing the main elements of the crisis, we have to pay attention to the differences across the countries in the building up of economic imbalances. In the majority of the countries structural problems, imbalances have already accumulated prior to the crisis.

In Ireland the economic expansion from 2002 to 2007 was very strong. However, economic performance was weaker relative to the period of 1995 to 2000. Especially, productivity growth slowed down. This process associated with strong investment in real estate and borrowing. Housing investment peaked in 2006 and fell already by 15% in 2007. The big banking sector is a special burden for Ireland. The statistical measure of the banking sector size has difficulties but the Irish banking sector seems to be the largest in the EU relative to GDP (OECD 2009c). Some authors regard the deeper root of worsening economic performance in the remaining duality between foreign and indigenous firms (Kirby 2010, Andreosso-O'Callaghan – Lenihan, 2010). After the slowdown in the US economy at the beginning of the last decade, the FDI inflows diminished, the investment income transfers from Ireland grew to 15% of GDP (Artner 2007).

In Greece years of robust growth followed adoption of the euro. The driving force behind this very strong performance was the steady increase of private credit, some improvement in the regulation of product markets, the fiscal stimulus created by the 2004 Olympic Games, the influx of funds from the EU. However, the Greek economy retained several weaknesses that undermined its competitiveness. Beyond the abovementioned appreciation of REER and excessive trade balance deficit, low FDI inflows, rigidities of market regulation (both of product and labour markets) and high level of corruption were characteristic (Mitsopoulos-Pelagidis 2011). The deterioration of the current account in Greece (similarly to Portugal and in less extent to Spain) is partly due to a large reduction of net transfer from the EU and to the increasing remittances by immigrants. All the three countries have suffered from the decline of their net investment income because of their growing stock of net foreign liabilities (OECD 2009b).

In Spain the crisis has accelerated the sharp domestic adjustment of the external imbalance and the oversized residential construction industry built-up prior to the crisis. High rates of business and residential investment has been financed by the dynamically growing private sector indebtedness. It led to the substantial current account deficit in spite of a prudent fiscal policy and adequate financial supervision (Fitz Gerald 2009, OECD 2010f). Before the crisis Spain seemed to be one of the most successful economies. The fourteen-year uninterrupted growth was aided by low interest rates and 5 million immigrants (one-third of them from Latin America). However, over the last decade Spain has not addressed its fundamental problem, its declining productivity. Growth was largely based on low-productivity sectors such as services and construction, which are not exposed to international competition (Royo 2010).

Portugal had impressive economic performance in the 1990s that started to deteriorate in 1998 when major infrastructure projects and Expo 98 ended. After the accession to EMU the pressure to fulfil the Maastricht criteria was no longer incentive to continue fiscal consolidation efforts. Easy access to cheap credit boosted domestic demand of households and it shifted resources from tradables to nontradables. Portuguese (like Spanish) industries have become vulnerable to competition owing to cheaper wage producers in emerging Europe and Asia. In Portugal the same causes of low productivity can be found such as in Greece and

Spain: inadequate education of labour, low investment in R&D and information technology, inadequate structure of labour market. Since the early 2000s, Portugal's convergence process towards more developed EU Member States has come to a halt. Low economic growth was combined with a large current account deficit. One of the most important reasons for the poor performance of the economy between 1999 and 2006 was the lack of fiscal discipline. The results of fiscal consolidation and reforms introduced in 2006 were damaged by the crisis OECD 2010d, Royo 2010).

Thanks to comprehensive structural and institutional reforms, the Baltic economies were growing by 8-9% on average over the period of 2001-2007. By the mid-2000s this buoyant growth was accompanied by signs of overheating and by growing imbalances. By 2007, the overheating phase reached its peak associated with pro-cyclical financial policy. Falling risk premia, easy access to cross-border bank finance allowed for large investment rate and fuelled consumption. Significant feature of the credit boom was borrowing in foreign currencies. Since 2003 imbalances have been reflected in inflation, especially in the prices of the housing sector. Between 2004 and 2008 the growth of wages outpaced productivity growth which undermined competitiveness. The progressive real appreciation of the currencies was accompanied by increasing account balance deficit. Private services contributed to growth strongly compared with the Visegrád countries and Slovenia. Conversely, the contribution to growth from high-tech industries was relatively weak (European Commission 2010b, OECD 2009a).

Following several years of robust growth, the Bulgarian economy continued to increase rapidly in 2008 due to private consumption and investment demand. The full impact of the global crisis reached Bulgaria in 2009. Over the previous years Bulgaria achieved a successful fiscal consolidation, but fiscal policy has loosened since the recession. The labour market tightened as a result of domestic demand in non-tradable sectors. Labour shortages led to wage growth exceeding productivity gains. The real-effective exchange rate has appreciated sharply since mid-2006 because of wage growth. Despite that, the share of Bulgaria's exports in world markets is still increasing. In recent years Bulgaria has accumulated large external debt. Between 2004 and 2009 gross external debt increased from 64% to 111% of GDP, almost the 90% of which is private debt (Breuss 2009, European Commission 2010a).

After several years of strong growth, the Czech economy slowed in 2008, it was driven by diminishing exports and investment as a consequence of weakening global demand. The Czech Republic is one of the exceptions among the cohesion countries where the downturn was imported. Prior to the crisis the economy had healthy economic indicators, sustainable external and fiscal balance, flexible exchange rate, low inflation, sound banks and thus it does not have to tackle domestic financial bubbles (OECD 2010a).

Hungarian economy had had serious imbalances prior to the crisis since 2002. High external debt was at the root of its vulnerability. The external debt rose from 66% of GDP in 2004 to 120% of GDP in 2008. Two third of external debt was private in 2008. The surge in households' foreign currency borrowing started in 2003, triggered by low foreign interest rates. The gross public debt and general government deficit has substantially exceeded Maastricht criteria for several years. Before the outbreak of the crisis, Hungary achieved significant fiscal consolidation gains. The crisis has hit the economy particular severely (OECD 2010b).

Poland was the best performer in the EU during the crisis because the economic growth slowed down but it avoided contraction. The financial crisis helped to curb imbalances that had been accumulating since 2006. The deficit of current account and inflation had been significantly increased since then. At the end of 2008 the fear of collapse of the mainly foreign-owned Polish financial system and of capital outflows triggered a significant yet orderly exchange rate depreciation that provided a substantial underpinning to the relatively closed economy (European Commission 2010a, OECD 2010c).

In Romania, economic growth dropped from 7% on average in 2006-2008 to -7.1% in 2009. However serious imbalances were built up prior to the crisis. Romania's external deficit reached a peak of 12.8% of GDP in 2007, before narrowing to 11.1% of GDP in 2008. The rapid widening of the external deficit between 2005 and 2007 reflected largely a worsening in the trade balance as imports were boosted by growing domestic demand. The real effective exchange rate appreciated strongly between 2004 and mid-2007 due to the trend of nominal appreciation of the leu and growing real unit labour costs. The leu's exchange rate fluctuated widely in the course of the 2000s. The appreciating trend between 2004 and 2007 was followed by depreciating trend from late 2007. The depreciation of the leu between mid-2008 and early 2009 contributed to an easing of monetary conditions. Romanian public finances suffered from a high structural deficit in the proceeding years of the global crisis, following largely pro-cyclical policies during the years of buoyant growth around the EU accession (Breuss 2009, European Commission 2010a).

Domestic fundamentals were comparatively solid in Slovakia. Even though household debt had risen significantly in the years prior to the crisis, it was not excessive. The financial sector was supported by the high ratio of deposits to loan, and an almost complete absence of foreign-denominated housing loans. Entering the EMU helped Slovakia during the crisis to keep government yields below those of similar countries. Although the REER appreciated in 2008, this had only a limited adverse effect on export performance. The recession was deep in 2009 due to the tight trade relations with western European countries and this was reflected in the extremely increasing unemployment (OECD 2010e).

Slovenia achieved dynamic economic growth during the last decade and converged successfully toward the development level of the EU15. During 1997-2007, the growth was driven mainly by labour productivity gain. Its economy has been affected by the falling foreign demand. The banking sector is vulnerable to the financial crisis partly owing to the excessive credit growth. The banks have been hit by the drying up of international refinancing (OECD 2009d).

3. CONCLUSIONS

By studying empirical data on the main features of the crisis, we can outline the common roots of the crisis in the cohesion countries.

- In the majority of the countries the crisis exacerbated underlying weaknesses. Only the Czech Republic, Poland, Slovakia and Slovenia had comparatively solid domestic fundamentals prior to the crisis.
- In all countries there was a sizeable gap between saving rates and investment rates. In the majority of the countries, saving rates are lower compared not only with emerging Asia but with the EU average.
- The catching-up model of these countries is based on the attraction of foreign capital.

- Due to the previous factors, the current account deficit is high which has been driven by a rise in investment.
- Despite the difference between the old and new cohesion countries in the share of foreign ownership in the banking sector, net foreign liabilities have sharply increased in the majority of countries already prior to the crisis. Both the decreased interest rate in the euro area members and the fall in the foreign risk premium for the new Member States increased the access to credit.
- Whether these countries are the member of the euro area or not, they experienced a continuous appreciation of their real effective exchange rates. The level of appreciation exceeded the level of possible Balassa-Samuelson effect and deteriorated their price and cost competitiveness.

These elements of the crisis are not unknown in the literature but the old cohesion countries and the new ones are always studied separately form each other. The institutional investigation showed significant differences between Ireland, the Mediterranean and the CEEC. However the crisis demonstrates that there are common features in the catching-up model in this area. This model has not made them able to build an internationally competitive, innovation driven indigenous economy. Those countries seem to be the least vulnerable in the crisis which showed the best performance in Lisbon reforms and followed a cautious, prudential and disciplined economic policy, like the Czech Republic and Slovenia. In the case of Poland the weaker performance in Lisbon reform was offset by the greater, relatively closed economy.

BIBLIOGRAPHY

Amable, B. (2003): **The Diversity of Modern Capitalism.** Oxford: Oxford University Press.

Andreosso-O'Callaghan, B.- Lenihan, H. (2010): **Achieving a 'sustainable' industrial-base – why do two small open economies perform differently: The case of Ireland and Sweden.** address given at Regional Studies Assocation Conference *Regional Responses and Global Shifts: Actors, Institutions and Organisations,* Pécs, Hungary 24-26 May 2010.

Artner, A. (2007): **A növekedés ára – az ír foglalkoztatási viszonyok.** (The price of growth – employment in Ireland) *Statisztikai Szemle*. 85:6. 485-506

Barysch, K.- Tilford, S. - Wanlin, A. (2007): **The Lisbon Scorecard VII. Will globalisation leave Europe stranded?** London: Centre for European Reform.

Barysch, K. - Tilford, S. - Whyte, P. (2008): **The Lisbon Scorecard VIII. Is Europe ready for an economic storm?** London: Centre for European Reform.

Breuss, F. (2009): **An Evaluation of the EU' Fifth Enlargement. With special focus on Bulgaria and Romania.** European Economy. Occasional Papers. 58/2010.

European Commission (2009): **Five years of enlarged Europe.** European Economy. 1/2009.

European Commission. (2010a): **Convergence report 2010.** European Economy. 3/2010.

European Commission (2010b): **Cross-country study. Economic policy challenges in the Baltics.** European Economy. Occasional Papers. 58/2010.

European Commission (2010c): **European Economic Forecast – Autumn.** European Economy. 7/2010.

European Commission (2010d): **Surveillance of Intra-Euro-Area. Competitiveness and Imbalances.** European Economy. 1/2010.

Farkas, B. (2008): **The First Cycle of the Relaunched Lisbon Strategy.** in: Jesien. L. ed.: ***European Policy in the Making.*** Kraków: Tischner European University.

Farkas, B. (2011): **The Central and Eastern European Model of Capitalism.** *Post-Communist Economies* 23:1. 15-34

Fitz Gerald, J. (2009): **Blowing Bubbles – and Bursting Them: The case of Ireland and Spain.** address given at Euroframe Conference, London, 12th June, 2009.

Herrmann, S. – Winkler, A. (2009): **Real convergence, financial markets and the current account Emerging Europe versus emerging Asia.** European Economy. Economic Papers. 362/ 2009.

Jevčák, A. – Setzer, R. – Suardi, M. (2010): **Determinants of Capital Flows to the New EU Member States Before and During the Financial Crisis.** European Economy. Economic Papers. No. 425. 2010.

Kirby, P. (2010): **Celtic Tiger in Collapse. Explaining the Weaknesses of the Irish Model.** Hampshire-New York**:** Palgrave Macmillan.

Marer, P. (2010): **A világválság és Kelet-Európa.** (The World Crisis and Eastern Europe) *Külgazdaság.* 54: 3-31.

Mitsopoulos, M. – Pelagidis, T. (2011): **Understanding the Crisis in Greece. From Boom to Bust.** Hampshire-New York**:** Palgrave Macmillan.

OECD (2009a): **OECD Economic Surveys: Estonia.** Paris: OECD.

OECD (2009b): **OECD Economic Surveys: Greece.** Paris: OECD.

OECD (2009c): **OECD Economic Surveys: Ireland.** Paris: OECD.

OECD (2009d): **OECD Economic Surveys: Slovenia.** Paris: OECD.

OECD (2010a): **OECD Economic Surveys: Czech Republic.** Paris: OECD.

OECD (2010b): **OECD Economic Surveys: Hungary.** Paris: OECD.

OECD (2010c): **OECD Economic Surveys: Poland.** Paris: OECD.

OECD (2010d): **OECD Economic Surveys: Portugal.** Paris: OECD.

OECD (2010e): **OECD Economic Surveys: Slovakia.** Paris: OECD.

OECD (2010f): **OECD Economic Surveys: Spain.** Paris: OECD.

Royo, S. (2010): **Portugal and Spain in the EU: paths of economic divergence (2000-2007).** *Análise Social.* 45: 209-254

Sapir, A. (2006): **Globalization and the Reform of European Social Models.** *Journal of Common Market Studies,* 44: (2) 369-390.

Tilford, S. – Whyte, P. (2010): **The Lisbon Scorecard X. The road to 2020.** London: Centre for European Reform.

POLISH MIGRANT ENTREPRENEURIAL STRATEGIES IN THE UK

Ewa Helinska-Hughes
University of the West of Scotland
PAISLEY PA1 2BE
SCOTLAND, UK.
Phone: ++ 44 141 848 3356; Fax: ++ 44 141 848 3618
E-mail: ewa.helinska-hughes@uws.ac.uk

Dr Jennifer Hughes
Croydon Health Services
CROYDON CR7
UK

Professor Michael Hughes
University of Aberdeen
ABERDEEN AB24 3QY
SCOTLAND
Phone: ++44 1224 272712; Fax: ++ 44 1224 272181
E-mail: m.d.hughes@abd.ac.uk

Paul Lassalle
University of the West of Scotland
PAISLEY PA1 2BE
SCOTLAND, UK.
Phone: ++ 44 (0) 141 848 3369 ; Fax: ++ 44 (0) 141 848 3618
E-mail: paul.lassalle@uws.ac.uk

Key words: *Polish migrant, Polish entrepreneur, Ethnic business, Entrepreneurial strategy.*

ABSTRACT

One of the major challenges to the European Union's vision, and for candidate countries, is the fulfillment of conditions associated with the Single Market. The free movement of labour is perhaps the most difficult obligation for smaller economies such as Scotland since there are so many repercussions for the State's budget in terms of social security, health and welfare. Since there has already been significant migration within the enlarged EU from 2004, there are some important issues to be discussed based on the experience of migrant origin and destination, and the processes linked to settlement. Within the realm of how to best support migrant communities, and enable them to sustain a viable standard of living, there is a clear policy relevant research agenda that could alleviate undue pressure upon stretched State finances. This paper will address the specific issue of migrants from Poland to the UK who have come to work. However, their journey and experience reveals some important and surprising outcomes. Perhaps the most crucial outcome is the disparity between expectations and actual work experience once the migrant has settled and begins to reflect upon the attainment of an anticipated positive standard of living but negative job satisfaction. Our research indicates that migration will pose problems for State institutions and finances; but many migrants can and will adopt more entrepreneurial solutions by starting up their own

businesses. If this scenario can be better understood, then modest amounts of investment based upon solid research findings will relieve disproportionate pressure on the public purse.

Based on case studies conducted in Scotland, the paper focuses on the experiences of Polish Entrepreneurs in a migration context. Little is known about Polish immigrant businesses that have been set up in Western Europe in this latest EU post-enlargement era. The aim of this paper is to examine the key factors leading to emigration, business start-ups and settlement by Polish Entrepreneurs in the UK. This includes the role of 'household strategies' adopted by migrant families and their relationship with the Polish community.

1. INTRODUCTION

The current study relates to the issue of Polish business start-ups and the findings are based on research in the greater Glasgow area and environs, comprising narrative interviews with entrepreneurs within this community. The analysis of this specific population is interesting for several reasons. First, life trajectories comprising the decisions to emigrate and subsequent long-term settlement are not particularly well understood within this recent wave of migration from Poland. These trajectories are often exemplified by the decision to return to Poland ('pendular migration'), or by the decision to start-up a business. Therefore, the research attempts to address the issue of business start-ups as part of a long-term settlement strategy; and why and how this decision occurred. Second, the analysis of relationships between Polish entrepreneurs and the Polish community contributes to the academic debate on migration networks, and their role in this immigrant population.

The analysis will begin by exploring the background of recent waves of migration from Poland to the UK from 2004 following recent European Union enlargement; including a brief discussion of the migration from the A8 countries. It will then explore the conceptual and theoretical approaches to Ethnic Minority Entrepreneurship; and outline the methodology employed for data collection and case-study profiling of Polish entrepreneurs.

1.1. Migration data

In May 2004, Poland became a member of the European Union (EU) along with seven other countries (often referred to as the A8 countries). The UK was one of the few countries that did not place any conditions on the flow of labour, so Polish nationals were legally entitled to enter the UK in search of employment. Since then the UK has witnessed an influx of Polish migrant workers that has exceeded the numbers forecast by UK government officials. An estimated one million workers have arrived from the A8 countries and Poles have gone from the 13th to first largest foreign national migrant group in the space of four years (IPPR, 2008). The IPPR study highlights the fact that some Poles are now returning home due to a combination of tightening economic conditions in the UK, and a comparatively weak pound coupled with an unprecedented surge in the Polish economy (Mostrous, 2008). Despite a paucity of accurate and reliable data on the magnitude of outward migration from Poland after May 2004, there are useful reports and studies on the inflows to the UK as well as evidence of outflow back to Poland (see IPPR, 2010; and Pollard et al., 2008). A recent study suggests that migrant Poles with high-skills who return to Poland have a significant positive impact on economic and regional development (Klagge and Klein-Hitpass, 2010).

While the reliability of the statistics on the number of Polish migrants currently in the UK is debatable, the socio-demographic picture of recent Polish arrivals is more quantitatively accessible. Eighty percent of them are below 34 years of age; most are single and work in lower segments of the labour market as well as filling in gaps in health services, education services, and finance (Home Office, 2009). The top five sectors in which Polish immigrants registered to work between May 2004 and December 2007 were administration, business and management (39%), hospitality and catering (19%), agriculture (10%), manufacturing (7%) and food, fish and meat processing (5%) (Home Office, 2008).

Certainly, a range of survey data suggests that as a group they are highly educated (IPPR, 2008). Therefore, there is a considerable discrepancy between the high levels of education that many Poles have attained and the low-skilled and poorly paid jobs in which the majority are employed. A survey of migrants that had returned to Poland found that educational attainment has no significant impact on respondents' earnings, and that those with vocational skills are more able to find work in skilled trades (IPPR, 2008).

1.2. Definitions, terms and characteristics.

The present research focuses on migrant workers who have arrived in the UK since May 2004. The term migrant worker has different official meanings and connotations in different parts of the world. For the purposes of this study, the United Nations (1990) definition will be used which is very broad, essentially including anyone working outside of their home country. The United Nations Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families defines migrant worker as "a person who is engaged or has been engaged in a remunerated activity in a State of which he or she is not a national."

At least five sub-categories of migrants have been identified: students, economic, asylum seekers; irregular or undocumented migrants, and displaced persons (Mladosky, 2007). A variety of theoretical models have been proposed to explain why international migration begins, and these employ a range of assumptions and frames of reference (Massey et al., 2003). A major pull factor was legal status in UK since 2004, and higher wages which points to neoclassical economic theory. The concept focuses on the differentials in wages and employment conditions between countries, and on migration costs; it generally conceives of movement as an individual decision for income maximization (Massey, 2002). Therefore, a cost benefit calculation is made, but before migrants can capture the higher wages associated with greater labour productivity they must undertake certain investments. These comprise *inter alia*: the material costs of travelling to the host country; finding new accommodation; the effort involved in learning a new language and culture; the difficulty experienced in adapting to a new labour market and conditions; the psychological and social capital costs of cutting old ties, and forging new ones (Massey, 2002).

Polish migrants have dispersed to a larger number of different areas of the UK than have any previous group of migrants (IPPR, 2008). This indicates that Poles' overwhelming motivation for coming to the UK is to work. Therefore, this present wave of migrant workers poses a unique set of characteristics, and represents a different body of migrants to those who had previously arrived from Poland. There are diverse groups and typologies of Polish migrants shaped by at least three generations of migratory history between Poland and Great Britain. They are characterised by multiple patterns of mobility and diverse diasporas identities (Garapich 2007). Smith and Eade (2008) identified four clear historical categories: post-war refugees, Communist regime émigrés, pre-2004 transit migrants, and EU accession migrants.

The trans-national activities of post war refugees and post EU accession migrants are quite different. The main line of division is a rigid boundary that can be drawn between 'political' migrants which characterises the majority of pre-1989 migrants, and the recent 'economic' migrants. Recent Polish migrants have found themselves in the difficult position of sharing a common historical identity with people with different social, class and even sometimes ethnic identities. Joly (2002) coined the term 'Odyssean refugees' to denote a distinct refugee identity that may come into conflict with people from the same ethnic group based upon class differences.

Significantly, Polish migrants are an example of what Solga (cited, in Kicinger, 2007) has termed a 'pendular society' whereby unattached young people leave Poland in order to seek employment, but are not sure how long they will stay in the UK. Thus, they often travel backwards and forwards to Poland several times a year. The category of temporary migrants may experience greater stressors since they do not have, or usually do not seek to establish, a full-scale social network in the host society (Berry et al, 2002). Though migrants may upgrade their social status as they begin to earn more money, questions can be posed about the psychological consequences of a 'pendular society' that this strategy creates (Kicinger, 2007). For example, when unattached young people leave Poland to seek employment, but do not leave behind a household and responsibilities compared to more mature migrants who plan to settle with their families. These issues have become more prominent since the early 2000's when Poles started bringing their spouses over to the UK, following an initial period of working and securing accommodation (usually by the male partner); or moving together as a family. This lead to a new pattern of migration and introduced more complex behaviours based upon household decision-making and longer term employment experiences comprising: reflecting upon job satisfaction, a re-assessment of the quality of family life, and the deciding to start-up a business.

2. NETWORKS AND WIDER SOCIAL ISSUES

Whenever migrants arrive in the host country, they find themselves deprived of most of their existing social networks, i.e. friends, family, co-workers, club-mates, neighbours. The literature on Polish migration identifies and highlights the main support available to Polish migrants in the UK. In a very comprehensive paper on the influence of the community on Polish migratory strategies, White and Ryan (2008) describe the different types of support that can be found amongst the Polish community. Hence, social support is divided between emotional, informational, and instrumental (or practical) support. These forms of support are mostly informal in the case of Poles, and are useful in understanding the assistance provided by existing and new networks to new migrants concerning accommodation, jobs, information, health, companionship or social 'warmth'.

The Polish migrant community in the UK is over represented in low skill and low paid occupations such as: catering, cleaning, babysitting, and hard physical labour in the construction industry (IPPR, 2008). This type of employment has been termed '3D jobs'; meaning 'dirty, dangerous and dull' (Favell, 2008; Martin, 1996). Notably, many Poles are reportedly working in conditions which do not meet minimum wage and health and safety standards (Weishaar, 2008). A Joseph Rowntree report by Spencer and colleagues (2007) found that migrants' experience at work, including low pay and long hours, had a significant impact on their lives beyond the workplace especially for those who worked at the weekend or night shifts. Furthermore, many migrant workers have post-school qualifications; and are

overqualified for the jobs in which they often find themselves employed (IPPR, 2008). Such cognitive under-stimulation and monotonous work are sources of frustration and boredom for these migrants (Weishaar, 2008). For a significant number of migrants, this dissatisfaction with their employment experience leads to savings being re-directed towards self-employment, and business start ups. This strategy is one that does depend upon a greater familiarity with the socio-economic environment, but our study suggests that for Poles it is more reliant on self-sufficiency and family solidarity. However, there are considerable barriers to adopting this pathway.

Due to unfamiliarity with the host nation's norms and language difficulties, many migrants can be exceptionally vulnerable (Robinson and Reeve, 2006). Research has shown that the ability to converse in the host country's language can be a key factor in whether migrants receive the information they need. Weishaar (2008) reported that language problems were identified as significant barriers for accessing information; and were a particular challenge in the work place. It is also crucial to be able to speak the native language in order to elicit and build social contacts with a host population (Finch et al., 2009). A recent study found that many Poles who spoke no English upon arrival were dependent on the practical support of co-ethnics and that this was a barrier to making friends (Ryan et al., 2006; Weishaar, 2008). A lack of integration into social networks or unfamiliarity with the foreign culture and society can make migrants more dependent on other people's friendliness and make them prone to exploitation as has been reported by some Polish migrants (Robinson and Reeve, 2006).

Notwithstanding these features and experiences associated with migration, especially job dissatisfaction, the commitment to long term settlement and household based strategic decision making has generated a significant number of Polish entrepreneurs. As we will argue, this entrepreneurial behavior has a number of distinctive characteristics within this community, and poses a challenge to the orthodox conceptual frameworks employed to understand and explain ethnic entrepreneurship.

3. THE ETHNIC MINORITY ENTREPRENEUR (EME)

The concept of an EME used in this analysis will comprise a number of types, ranging between the serial-entrepreneur, and the small business owner. With regard to the definition of 'ethnicity', this is based on the *nationality* of the immigrant rather than on *ethnic origin*. In this respect, the analysis focuses on business *solely* owned by a Polish person.

The immigrant entrepreneur usually engages with a communal network that has been established within a new socio-cultural environment. A new migrant becomes a group-insider by virtue of a shared identity (Ram and Jones, 2007)[1] and members of this social network can share ethnic resources (Light and Bonacich, 1988). However, the issue of access to specific resources depends on the nature of the links with the community, i.e. social capital; and will vary according to cultural norms (tight v. loose community network linkages), and willingness or necessity of the migrant to engage with these potentially available co-ethnic community resources.

In order to understand the process of business start up and entrepreneurial behaviours, the literature often refers to 'push' and 'pull' factors [2] (Deakins and Ram, 1995; Freel, 1998). The

[1] Moreover, "ethnicity is much more contingent than formerly recognised (Ram and Jones 2007)
[2] Motivation is the result of an inter-play between these two factors.

analysis of the *push* factors is crucial because it stresses the role of policy-making in the integration of immigrants into civil society (Hjerm, 2004), the need to fight against discrimination in the labour market (Metcalf et al., 1996) and in enabling access to finance and support (Deakins et al., 2005). As for *necessity entrepreneurship*, the *push* factors emphasize the sets of motivation for an immigrant to start-up their own business because of the lack of opportunity in the host countries' labour market. Obstacles to joining the labour market include: language barriers, lack of knowledge about the institutions in the labour market, and lack of trust in these institutions.

These factors may *push* the immigrant into self-employment. On the other hand, the community networks, the ability of immigrants to spot business opportunities, and the desire to be independent and to "be their own boss" are factors that *pull* the immigrant into self-employment. *Pull* factors thus include the identification of new opportunities (as in *opportunity entrepreneurship*) and self-elected goals of independence (Barret et al, 1996)[3]. This research also reveals the role that job dissatisfaction plays in household based decision making when migrants have settled, but have not achieved their broader objectives of quality of life and employment, despite enjoying a higher material standard of living.

To some extent, the immigrant is also subject to an *acculturation lag*. This is a delayed process of acculturation that enables the EME from a lower-waged country to exploit some opportunities more effectively than local entrepreneurs (Light, 1972). For instance, Polish entrepreneurs have identified gaps in the market concerning the needs of the Polish community in Scotland, with evidence of emergent enclave-markets.

3.1 Ethnic or Enclave economy?

The field of Ethnic Minority Entrepreneurship must address the debate about the markets in which EMEs operate. There are two main concepts used to explain the strategies of EMEs. First, the ethnic economy designates all ethnic-owned businesses in the economy. For instance, the Polish *ethnic economy* in a country is the sum of all the Polish Businesses, regardless their size, their type or the customer they serve. Second, the *enclave economy* is a more appropriate concept in order to discuss the strategies pursued by EMEs since it includes the businesses bounded by co-ethnicity and location (Zhou, 2004; Wilson and Portes, 1980).The enclave is thus a specific case of an ethnic economy. The enclave economy also maps onto the ethnic social structure allowing the control of behaviour by co-ethnics (Portes and Zhou, 1992). This cultural component does not appear in the general and neutral concept of ethnic economy. In the case of the enclave economy, the economic activities of the businesses are not solely commercial because of the cultural component underpinning this market, including the construction of networks and of ethnic institutions or associations that mediate economic action. Access to finance, advice or business support as well as ethnic employees are provided through ethnic institutions (Portes and Manning, 1986). Last but not least, EMEs operating in the enclave economy initially serve a co-ethnic clientèle (Zhou, 2004). Despite the clear role that culture and co-ethnicity play, and unlike some other communities, there is no explicit or implicit control by the Polish community over members when it comes to running their businesses in such an enclave economy (Zhou, 2004; Wilson and Portes, 1980; Portes and Rumbaut, 1996; Portes and Zhou, 1992).

[3] In our fieldwork, most of the self-employed individuals refer to this crucial factor as "being their own boss". They can be referred as life-style entrepreneurs (Bolton and Thompson 2004). The *pull* factors differ on this particular point with *opportunity entrepreneurship* which is based on rare and innovative actions (Schumpeterian entrepreneur).

4. METHODOLOGY

As an exploratory piece of research, a qualitative approach was adopted in order to understand and try to explore the reasons and patterns that influence the decision to start up businesses by Polish migrants. There are very few concepts pertaining to ethnic minority businesses started by Polish migrants; they have not been clearly identified and are not fully developed. Therefore, a qualitative design allowed for the illumination of these limitations identified in previous research. The study employed semi-structured narrative based interviews which allowed the participant the opportunity to expand on areas which they felt are important, to uncover their 'framework of meanings' (Britten, 1995). There are a number of advantages to this research method such as making it possible for the researcher to directly intervene in the research process and guide the discussion whilst also allowing the interviewee a degree of freedom in the discussion. The researcher is able to ask a number of participants the same broad questions on a particular theme and allow participants to respond in any way they wish (Carter and Henderson, 2006).

The methodology underpinning this research utilizes a *thematic analytical* approach. Its ontological and epistemological foundations enable the researcher to tease out themes that transcend disciplinary boundaries and relate the findings beyond the field of entrepreneurship to build a more comprehensive and informed argument and debate (Braun and Clarke, 2006). The sampling strategy was designed in order to maximize variation and to gain a deeper understanding of concepts highlighted in previous research. The majority of current research studies have sampled migrants between 21 and 34 years of age which may be as a result of snowball sampling used by other researchers (see for example: Weishaar, 2008).

Therefore in order to extend present concepts and gain a more comprehensive picture of Polish migrant businesses, a sample was drawn from two age categories so that views of older migrants were also captured. This variable formed part of a sampling matrix which consisted of three categories each with two sub-groups: *gender* (male/female), *age* (18-34 years/34-65 years) and *city* (two cities).

4.1 Participants

Table 1 Demographic data of study participants

	N= 21
Gender	
Male	14
Female	7
Age	
18-34 yrs	14
35-65 yrs	7
Level of education	
High school	7
University degree	5
Post grad degree	7
City of residence	
Glasgow	19
Falkirk	2

Twenty one semi-structured interviews were conducted with participants who self-ascribed their nationality as Polish (19 from Glasgow and 2 from Falkirk; Table 1).The gender and age distribution is in line with other studies which suggest that the majority of new wave A8 immigrants who settle in the UK are male and aged between 18-24 years old.

An interview schedule was developed as a guide for the semi-structured interviews. The interview schedule comprised questions formulated to explore areas previously identified as being relevant to the ethnic minority businesses. Interviews lasted between 40 and 60 minutes and in order to maximize participation, enhance linguistic and cultural sensitivity interviews were conducted in the preferred language of the participant (English or Polish). Church (1982) argues that participants' emotional experiences and expression is less aroused in a non-native tongue. Following the coding and collating of data, extracts from the twenty one transcripts the codes were sorted into potential themes which were given working titles. The working titles of the themes were revised several times in order to portray a clear impression of the theme.

5. FINDINGS

These data generated a range of key findings that we discuss here, and they also supported a re-theorisation of ethnic minority entrepreneurial behavior and strategies which are presented more extensively elsewhere (Lassalle et al, 2010 and 2011). Our findings suggest that there are significant differences between Polish migrants and other immigrant cohorts in terms of their experiences and behavior in the host country along a number of dimensions. Here, the analysis will focus upon the main episodes and phases of the migration process, settlement and subsequent entrepreneurial activity by some of the Polish migrant community. The analysis is supported by selected excerpts from the interview material.

5.1 Pre-migration

There is an important variant between the Polish experience and other communities in the initial pre-migration decision-making process. It is clear that the Polish migrant seeks job security prior to migration via a more structured and reliable institutionalized channel that has been established in Poland. A job is usually secured prior to migration via a recruitment agency that acts as an emigration gatekeeper, primarily for low skilled and low paid occupations. As we will discuss below, this 'spring-board' into employment plays a major part in subsequent experiences and action undertaken by Polish entrepreneurs.

Underlying the decision to emigrate is the role that economic factors play in pushing and pulling Poles to the UK. However, the Polish entrepreneurs in our study were not unemployed in Poland. They were either recent graduates or were involved in struggling businesses. Moving to the UK was perceived as a great opportunity to increase their income and improve their standard of living. In addition, male migrants brought their families over after a couple of months of work in the UK. Hence, economic factors include the migrant's desire for a more 'secure' and higher standard of living; and this theme will be developed later, as it plays an important role in the decision to start-up a business when these expectations are not met.

However, there was little prior knowledge about the UK. Therefore, reliance upon Polish recruitment agencies fulfilled several crucial roles including the provision of secured employment and overcoming unfamiliarity with the host country:

> *"I could not place Scotland on a map. I have contacted this agency. It had a good reputation in Poland on the market. My girlfriend and I have received a job. They told me to fly to Scotland*" (P. car garage owner).

The feeling of trepidation amongst Polish migrants who have to start from scratch in the UK is a recurrent theme in the interview data. However, the recruitment agencies in Poland acting as gatekeepers to the UK labour market played a mediating role by securing employment while these future entrepreneurs were still in Poland, and this prospect encouraged them to emigrate. This is a powerful *pull factor* influencing their decision to emigrate as they did not have to look for a job; thus avoiding uncertainty and high risk decisions. It also enabled the new migrants to overcome barriers to entry into the UK labour market. Therefore, an important factor in securing employment prior to migration was the rapid development of a network of recruitment and employment agencies located in Poland, some of which acted on the behalf of UK employers seeking higher productivity based on the lower labour costs of migrant labour. This is clearly evident in the interview data:

> "*When I arrived, I had a job. There was an agency, back in Szczecin. They secured jobs here for Poles. There was a job for me in Liverpool. I worked there for one month and then they told me, there was another job free here in Bathgate. I did not have to look for anything at all; I already had somewhere to sleep"*. (M. Driving School owner, first job as a security warden).

> "*They found a flat for me and they gave my National Insurance Number. I looked for a job from Poland, I was looking for work in the UK. At the very beginning... Everything was in Poland, I had my job interview in Poland" (*A, Boxing School, first job as a butcher).

The importance of these agencies also lies in the unintended part they played in the process of business start-ups for Polish entrepreneurs. Though migrant Poles did not have to look for a job initially, these low-skilled employment experiences were not entirely positive.

5.2 Post-migration

Despite guaranteed employment in the UK, nascent Polish entrepreneurs were usually dissatisfied with their job. There are two main sets of reasons underlying this situation. First, the jobs were low-skilled and perceived as unsatisfactory given the skills and educational levels of the migrant worker. Second, these potential entrepreneurs had high expectations about life in the UK because of their motivation to fulfil greater career aspirations, or to follow a self-elected goal such as independence (Barret et al, 1996).

Prospective Polish entrepreneurs were dissatisfied with the physical nature and conditions of their jobs in factories or on construction sites. Amongst the interviewees, 14 out of 21 had graduated from University or College in Poland; and two of them had graduated from a Scottish University. Furthermore, the ones who had worked in Poland prior to emigration saw their job status decline in the UK, and they felt undervalued. The following quote exemplifies the frustration felt by some Polish migrants.

> *"There in Poland, I was like the queen and here a cleaner."* (M. Delicatessen owner, manager of a large office in Poland).

The reasons behind this are the barriers faced by Poles and other immigrants when entering the UK labour market. These include language barriers, lack of awareness of job opportunities, refusal to recognise foreign qualifications, lack of social capital, or weak social networks. These barriers to entering a host country's labour market and discrimination at the workplace have been widely documented in the literature on EMEs (see for instance Aldrich et al., 1981, Bonacich, 1973, Deakins et al., 2000; Granovetter 1985, Light, 1972, Portes and Rumbaut, 1990, Portes and Sensenbrenner, 1993, Waldinger 1996; Zhou, 2004).

5.3 Migrant responses

When considering Polish entrepreneurs' aspirations for improvement of their standard of living and employment prospects, their expectations in terms of occupational status is often lower in the UK than that attained in their home country. Therefore, the immigrant may want to leave their current employment when he or she becomes more familiar with the host country, or when the family has joined him or her. The decision to establish a new business can serve as an *exit* strategy from this low status employment; thereby fulfilling the desire to improve their standard of living and social status. To some extent, the immigrant is *pushed* into self-employment because of the disparity between his or her high expectations in the host country's labour market, and the actual conditions they experience during the initial period of settlement and acculturation. Thus, self-employment is envisaged a way to regain dignity, pride, and motivation to succeed.

However, the exit strategies deployed within the Polish community via self-employment by an entrepreneur do highlight some distinctive features that are not present in other immigrant cultures. One of the unexpected findings was that there is a marked distrust towards fellow citizens despite emotional, informational and social support from recent and well established Polish networks (White and Ryan, 2008). Though there is often a lack of engagement with formal sources of support and advice within other communities, Polish entrepreneurs display a strong reliance on self-funding for business start-ups. Whereas the recruitment agencies in Poland acted as a gatekeeper for emigration to the UK, and reduced the uncertainty of employment on arrival, the recent migrant community still plays a role in providing some social support for the new migrants. However, there is little evidence of strong support provided by the established networks for new wave migrants. Rather than relying on the Polish community, migrants found support in new personal networks either from strong or weak ties, as friends would do in Poland. Concerning information and practical support (White and Ryan, 2008), Polish informal networks generated by new migrants provide information, and can act an advertising platform for their businesses. These networks are often a result of random meetings and acquaintances:

> *"Yes, of course I do have contact with the Polish community… Actually not really. All my contacts are private. We could say I have contacts with friends. They do not have any meaning for my business. There is also emito.net. Polish people are running it, the advertising is conducted by polish people."* (K. owner of a hairdressing salon).

Hence, rather than sloting smoothly into existing networks, new immigrants make use of fellow new migrant and personal networks for friendship and some emotional support; thereby maintaining their independence.

> *"I went to the Polish Club once or twice I think […] I have a lot of contact with Poles from my work before or just friends of friends. I also met a lot of Poles on emito.net or on glagow24. We play football together sometimes but I also use it to find spare pieces for the cars."* (R, garage owner).

> *„We have friendly contacts. We meet, we go out, we go for some dinner, for a party [...] I did not receive any help, I rather help others with things such as finding a flat, but I do not ask for anything from others"* (*K, IT company owner).*

Finally, migrants who have decided to settle, then strive to re-unite the family. This re-introduces the crucial dynamic of household decision-making and the re-appraisal of factors that had played a key role in the initial migration decision. This has a powerful influence concerning the length of stay in order to improve the standard and quality of life; and is particularly important with respect to the decision to engage in entrepreneurial activity.

5.4 Entrepreneurship decisions and markets

Once settled, the decision to pursue an entrepreneurial course of action does distinguish the entrepreneur from other members of the immigrant Polish community. Dissatisfaction with job in the UK is a feature they share with other Poles. However, for potential entrepreneurs, this leads to a process of preparing to leave paid employment. As we have noted above, savings from employment enables them to enter self-employment rather than returning to Poland. In the UK, this process is facilitated by the ease of starting up a business, particularly by streamlined bureaucratic procedures and minimal documentation.

> *"Yes, it is straight forward. At the beginning, there is only the language barrier. Only the language barrier has prevented me from starting-up earlier or doing it faster."* (I. Owner of a hairdressing salon, entrepreneur in Poland).

We also found that there is a reluctance of immigrant entrepreneurs to access and/or contact local institutions and formal sources of support and advice in the host country, as reported in previous research (Deakins et al, 2005; Barret et al, 1996). Hence in accordance with their self-elected goal of independence, and unlike other immigrant communities, Polish entrepreneurs do not borrow money nor do they seek advice from co-nationals; so they are predominantly self-reliant when starting-up their businesses[4].

[4] The study comprises micro-firms or self-employed people, mostly in the service sector that require low levels of financing. Thus, these types of businesses are clearly suited to *ad hoc* strategies and relatively low-risk operations within the co-ethnic community. The decision to start-up is opportunity based and mostly spontaneous, and is usually a sudden decision influenced by various push and pull factors. It could be termed initially as *haphazard* entrepreneurship which then pursues *incremental* strategies to develop the business through later phases.

> *"Around £4500 and that was enough for a start. I have done everything all by myself, I had the money, I do my own business, my own bills, I am independent. I know that there is something called Business Gateway, I know there are such organisations but I do not know really what they do."* (A. Owner of a Boxing School).

Since Polish entrepreneurs rely solely on personal savings and their own ideas rather than on resources from the co-ethnic community they make very little use of 'social capital'. Furthermore, as the quote below indicates, using co-ethnic based social capital could have a detrimental effect:

> *"Poles are like a knife on your throat, they spend their time gossiping. As long as you work at the factory with the others it is fine but as soon as one is doing better, or is succeeding to achieve something, they are just like [unreadable word], they attack. As soon as someone has some success, or someone has a house."*

The ease of the start-up process and the small amount of finance required[5] partially explains why unhappy factory workers can start-up a new business venture as a solution to low job satisfaction. Entrepreneurs themselves tend to articulate this decision as an *ad hoc* matter based upon luck and 'flair', rather than a fully documented process. As we have argued, 'pull factors' (Barret, et al., 1996, Deakins and Ram, 1995; Freel, 1998) do not operate in the same manner for Polish entrepreneurs compared to other immigrant entrepreneurs. The research findings underscore the importance of *incremental strategies* amongst Polish entrepreneurs. They tend to develop a business idea, usually predicated upon a community-based niche market; but the opportunity spotted in this niche market is rarely identified in a business plan, or even benchmarked. Thus, the Polish entrepreneur's decision to start-up is quick and undocumented; and often the opportunity is the outcome of a hunch or entrepreneurial 'flair'.

For a large majority of the businesses studied, the Polish community is the primary, or even, the only market targeted by a new business venture[6]. Although there are local clients, they depend upon the Polish community as their customers.

> *"At the beginning we were looking for Polish clients. There are now more and more Scottish people, men and women. But in general, I would say that most of our clients are Poles"* (M., hairdresser, woman student-entrepreneur).

Most of the entrepreneurs serve the enclave Polish community with ethnic goods (such as food, Polish computer programmes), or mainstream products and services (e.g. legal advice, car repair, hairdressing). In addition, all the interviewees advertise their businesses on the Internet via Polish immigrant websites such as emito.net or Glasgow24.pl.

[5] Between £4,000 and £10,000 for start-up in all the case studies.
[6] Though most Polish start-up ventures are 'co-ethnic serving', seven of the businesses studied began as mainstream. Five of them are located in the service sector, and two in construction.

The fieldwork data also provides evidence of pride amongst Polish entrepreneurs derived from their businesses. Poles see themselves as 'cheaper', 'faster', 'more reliable' and 'serious; and these are now common terms used when defining their own activities in comparison to their Scottish competitors.

> *"We have a reputation. 'the Polish builder', you can see it on every advertisement, Polska Solidnosc (Polish reliability). Our prices are good as well, and the work is done faster by Poles than by Scottish companies"* (A, construction company owner).

6. SUMMARY AND CONCLUSIONS

This paper is based on new empirical data concerning Polish entrepreneurs in Scotland. The case studies reveal interesting features concerning individual Polish entrepreneurs and their business strategies in the context of post-2004 migration to the UK. The primary outcomes and observations regarding the emergence of Polish entrepreneurs within the migrant community are summarized in Figure 1 (below). There are three major conceptual categories based on the research findings: use of the ethnic and wider community by Polish entrepreneurs; their incremental strategies from migrant-workers to entrepreneur; and the importance of the family in personal migratory strategies and choices regarding settlement.

Figure 1.

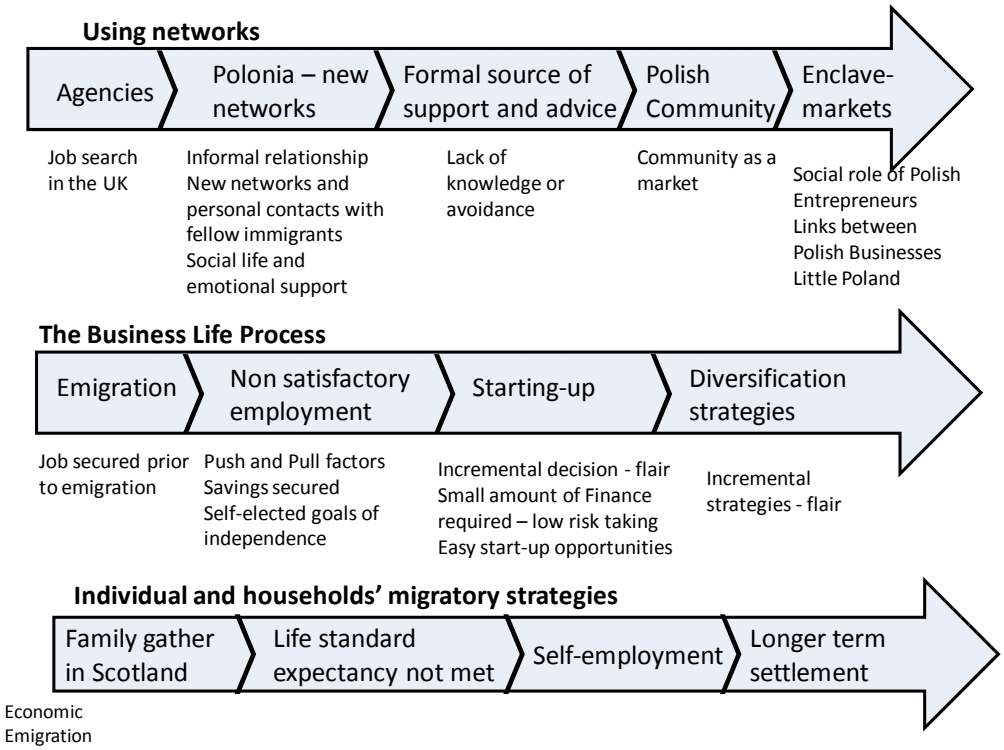


Figure 1 indicates that once in the UK, new immigrants tend to establish new networks and make contact with co-citizens from the same wave of migration; making little use of

established networks that were generated by Polish migrants prior to 2004. They did not slot into existing networks and associations; rather they make more use of new co-ethnic networks, especially based on the Internet. The research also supports conclusions from the literature on EMBs concerning the avoidance of formal sources of support, finance and advice amongst Polish entrepreneurs because of lack of awareness of institutional and state agency services and provision (Deakins et al. 2005; Ram and Jones, 2007) and their self-elected goal of independence, (Barret, et al 1996). Thus, the Polish community is used as a market in which to sell goods or services and to hire staff; showing evidence of Polish enclave-markets which serve Polish community.

Polish entrepreneurs followed similar paths of migration to fellow Poles arriving in UK after 2004. Whilst economic reasons act as a push factor to migration, Polish entrepreneurs had secured employment when still in Poland using a wide network of recruitment and employment agencies. This reduced the uncertainty and risk with migration to the UK.

This paper also highlighted the importance of incremental business strategies amongst Polish entrepreneurs at different phases of the business development process. After arrival in the UK, Polish Entrepreneurs had a job secured by agencies based in Poland. However, this job was unsatisfactory and did not meet their expectations. After a few years in the construction sector, or as butchers or security guards, Polish entrepreneurs had some savings. The ease of the start-up process in the UK and the relatively small amount of finance required partially explains why dissatisfied factory workers can start-up a new businesses venture.

In terms of migratory strategies the analysis underscores the importance of the household in the process of settlement in the UK. Male immigrants usually brought their wives and children to the UK after a few months; thus households rather than the individuals are established, and this strongly effects the migrant's decision to stay. This confirms previous research (White and Ryan, 2008), but extends our understanding regarding changes to migratory plans from sojourner worker to entrepreneur, and settler.

BIBLIOGRAPHY

Aldrich, H., Cater, J., Trevor, T., McEvoy, D. and Velleman, P., (1985), **'Ethnic residential concentration and the protected market hypothesis'**, ***Social Forces***, 63: 4: 996-1009.

Barrett, G, A., Jones, T, P., McEvoy, D, (1996), 'Ethnic Minority Business: **Theoretical Discourse in Britain and North America'*, Urban Studies,*** 33:7:783-809.

Berry, J. W.,(1997), **'Immigration, acculturation and adaptation'*, Applied Psychology***, 46(1): 5-34.

Bonacich, E., (1973), '**A Theory of Middleman Minorities'*, American Sociological Review***, 38:583-594

Braun, V. and Clarke, V. (2006) **Using thematic analysis in psychology*, Qualitative Research in Psychology,*** 3:77-101.

Britten, N. (1995) **Qualitative research: qualitative interviews in medical research, *British Medical Journal,*** 311:251-3.

Carter, S. and Henderson, L. (2006) **Approaches to qualitative data collection in social science.** In A. Bowling and S. Ebrahim (Eds) ***Handbook of Health Research Methods***, Maidenhead, Berkshire: Open University Press.

Deakins, D., Ishaq, M., Smallbone, D., Whittam, G. Wyper, J., (2005), **'Minority Ethnic Enterprise in Scotland: A National Scoping Study,** ***Final Research Report For Scottish Executive'***, Scottish Executive Social Research

Favell, A. (2008) **The New Face of East-West Migration in Europe,** ***Journal of Ethnic and Migration Studies***, 34: 5, July 2008, pp. 701-716

Finch, B. K., Phuong do, D., Frank, R. and Seeman, T. (2009) **Could "acculturation" effects be explained by latent health disadvantages among Mexican immigrants?** ***International Migration Review***, 43:3: 471-495.

Freel, M.,(1998), '**Evolution, innovation and learning; evidence from case studies'.** ***Entrepreneurship and Regional Development,*** 10: 2:137-149.

Garapich, M. P. (2007**) Odyssean Refugees, Migrants and Power – Construction of 'Other; within the Polish 'Community' in the UK**. In: Reed-Danahay, D. and Brettell,C (eds) ***Immigration and Citizenship in Europe and the U.S. Anthropological Perspectives***, Rutgers, pp.3-22.

Granovetter, Mark November (1985), '**Economic Action and Social Structure: The Problemof Embededdness',** ***American Journal of Sociology***, 91: 3, 481-510.

Hjerm, M., 2004 **Immigrant Entrepreneurship in the Swedish Welfare State,** ***Sociology***, 38: 739.

Home Office (2008) **Accession Monitoring Report**, Online Report. London.

http://www.ind.homeoffice.gov.uk/aboutus/reports/accession_monitoring_report

Home Office (2009) **Accession Monitoring Report March** 2004-May 2009, London, Home Office.

IPPR (Institute for Public Policy Research) (2008), **Migration Review**.

IPPR (Institute for Public Policy Research) (2010) **Migration Review,** 2010/2011 (Briefing), December.

Joly (2002) **Odyssean and Rubicon Refugees: Towards a Typology of Refugees in the Land of Exile,** ***International Migration***, 40(6): 3-23.

Joseph Rowntree Foundation, 2007, **'The experiences of Central and East European migrants in the UK',** http://www.jrf.org.uk [Accessed 24.02.2010]

Kicinger, A. & Weinar, A., (2007), **State of the Art of the Migration Research in Poland,** ***IMISCOE working paper*** 19.

Klagge, B. and Klein-Hitpass (2010) '**High-skilled Return Migration and Knowledge-based Development in Poland',** ***European Planning Studies***, 18 (10): 1631-1652.

Lakasing, E. and Mirza, Z. A (2009) **The health of Britain's Polish migrants: a suitable case for history taking and examination,** ***British Journal of General Practice***, 59(559):138–139.

Lassalle, P, Helinska-Hughes, E and Hughes, M (2010**) Re-theorising Ethnic Entrepreneurial Strategies,** ***ISBE conference proceedings***, November.

Lassalle, P, Helinska-Hughes, E and Hughes, M (2011) **Polish Entrepreneurs in the Glasgow Area: Migratory and Business Strategies,** ***Studia Migracyjne- Przegląd Polonijny, (Migration Studies), 1,*** Polish Academy of Science.

Leaman A. M., Rysdale E. and Webber R. (2006**) Use of the emergency department by Polish migrant workers, Emergency Medicine Journal,** 23:918–9

Light, Ivan, (1972), **Ethnic Enterprise in America**, Berkeley Ca: University of California Press.

Massey, D. S. (2002) **Beyond Smoke and Mirrors: Mexican Immigration in an Age of Economic Integration**. New York: Russell Sage Foundation.

Metcalf, H., Modood, T., and Virdee, S, (1996), '**Asian self-employment in Britain: the interaction of culture and economics'**. Paper presented to ***the ESRC Economic Beliefs and Behaviour Programme, London Conference,*** 31 August-September.

Mladovsky, P. (2007). **Migrant health in the EU,** ***Eurohealth***, 13:1.

Portes, A., Sensenbrenner, J., May (1993), **'Embeddedness and Immigration: Notes on the Social Determinants of Economic Action',** ***American Journal of Sociology***, 98 : 6: 1320-50.

Portes, A, Rumbaut, R, (1996). **Immigrant America**, 2nd edition expanded and updated Berkeley, University of California Press.

Ram, M., Jones, T., (2007),**Ethnic Minority Business in the UK: A Review of Research and Policy Developments,** ***Ethnic Minority Business Workshop***, draft version.

Robinson, D. and Reeve, K. (2006) **Neighbourhood Experiences of New Immigration: Reflections on the Evidence Base,** York: Joseph Rowntree Foundation

Ryan, L., Leavey, G., Golden, A., Blizard, R. an King, M. (2006**) Depression in Irish migrants living in London: case control study,** ***British Journal of Psychiatry***, 188: 560-566

Shields, R.(2009) **Homesick for Poland: migrants' dreams in tatters**. http://www.independent.co.uk/news/uk/home-news/homesick-for-poland-migrantts-dreams-in-tatters-907219.html [Accessed 10.08. 2009].

Smeeth, L. H. (2001) **Why inequalities in health matter in primary care,** ***British Journal of General Practice,*** 51: 436-437.

Smith, M. P. and Eade, J. (2008**) Transnational ties: cities, migrations and identities**. New Brunswick, New Jersey: Transaction Publishers

United Nations (1990) **International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families**, General Assembly A/RES/45/158.

Waldinger, R., (1996**), Still the Promised City? New Immigrants and African-Americans in Post-Industrial NewYork**, Cambridge, MA: Harvard University Press.

Weishaar, H. B. (2008) **Consequences of international migration: A qualitative study on stress among Polish migrant workers in Scotland,** ***Public Health***, 122: 1250-1256

White, Anne and Ryan, Louise, (2008**), 'Polish 'Temporary' Migration: The Formation and Significance of Social Networks',** ***Europe-Asia Studies***, 60: 9, 1467 — 1502

Wilson, K., and Portes A., (1980), **'Immigrant Enclaves: An Analysis of the Labor Market Experience of Cubans in Miami',** ***American Journal of Sociology***, 86:295-319.

Zhou, Min, 2004, **'Revisiting Ethnic Entrepreneurship: Convergences, Controversies andConceptual Advancements',** ***International Migration Review*** 38 (3): 1040-1074.

DECISION MAKING IN REAL ESTATE PURCHASE THE CASE OF BOSNIA-HERZEGOVINA

Melika Husić-Mehmedović, PhD
School of Economics and Business Sarajevo/Marketing Department
Trg oslobođenja – Alija Izetbegović 1; 71000 Sarajevo
Phone: ++387 33 275 905; Fax: ++387 33 275 944
E-mail: melika.husic@efsa.unsa.ba

Maja Arslanagić, MA
School of Economics and Business Sarajevo/Marketing Department
Trg oslobođenja – Alija Izetbegović 1; 71000 Sarajevo
Phone: ++387 33 564 398; Fax: ++387 33 275 944
E-mail: maja.arslanagic@efsa.unsa.ba

Selma Kadić, MBA
School of Economics and Business Sarajevo/Marketing Department
Trg oslobođenja – Alija Izetbegović 1; 71000 Sarajevo
Phone: ++387 33 275 947; Fax: ++387 33 275 944
E-mail: selma.kadic@efsa.unsa.ba

Muris Čičić, PhD
School of Economics and Business Sarajevo / Marketing Department
Trg oslobođenja – Alija Izetbegović 1; 71000 Sarajevo
Phone: ++387 33 275 902; Fax: ++387 33 275 944
E-mail: muris.cicic@efsa.unsa.ba

Key words: *Marketing; Decision-making; Real estate property; Young professionals*

ABSTRACT

Real estate property is defined as a financial asset that brings interest, benefits and encumbrances inherent in the ownership of the land and all improvements that are permanently related to it. Real estate market is recognized as a market of the constant rising value, independent of the particular country development. During last 20 years Bosnia and Herzegovina (further B&H) went through the large transitional changes. Challenges facing today's real estate market in B&H have never been so difficult. Real estate ownership is an unobtainable goal for most of the employed young people.

Main topic of this paper is decision making process of the new emerging segment called young professionals in relations to real estate market and understanding their buying behavior. Combining quantitative and qualitative methods, it analysis the real estate market in Bosnia and Herzegovina in the period directly influenced by the recent economic crisis. This research is testing the influence of the specific reference groups (family, friends and experts) of the young professionals (up to 35), during their real estate purchase. This kind of decision-making is a complex process, but still the most important part of the real estate purchase.

Research has shoved that family and friends have the main influence in the process, however their importance varies upon their education/age level, family life cycle stage, level of self-esteem and their life style. Findings of the research have great managerial implications in order to help sellers to develop segment oriented offerings and selling strategy.

1. INTRODUCTION

Real estate market, mostly represented by residential housing market, has been traditionally acknowledged as one of the most important segments of broader economy (Reed & Mills, 2007). In the past decades, it undergone dramatic rises and falls, culminating with the great fall in a form of US subprime mortgage crisis and triggered the financial crisis that resulted in global economic recession. Consequences of the recession are evident even now, and many countries worldwide are still deep in the economic downturn.

The challenges facing today's real estate property market in Bosnia and Herzegovina arguably never been so tough. During communism, most of citizens lived in rented places. Rent was very cheap and easy to get. System was based on social housing that was encouraging young people to take their first steps in family life. Today, 20 years later, is widely believed that real estate ownership is an unobtainable goal for some groups and especially for young people.

Frequently treated as a financial asset (Black, Brown, Diaz, Gibler & Grissom, 2003), real estate property can be defined as all interests, benefits, rights and encumbrances inherent in the ownership of physical real estate, where real estate is land together with all improvements that are permanently affixed to it and all appurtenances associated thereto (Pagourtzi, Assimakopoulos, Hatzichristos & French, 2003). Real estate market was always recognized as market of constant and ever-rising value. Value represents estimation of the exchange price of a property if it were to be sold in the open market. Furthermore, it presumes that both the willing buyer and willing seller are reasonably informed about the nature and characteristics of the asset (IVSC, 2010).

New segment of the property buyers is rising. Those are first-time buyers, employed young professionals, highly educated, with regular income who are trying to own their homes before middle-age. There is a large number of schemes designed to make home-ownership an attainable target to young professionals. When buying real estates, potential and current owners are ultimately concerned with the sustainability of the property and its value (Daly, Gronow, Jenkins & Plimmer, 2003). Now, as the grounds of value have been seriously shaken, the question that is emerging is: what are the influences on consumers' decision-making process when it comes to real estate purchases?

People have various reasons for buying property. Their individual needs determine what they expect from a property as well as what they will be willing to pay for it. Understanding what the potential buyers are looking for, and who is influencing on his/her decision making process, seller will be able to market the property to the potential segment. This issue is especially important when it comes to the young population that is faced with a first-time decision regarding real estates.

Young professionals who are interested in buying their first home are inexperienced and careful (even scared) at the prospect of making a mistake in taking on such a large loan. First time buyers typically desire the kind of home that they grew up in (influenced by their family background), but most probably would have to settle for something smaller or more simple.

1.1. Reference groups

The focus of this research is to determine which reference group has the most influence on consumers' decision-making process. They can be described as one or more people that are having relevance for an individual, as a point of comparison for attitudes, beliefs, values or

behavior (Schiffman & Kanuk, 2004; Engel, Blackwell & Miniard, 1995; Lessig & Park, 1978; Mowen & Minor, 2001). Some of the basic characteristics, common to all definitions are: objectives, role differentiation, shared values and norms, membership and communication. Several criteria are applicable to the classification of reference groups, and the most common ones are: primary and secondary, formal and informal, large and small (Kreitner & Kinicki, 1998).

Level of reference groups' influence on individual purchasing behavior depends on the nature and characteristics of products, as well as the specific social factors. Reference groups can generally have three types of influences: informational, utilitarian and value-expressive (Lessig & Park, 1978) which intensity differs (Table 1).

Table 1: Influence of the reference groups depending on the product characteristics

Product characteristics	Influence of the reference group		
	Informational	Utilitarian	Value-expressive
Highly complex products	+	0	0
Easily recognizable products	+	+	+
Low difference between brands	+	+	+
Influence of the reference group: +; Lack of influence: 0			

Source: Hawkins, D.I., Motherbaugh, D.L. and Best R.J., (2010). *Consumer Behavior: Bulding Marketing Strategy*, eleventh edition, p. 237

Bearden and Etzel (1982) tested reference groups' influence to the selection of products and brands for four types of product categories: publicly consumed luxury, privately consumed luxury, publicly consumed necessity and privately consumed necessity. They had two main criteria for the classification: product influence or whether a product is a necessity or luxury for the consumer and brand influence or whether that product is seen or not seen by the others. They found that are differences between the intensity of influence of different reference groups (Loudon & Della Bitta, 1993).

When it comes to buying a real estate, Beardens and Etzels (1982) criteria can also be applied. In some countries the experience of owning a house is widespread, while in others it is new and emerging market. For individuals and/or families the act of purchasing a real estate is a relatively infrequent occurrence that constitutes their single most important investment and expenditure (Levy, Murphy & Lee, 2008). Leasing and purchasing real estate and related financing requires extensive problem solving. Real estate represents expensive and highly visible durable asset that is traded infrequently (Black *et al.*, 2003), therefore it can be regarded as publicly consumed necessity.

Previous researches showed that there are different reference groups influencing decision-making in real estate market. There are real estate developers, investment bankers and brokers (Gibler & Nelson, 2003) in a form of individual agents and companies. While selecting a partner, consumers reckon individual agents more relevant than the company as a whole (Johnson, Nourse & Day, 1988).

Family is often the most influential reference group (Schiffman & Kanuk, 2004). As family is vivid, constantly changing category (Wells & Gubar, 1966) it goes through several phases of its life cycle: single, then married, married with children, empty nest, retirement and widowhood. One of the goals of this research is to show that the importance and influence of reference group is dependent on the life cycle. Stages in the life cycle are shown to be parallel with the demand for housing types: rental apartment, starter home, move-up single-family home, independent retirement housing, and supportive apartment.

1.2. Decision-making process

It is well documented that the decision-making process follows from three to nine stages (Lee & Marshall, 1998, Davis & Rigaux, 1974, Moschis & Mitchell, 1986, Woodside & Motes, 1979). Decisions concerning the actions on real estate market are often treated as intrinsically rational, readily comprehendible and ultimately self-regulating (Smith, Munro & Christie, 2006). Recently, there are significant efforts to prove that the process of buying a property includes complex social processes (Levy *et al.*, 2008). They can be mostly regarded from cognitive perspective, as one of the dominant perspectives of buyer behavior (Čičić, Husić & Kukić, 2009).

In the nature of process, real estate market is always related to homeownership, and only in 2008 it represented 57.2% (Datamonitor, 2009) of global real estate industry value. For the consumer, it became a host of all other social benefits (Perry & Motley, 2010). Because of the importance of the decision, most consumers undertake an external information search (Gibler & Nelson, 2003), although it is shown that they are often overconfident about their knowledge or abilities than under-confident (Perry, 2008). It is significant to stress out that the importance of this decision is greater when it is the first-time purchase of younger consumers.

There are several explanations of consumer needs for information. Buyers who are less familiar with an area have less accurate expectations of the distribution of opportunities. A buyer who knows that they are unfamiliar recognizes the added advantages of extra time (Kohn & Shavell, 1974). Learning effect should also increase the marginal benefit of effort since seeing more houses increases the set of information available to a buyer (Anglin, 1997). Informed consumer can effectively evaluate alternative offerings and make a rational decision based upon information provided. In search for information, buyer can consult real estate companies, directly or indirectly via Internet, as an alternative information source (Littlefield, Bao & Cook, 2000). There are class and gender differences between buyers behavior. Madigan, Munro and Smith (1990) argue that men are often more concerned with issues of status and exchange value than women.

Other resource of information and influence is the family as crucial decision-making unit. Levy and Lee (2004) recognized several studies in family decision making have investigated the relative amount of influence exerted by family members and their influences at each stage of the decision-making process.

Research in the field of real estate has focused on the behavioral concepts that affect the market's search and price-setting processes. In terms of the making decisions upon value, understanding human decision-making processes is important, (Almond, 1999) as ultimately, market participants and the interaction of supply and demand determines the price of the property (Daly *et al.*, 2003).

2. REAL ESTATE MARKET IN BOSNIA AND HERZEGOVINA

Miles and Wurtzebach (1994) defined real estate industry as a market-oriented game that has its players, game rules and its own method of deciding the winner. As Bosnia and Herzegovina (B&H) experienced changes of the social system within introduction of market principles that lead to democratic pluralism, changes to property ownership and the processes of transition, transformation and liberalization (UNDP, 2010) game and the rules had been changed. During the war (1992-1995) B&H suffered enormous material destruction, which particularly refers to the real estate market. Complete destruction of housing space,

devastation, undeveloped or destroyed infrastructure, destroyed facilities of vital importance for the daily and cultural needs, resulted in decrease of real estate value. In 1995, 63% of the housing units sustained at least some damage, and 18% of units were totally destroyed. Many buildings have been constructed illegally, e.g. in Sarajevo app. 20,000 buildings (The World Bank, 2004).

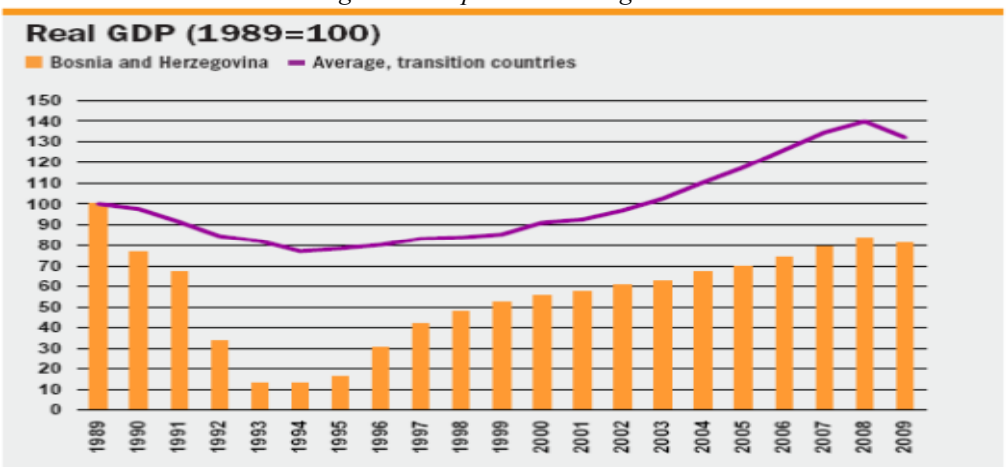
The behavior of bidders was driven by mentioned factors and undamaged property was sold at prices similar to the period before aggression or at reduced prices for degree of the war damage on the property. The market was slow, mainly because of the high interest rates that were consequences of high risks perceived by banks. Mainly people who were in priority need continued with the real estate purchase in post-war period.

In 2004, property market recovered and transfers became more extensive, as a banking sector woke up. Especially, property market in Sarajevo had fast development as Sarajevo grew back to become a stable regional center. The investments in real estate have increased and the prices have started to go up dramatically, giving the investors a fast profit out of their investment. Demand increased and the banking sector was more determined to follow the housing financing by issuing large sums of money for mortgage loans. Entering the stage of recovery meant purchasing devastated buildings, their reconstruction and construction of new properties by domestic companies. It was followed by an entry of foreign investors, such as MBI Development, Bosmal etc. New generation of young professionals, with good incomes, started to solve their housing problem by buying new built property (condominiums) from foreign investors. B&H diaspora became one of the largest real estate buyer group. The entry of other investors is characteristic for year 2006 (Joldaš, 2009).

After several years of strong growth, the B&H economy began to suffer in late 2008. However, the full effects of the global financial crisis were not felt until the first half of 2009 when GDP declined for more than 3.4% (EBRD, 2010) and number of real estate projects has been shelved. The reason for this situation might be lower level of integration into the global economy than other countries in Central and Eastern Europe.

Nevertheless, the supply of the business buildings and premises (for offices, retail and residential use) from projects whose construction ended in 2009 (or which are due to be completed in early 2010) means that pressure on rents will be downwards in Sarajevo and most other centers. Various factors contributed to a dramatic slow-down, including the drying-up of bank credit.

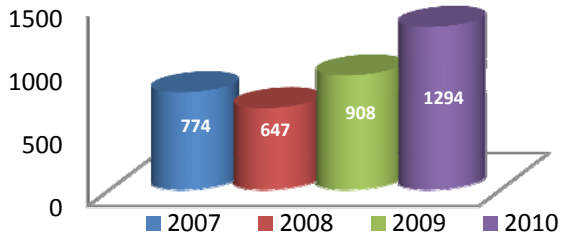
F*igure 1: Real GDP in Bosnia and Herzegovina compared to average in transition countries*



Source: United Nations Development Programme (UNDP) in Bosnia and Herzegovina, (2009). Early Warning System 2009, ISSN: 1986-5678

Today, economy is struggling to emerge from the effects of the global recession. Construction activity is rising which can be seen on the Figure 2 which is showing number of new housing built by legal entities comprise by monthly surveys. Average prices of real estate in B&H in August 2008 were 2.458,00 KM per square meter and in February 2009. 2.125,00 in February 2009 which represents a 14% fall in value (Table 2).

Figure 2: Number of new housing resources built by legal entities



Source: Agency for Statistics of Bosnia and Herzegovina (2010) Residential Construction in Bosnia and Herzegovina, First Release, Second Term, 2010, Year IV, Sarajevo, 28.08.2010. No. 2

Table 2: Real estate's prices in B&H

City	Location	Price in 2008 in KM	Price in 2009 in KM	% decline
Sarajevo	Center	3.700,00	3.000,00	19
	Grbavica	3.000,00	2.600,00	13
	Dobrinja	2.000,00	1.800,00	10
	Average	2.900,00	2.467,00	15
Banja Luka	Center	3.700,00	3.000,00	19
	Borik	2.500,00	2.200,00	12
	Starcevac	2.000,00	1.800,00	10
	Average	2.733,00	2.333,00	15
Mostar	Center	2.200,00	2.000,00	9
	Suburbs	2.000,00	1.800,00	10
	Average	2.100,00	1.900,00	10
Tuzla	Center	2.500,00	2.200,00	12
	Suburbs	1.700,00	1.400,00	18
	Average	2.100,00	1.800,00	14
B&H		**2.458**,00	**2.125**,00	**14**

Sorce: Draganic A., Pavlica M. & Pucar S. (2009) Stanoogradnja za mlade: Podrskom do krova. Agencija za razvoj preduzeca Eda, Banja Luka.ISBN: 978-99955-53-01-2

The average price of flats built in 2010 was 1573.4 KM per square meter, that is lower for 7,8% compared to the same period of 2009. According to the Federal Bureau of Statistics, the average construction costs in final price of the flat are 77.1% that is 4.5% lower compared to same period 2009 (Salkić, 2011).

Considering current political situation it is expected to have smaller changes in prices in beginning of 2011, caused by general elections held in October 2010. However, it is expected that capital values (prices) will reach market-clearing levels in 2012 and that yields will rise gradually thereafter (Fast Market Research, 2010). Still, there will be many unresolved problems and papers tend to be shady and the matter of ownership is frequently doubtful. Today, Sarajevo is an attractive place for living and doing business, it is a great educational centre, and the most highly qualified professionals decide to stay and return to Sarajevo. These trends are recognized through qualitative research findings done by semi-structured interviews with experts in the field of real estate.

3. METHODOLOGY AND RESEARCH SAMPLE

By combining quantitative and qualitative methods, research observed the real estate market in Bosnia and Herzegovina in the period directly influenced by crisis. Main questions of the research were: How the market has changed?; How new rising segment of consumers "young professionals" react? and What is the impact of reference groups on their decision-making process?

Sample population for quantitative research was consisted out of young professionals (aged up to 35) who gave opinion on their real estate purchase (filter questions). Research used non probability sampling method and responses were collected by using snowball technique. Research assessed characteristics of customers (age, gender, education, income, employment, lifestyle, personality of the individual stages in the life cycle of the family, etc.) and characteristics of real estate (quality, price, location of the main street, parking, closeness to the schools/kindergartens, size of the real estate, secure environment).

Qualitative semi-structured interview with experts in the field of real estate was conducted, and their responses served as a basis for creating questionnaire. Out of 19 questions in the questionnaire, 12 were related to the influence of reference groups on the real estate purchase, and 7 to demographic data of respondents. Structured-type multiple-choice questions and 5-point Likert scale was used. The survey was conducted between August and November 2010 and sample included 172 respondents.

Target group were young professionals because there are estimates that young population is 20% of the total B&H population, which represents a large market potential, and they were mainly affected by the crisis. Homeownership represents a crucial real estate issue for young people in B&H and 93% of young married couples do not own an apartment or a house and 85% is living with their parents (Draganic, Pavlica & Pucar, 2009)

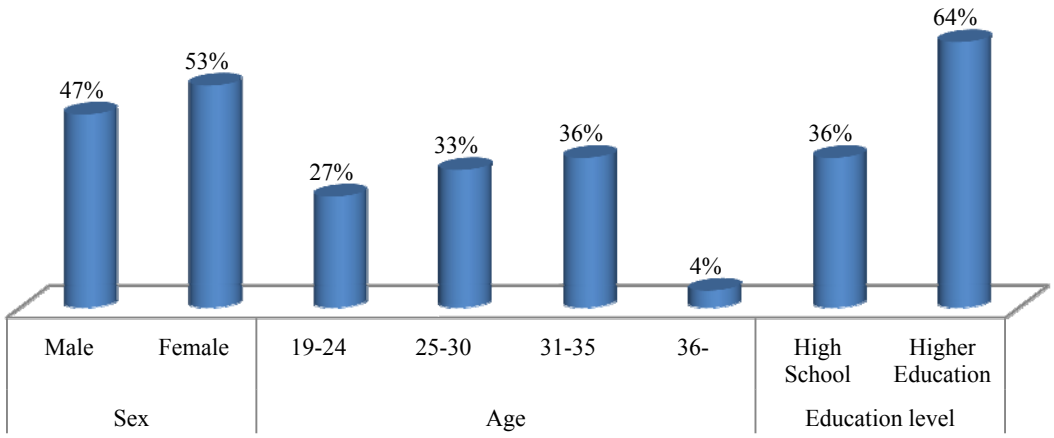
Starting from theoretical assumptions, problems and goals set, hypotheses are defined as follows:

- H1: Family members directly influence on the decision-making process of buying real estate.
- H2: Friends indirectly influence on the decision-making process of buying real estate.
- H3: With the different level of education, different reference group will have influence on decision-making process of buying real estate.
- H4: With the different stage of family life cycle, different reference group will have influence on decision-making process of buying real estate.

4. RESEARCH RESULTS

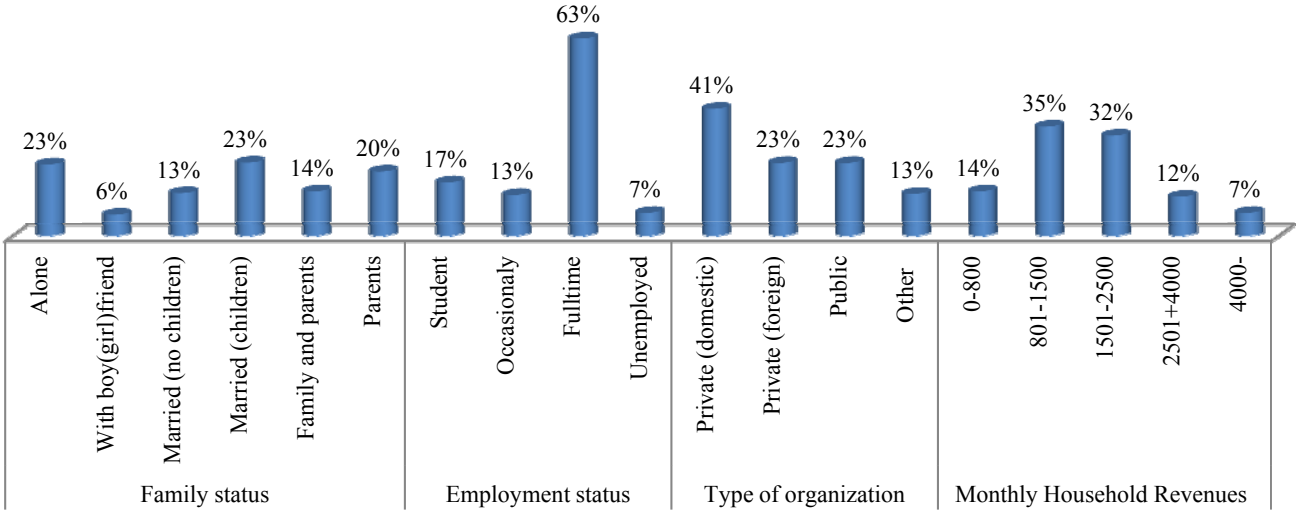
General descriptive data of the sample were analyzed first. Figure 3 shows gender, age and education distribution of the respondents. There is a 3% difference in favor of females, and most of the respondents were in the age group from 25-35 years old – 69%. The sample is represented by people who undergone a higher education process.

Figure 3. Sex, age and education of the respondents



Second part of the descriptive analysis, shown on the Figure 4, is representing information on family, employment and revenues of respondents. Majority of the sample live alone or have spouse and children (23%, 23%), and it is followed by the ones who live with their parents. Almost 2/3 of the sample is fulltime employed. This information is important because of the assumption that employed people are more likely to be involved in the real estate purchase or to have undergone the whole process. Respondents are mainly part of the private sector and their monthly revenues are from 801 to 1500 KM.

Figure 4. Family, employment and revenue status of the respondents



When it comes to financing the real estate, majority of the sample who owns real estate is financing it by bank loan (almost two thirds). In this research, respondents confirmed that they are mostly making the real estate purchase decision together with family members (they consult with family members or even include them in the decision-making process). Agencies and friends are ranked lowest when it comes to the influence on the decision, and 15% of respondents stated that they make this kind of decision alone (Figure 5).

Figure 5. Real estate ownership, means of purchase and purchase decision

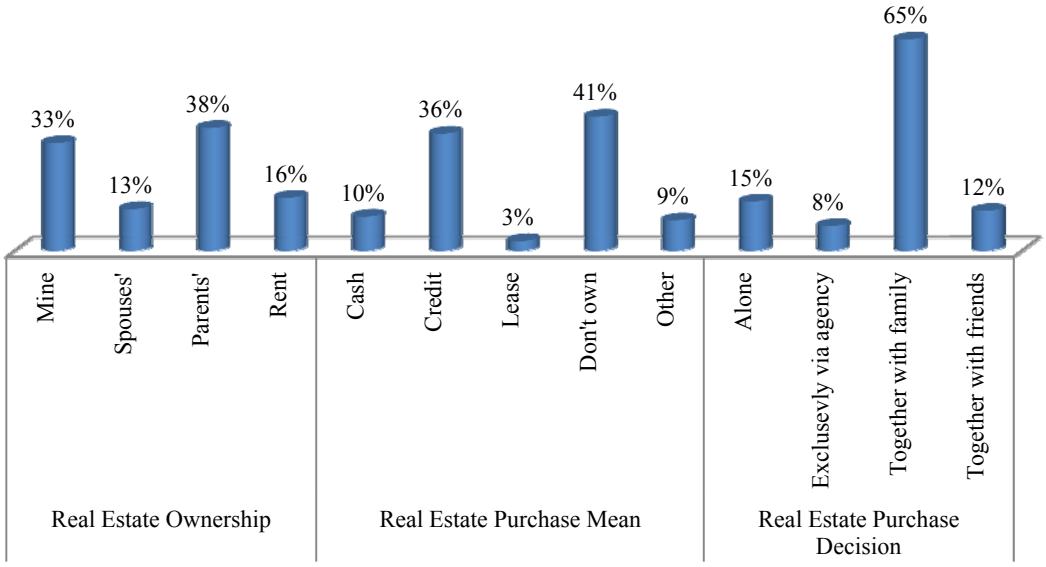
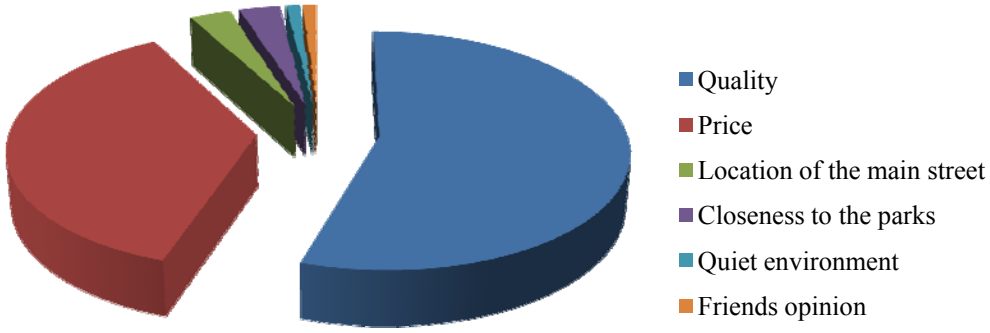


Figure 6. Most important factors for real estate purchase



Research results showed that there is a hierarchy of the importance of real estate characteristic (Figure 6). It is given here respectively: quality, price, location of the main street, closeness to parks, quiet environment and friends' opinion.

Second part of the survey analyzed attitudes. It is consisted of 7 variables: importance of the impression that a real estate leaves on friends and family (IM), importance of the friends or family opinion on the purchase of real estate (OP), being consulted from members of one's environment for opinion or suggestion regarding real estate purchase (CO), is the will for buying real estate dependant on the (dis)approval of a good friend (DE), importance of the experts opinion (EX), importance of one's life style for real estate purchase (LS) and importance of one's self esteem (SE).

Tested distribution is normal one 00% significance for the sample (Table 3).

Table 3. One-Sample Kolmogorov-Smirnov Test

Variables		IM	OP	RE	DE	EX	LS	SE
N		172	172	172	172	172	172	172
Normal Parameters[a,,b]	Mean	2.76	2.64	2.77	3.27	2.52	2.19	1.83
	Std. Deviation	1.196	1.019	1.181	1.098	1.215	1.160	1.196
Most Extreme Differences	Absolute	.211	.194	.189	.238	.171	.204	.336
	Positive	.211	.194	.189	.238	.171	.204	.336
	Negative	-.167	-.179	-.136	-.187	-.137	-.153	-.245
Kolmogorov-Smirnov Z		2.772	2.546	2.484	3.119	2.243	2.681	4.411
Asymp. Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000
a. Test distribution is Normal.								
b. Calculated from data.								

Descriptive information about the answers from the sample is shown in the Table 4. Highest mean within the sample (Table 4) is for the variable DE – will for buying real estate is dependent on the (dis)approval of a good friend. Majority of the respondents agree with this statement. This result is followed by the importance of impression that a real estate leaves on friends and family (IM) and family opinion on the purchase of the real estate (OP). Characteristics of this sample are also that respondents are often being consulted regarding the purchases from the members of the environment. Therefore, they have the ability to influence on others opinion. When it comes to life style and self esteem variables, they are not regarding then as an important factor for real-estate purchase. Base on the results analyzed above, we can conclude that Hypothesis 1 and 2 are confirmed.

Table 4. Descriptive statistics

		IM	OP	CO	DE	EX	LS	SE
N	Valid	172	172	172	172	172	172	172
	Missing	0	0	0	0	0	0	0
Mean		2,76	2,64	2,77	3,27	2,52	2,19	1,83
Std. Error of Mean		,091	,078	,090	,084	,093	,088	,091
Median		3,00	3,00	3,00	3,00	2,00	2,00	1,00
Mode		3	3	3	3	3	1	1
Std. Deviation		1,196	1,019	1,181	1,098	1,215	1,160	1,196
Variance		1,430	1,039	1,396	1,206	1,476	1,345	1,431
Skewness		,311	,303	,376	,029	,362	,805	1,379
Std. Error of Skewness		,185	,185	,185	,185	,185	,185	,185
Kurtosis		-,521	-,266	-,581	-,559	-,789	-,076	,859
Std. Error of Kurtosis		,368	,368	,368	,368	,368	,368	,368

Respondents were differentiated by their education level (EDU), on those with secondary education, higher education and those that are in process or completed their master/PhD thesis. Differences are also evident here. Ones that completed secondary school are putting the opinion of a friend and/or a family member on a first place (score 2), while respondents who completed higher education put the opinion of experts on a first place (score 2,4). On the other hand, persons who hold (or are in a process of acquiring) master/PhD thesis rate importance of the impression that a real estate leaves on friends and family as the most important variable (2,1). Therefore, Hypothesis 3 is confirmed.

As one of the main goals of the research is to test the influence of friends and family members, first part of the research measured differences in attitudes between respondents who are in a different phases of a family life cycle (Table 5). Interesting finding is that all respondents, regardless the stage in family life cycle showed the same, high, average level of self esteem (SE) and all of them stated that clear (dis)approval of a good friend will not make them change decision (DE) they already made – this variable has the lowest rating. Research also showed that there are differences between the significance of the factors that influence decision-making. Single participants are keen on buying real estate on the basis of their lifestyle (LS) and they search for an opinion of experts (EX) as same as ones living with partner. Married couples without children are making their decisions with a dominant influence of their lifestyle (LS), but they are also consulted from members of their environment regarding real estate purchase (CO). Married couples with children are putting the opinion of a friend and/or a family member on a first place (OP) by the importance, while one living with parents and family trusts the experts (EX) the most. Therefore, Hypothesis 4 is confirmed.

Table 5. Differences in attitudes between respondents who are in different phases of family life cycle

FAM	IM	OP	CO	DE	EX	LS	SE
Single	2,55	2,6	2,75	2,8	2,5	2,15	2
Living with partner	2,5	2,2	2,67	3	1,8	1,83	2
Married without children	3	3,2	2,78	3,8	3	2	2
Married with children	2,74	2,5	2,87	3,2	2,7	2,57	2
Living with parents and family	2,69	2,6	3	3,8	2,5	2,31	2

* Average scores, where 1 is highest and 5 lowest rating

CONCLUSION

This paper targeted the specifics of the very interesting question of real estate purchase. The specific focus of the paper was on the attitudes and behaviors of younger consumers, up to 35 years old, while buying their real estate for the first time. Authors tested the influence of referent groups on these attitudes and behaviors. Research was conducted in Bosnia and Herzegovina, which is specific in many ways. Low purchase power, especially with young people, people tend to make decisions regarding real estate rather late than in other countries and many young people still live with their parents. Real estate market in B&H also suffered from the recession and experts consulted while conducting the research are holding opinion that prices on this market will fall by the end of 2010, while for the next year, market stagnation is expected.

On the basis of the research results we can conclude that family and friends on one side and experienced experts on the other side are the main influencers on one's decision regarding the real estate purchase. Also, an important implication for the managers and companies in this field is that attitudes and behaviors are changing depending on the education level, age and stage consumer is in the family life cycle.

In order to create a complete picture and a clearer insight into the results it is necessary to conduct research on a larger sample. Additional research can also serve to additionally test the reliability and validity of scales and it could include additional quantitative analysis methods such as correlation and regression analysis.

BIBLIOGRAPHY

Agency for statistics of Bosnia and Herzegovina (2010). Residential Construction in Bosnia and Herzegovina, First Release, Second Term, 2010, Year IV, Sarajevo, 28.08.2010. No. 2

Anglin, P.M. (1997). Determinants of Buyer Search in a Housing Market, *Real Estate Economics,* Vol. 25, No. 4, pp. 567-589

Bearden, W.O. & Etzel, M.J., (1982). Reference Group Influence on Product and Brand Purchase Decisions, *Journal of Consumer Research,* Vol. 9, pp. 183-194.

Black, R.T., Brown M.G., Diaz J., Gibler, K.M. & Grissom, T.V. (2003). Behavioral Research in Real Estate: A Search for the Boundaries, *Journal of Real Estate Practice and Education*, Vol. 6 No. 1, pp. 85-112

Čičić M., Husić M. & Kukić S. (2009). *Ponašanje potrošača*. 1. izdanje. Ekonomski fakultet Sveučilišta u Mostaru.

Daly, J., Gronow, S., Jenkins, D. & Plimmer F. (2003). *Consumer behaviour in the valuation of residential property: a comparative study in the UK, Ireland and Australia,* Property Management Vol. 21 No. 5, pp. 295-314

Datamonitor (2009).*Global Real Estate, Industry Profile,* Reference Code: 0199-2130

Davis, H. & Rigaux, B.P. (1974). Husband-wife influence in family purchasing behavior, *Journal of Consumer Research*, Vol. 1, pp. 51-62.

Draganic A., Pavlica M. &Pucar S. (2009) Stanoogradnja za mlade: Podrskom do krova.Agencija za razvoj preduzeća Eda, Banja Luka. ISBN: 978-99955-53-01-2

Engel, J. F., R. D. Blackwell & P. W. Miniard (1995).*Consumer Behavior*, Eighth edition, FortWorth, T.X.: Dryden Press

Fast Market Research (2010). Market Report: Bosnia-Herzegovina Real Estate Report Q4 2010

Gibler, K.M. & Nelson, S.L. (2003).*Consumer behaviour applications to real estate education*, Journal of Real Estate Practice and Education, Vol. 6 No. 1

Hawkins, D.I., Motherbaugh, D.L. & Best R.J (2010).*Consumer Behavior: Bulding Marketing Strategy*, eleventh edition, McGraw-Hill Higher Education

The World Bank (2004). *Housing in South Eastern Europe solving a puzzle of challenges,* Ministerial Housing Conference for South Eastern Europe, Paris.

International Valuation Standards Council - IVSC (2010).*Exposure Draft Proposed New International Valuation Standards*, Valuation Standards Board, London.

Johnson, J.M., Nourse, H.O. & Day E. (1988). Factors Related to the Selection of a Real Estate Agency or Agent, *The Journal of Real Estate Research*, Vol 3. No. 2, pp. 109-118

Joldaš, R. (2009). *Formiranje cijena na tržištu nekretnina Kantona Sarajevo*. Sarajevo: Ekonomski fakultet Univerziteta u Sarajevu, pp. 72-77

Kicker P. & C.L. Hartman (1993). *Purchase Pal Use: Why Buyers Choose to Shop With Others.* 4th. ed. AMA Winter Educators' Proceedings.

Kreitner R. and A. Kinicki (1998). *Organizational Behavior*. 4th. ed. IrwinMcGraw-Hill.

Kohn, M. & Shavell, S., (1974). The Theory of Search, *Journal of Economic Theory,* Vol. 9, pp. 93-123

Lee, C.K.C. & Marshall, R. (1998). Measuring influence in the family decision making process using a process using an observational method, *Qualitative Market Research: An International Journal*, Vol. 15 March, pp. 88-98.

Lessig, V.P. & Park, C.W. (1978). *Promotional perspectives of reference group influence: advertising implications*, Journal of Advertising, Vol. 7 No. 2, pp. 41-7.

Levy, D., Murphy, L., & Lee C.K., (2008). Influences and Emotions: Exploring Family Decision-making Processes when Buying a House, *Housing Studies*, Vol. 23, No. 2, pp. 271-289

Levy, D.S. & Lee, C.K., (2004). The influence of family members on housing purchase decisions *Journal of Property Investment & Finance,* Vol. 22 No. 4, pp. 320-338

Littlefield, J.E., Bao, Y. & Cook, D.L. (2000). Internet real estate information: are home purchasers paying attention to it?, *Journal of Consumer Marketing,* Vol. 17 No. 7*,* pp. 575-590

Loudon, D.L., &A.J. Bitta (1993). *Consumer Behavior: Concept and Application.* 4th. ed. McGraw Hill, Inc.

Madigan, R., Munro, M. & Smith, S. J. (1990). Gender and the meaning of home, International Journal of Urban and Regional Research, 14, pp. 625–647.

Mooij, M. (2003). *Consumer Behavior and Culture: Consequences for Global Marketing and Advertising.* Sage Publication.

Moschis, G.P., R.L. Moore & R.B. Smith (1983). The Impact of Family Communication of Adolescent Consumer Socilization, in *Advances in Consumer Research*, 11, ed. Kinnear, T.C., Provo, UT, Association for Consumer Research, pp. 314-319

Moschis, G.P. & Mitchell, L.G. (1986). Television advertising and interpersonal influence on teenagers' participation in family consumer decisions, in Lutz, R.J. (Ed.), Advances in Consumer Research, Vol. 13, *Assocaition for Consumer Research*, Provo, UT, pp. 181-6.

Mowen, John C.,& Minor, M. (1998).*Consumer behavior: a framework,* 5th ed., Prentice-Hall, Englewood Cliffs, NJ

Okleshen C. & S. Grossbart, (1998). Usenet Groups, Virtual Community and Consumer Behavior", *Advances in Consumer Research*, 25, ur.: Joseph W. Alba i J. Wesley Hutchinson, provo, Ut, Association for Consumer Research

Pagourtzi, E., Assimakopoulos, V., Hatzichristos, T., French, N., (2003) Real estate appraisal: a review of valuation methods, *Journal of Property Investment & Finance*, Vol. 21 Iss: 4, pp.383 - 401

Perry, V.G. & Motley, C.M. (2010). Dreams and Taboos: A Comparison of Home Loan Advertising in Saudi Arabia and the U.S., *International Journal of Consumer Marketing*, Vol. 22 No. 2, pp. 199-212

Perry, V.G. &Motley, C.M. (2009). Where's the Fine Print? Advertising and the Mortgage Market Crisis, California Management Review, Vol. 52, No. 1, pp. 29-44

Perry, V.G. (2008). Is Ignorance Bliss? Consumer Accuracy in Judgments about Credit Ratings, The Journal of Consumer Affairs, Vol. 42, No. 2, pp. 189-205

Reed, R. & Mills, A. (2007). Identifying the drivers behind housing preferences of first-time owners, *Property Management*, Vol. 25 No. 3, pp. 225-241

Salkić J. (2011). Tržište nekretnina: Iako cijene padaju, malo kupaca. Oslobođenje http://oslobodjenje.ba/?id=13066 10. 02. 2011.

Schiffman, L. & L. Kanuk (2004). *Consumer Behavior*. 7. ed. Prentice Hall

Smith, S. J., Munro, M. & Christie, H. (2006). Performing (housing) markets, Urban Studies, 43, pp. 81–98.

The European Bank for Reconstruction and Development- EBRD (2010) Transition Report 2009

United Nations Development Programme (UNDP) in Bosnia and Herzegovina, (2009). Early Warning System 2009, ISSN: 1986-5678

Wells, W. D. & Gubar, G., (1966). The Life Cycle Concept, *Journal of Marketing Research*, Vol. 2, pp. 355-63

Woodside, A.G. & Motes, W.H. (1979). Perceptions of marital roles in consumer decsion processes for six products, *American Marketing Association Proceedings, American Marketing Association*, Chicago, IL.

Wurtzebach, C.H., Miles, M.E. (1994). *Modern Real Estate,* Wiley

EARLY WARNING INDICATORS – LEADING OR MISLEADING?

Krešimir Jurlin, Ph.D.
Institute for International Relations (IMO), Zagreb
Phone: ++ 385-1-4877-479; Fax: ++ 385-1-4828-361
E-mail: kreso@irmo.hr

Jakša Puljiz, Ph.D.
Institute for International Relations (IMO), Zagreb
Phone: ++ 385-1-4877-478; Fax: ++ 385-1-4828-361
E-mail: jpuljiz@irmo.hr

Valentina Vučković, B.A.
Institute for International Relations (IMO), Zagreb
Phone: ++ 385-1-4877-474; Fax: ++ 385-1-4828-361
E-mail: valentina@irmo.hr

Key words: *Competitiveness, Early warning, Indicators, Crisis, Predicting*

ABSTRACT

In the recent years, the debate on the future growth concept and rethinking competitiveness has been triggered by the worldwide financial crisis.

The early-warning or leading indicators are not very new in economic literature since presented in works like the ones by Kaminsky et al. (1997) and Kaminsky-Reinhart (1999) that focus on a group of monetary, financial, fiscal and macroeconomic variables that issue signals that can be helpful to anticipate financial crises. There have been many studies about leading indicators of future economic crises, based on multiple indicators called Early Warning Systems (EWS).

In the recent years, there has been a strong divergence between the European countries regarding national competitiveness and resilience to the recent crisis. Not only Greece, which had rather low values of certain very important indicators, but a number of other countries that were considered as successful or even role-models (Ireland, and Baltic states) deteriorated. On the other hand, some countries that were recently perceived as not very successful reformers went rather well through the crisis.

In June 2010, The European Council adopted the Europe 2020 strategy *inter alia* asking for more stringent country reporting on the *„core macroeconomic issues related to growth and competitiveness*", urging for *developing a scoreboard to better assess competitiveness developments and imbalances and allow for an early detection of unsustainable or dangerous trends* (European Council 2010). On September 29, 2010 the Commission, as part of its legislative proposals on macroeconomic surveillance by the EU and euro area, submitted a new proposal for regulations, providing for a early-warning scoreboard comprised the following set of indicators: current account balance, net external debt, real effective exchange

rate, private sector debt, public sector debt. The proposal to introduce a macroeconomic scoreboard as part of wide-ranging economic policy surveillance in the euro area marks a step in the right direction. But it does leave important issues unresolved, making it difficult to assess scoreboard approaches as an economic policy guidance tool.

Against this background, the purpose of our paper is to assess the relative contribution of a wide array of determinants of financial crises for selected European countries and to build a model for assessment of early-warning indicators that had changed significantly before a country faced deteriorated macroeconomic indicators. We intend to test a possible strength of a number of indicators to identify those that may have served as early warning indicators of the 2007/2008 crisis, as well as the indicators that shaded the signs of crisis to come, fuelled by strong economic growth in the years preceding the crises.

1. INTRODUCTION

The currency and banking crises, especially from the aspect of their contagion effects, cause severe costs in the form of various economic, social or political problems. The most recent global economic crisis is a case in point. This makes the monitoring systems crucial in predicting, as well as in preventing, such crises. However, there is no universal manual for monitoring and predicting economic crises. One of the reasons might be that the indicators used for some past crises cannot be used for predicting the future ones, and the systems that were developed for one group of countries may not be proper for some other group of countries. Therefore, developing an early warning system (EWS) or any other model for predicting crises is a constant work in progress depending on a wide range of indicators which have to be taken into account in order to overcome the methodological limitations. These models are not accurate enough to be used as the sole method to anticipate crises but they can contribute to the analysis of vulnerability in conjunction with more traditional surveillance methods and other indicators (Berg, Borensztein and Pattillo, 2004). One of the advantages of EWS models lies in their objective, systematic nature – the models process data in a mechanical way and are not clouded by conventional misperceptions or biases based on past experiences (Berg, Borensztein and Pattillo, 2004). It is important to bear in mind that EWSs are instruments aimed only at assisting decision-makers; their results should be supplemented by other forms of country risk analysis (Burkart and Coudert, 2000). Predictive strength of EWS models depends on various factors, such as the choice of analytical tool or the choice of particular dependent variable. Some models are better for developing country-specific models while others are more suited to global analysis (Davis and Karim, 2008).

Although most of the crisis indicators used before 2008 proved to have worked rather well also in predicting which countries got hit in 2008 crisis, certain EWSs largely failed to capture the crisis, which indicates that the existing EWSs may not be effective in predicting the incidence of future crises across both countries and time (Rose and Spiegel, 2009). In addition, as many researchers point out, any methodology should take into account potential measurement errors, statistical problems (e.g. endogeneity, multicollinearity…), institutional and structural issues, etc.

The paper is structured as follows. In the first two chapters we give the overview of existing theoretical and empirical literature for the period until 2008 and literature dealing with the 2008 crisis. The fourth chapter presents the new regulations on EU macroeconomic surveillance proposed by the European commission. In the empirical part of the paper (fifth chapter) we assess a number of hard data and survey indicators aiming to identify the

indicators that may have served as early warning indicators of economic downturn and to investigate possible "misleading indicators" that disguise the forthcoming crisis, fuelled by the overall economic performance.

2. EARLY WARNING INDICATORS BEFORE THE 2008 CRISIS

The early-warning or leading indicators are not very new in economic literature, and various approaches have been developed aiming at explaining currency crises throughout history. Therefore, in the following lines, we give a brief overview of existing theoretical and empirical literature for the period before the most recent, 2008 crisis.

The theoretical models dealing with this issue can be divided into three generations. First generation emphasized the role of weak economic fundamentals, especially fiscal policy incompatible with a pegged exchange rate as a cause of currency crisis (Abiad, 1999). Analysing the crises in Mexico and Argentina, Krugman (1979) developed model based on financing persistent budget deficits through credit expansion and showed that the period preceding a currency crisis was characterized by a gradual fall in international reserves and by growth in domestic credit relative to money demand. In such circumstances, speculative attacks on domestic currency are possible whereby reserves are further decreased, leading to currency devaluation. However, after the ERM crisis (Exchange Rate Mechanism - fixed exchange rate system of 11 EU members) in the 1990s, second generation of models were developed. The main problem is that economic policies are not predetermined but instead respond to past changes in the economy. Also, business communities account for past changes in forming their expectations. This circularity between economic policy and expectations may lead to the possibility of "self-fulfilling crises" (Abiad, 1999)[1]. Apart from that, there is a much wider range of economic indicators that can be used in predicting crises (Kaminsky, Lizondo and Reinhart, 1998). Finally, after the 1997/1998 Asian crisis, the third generation of models emerged. The main novelty in these models was the focus on the contagion effects in the analysis (see Burkart and Coudert, 2000).

Within the empirical literature, there were various approaches used for developing Early Warning System (EWS) models. Generally, the design of any EWS model requires: (1) considering the scope of the model (country coverage, choice of explanatory variables, and time dimensions); (2) the definition of a crisis and (3) the choice of statistical methodology (Bussiere and Fratzscher, 2002). The approaches include, among others, non-parametric or signal-extraction approach; probit or logit methods; binary recursive trees for determining leading indicator crisis threshold etc. The most known among the EWS models was developed by Kaminsky, Lizondo, and Reinhart (1998). They conducted a research on the sample of developed and emerging market economies using the "signal-extraction" approach investigating the fluctuations in economic variables prior to a crisis[2]. Their main idea was to estimate the probability of a crisis within the crisis window of 24 months; with a crisis occurring when there are extreme fluctuations (by more than three standard deviations) in a weighted average of the monthly exchange rate depreciation and international reserve loss (Kaminsky, Lizondo and Reinhart, 1998). The indicators used in the analysis can be divided into following underlying groups: current account, capital account, financial, debt,

[1] The expected change in the exchange rate regime will affect the variables, for which to change increases the cost of maintaining this regime and once these costs become too high, policy makers may decide to devalue currency and ex-post confirm the expectations about the crisis (Krznar, 2004).

[2] An indicator is said to be issuing a warning signal about a possible currency crisis whenever it deviates from its normal level beyond a determined critical threshold value (Kaminskiy, Lizondo and Reinhart, 1998).

international, real, fiscal, institutional and political indicators. The authors found that the best indicators for anticipating crisis were:

- exports growth;
- deviation of real exchange rate from the trend;
- high ratio of broad money to international reserves;
- output and equity prices.

Goldstein, Kaminsky and Reinhart (2000) updated the analysis through constructing composite leading indicators and aggregation of variables. Even though the signal-extraction approach represents major contribution to the literature in question, it has certain shortages. First, the transformation of each independent variable into binary variables constitutes a significant loss of information compared with the discrete-dependent-variable approach (logit and probit); and second, the use of various indicators does not provide a specific picture of the vulnerability of specific country (Bussiere and Fratzscher, 2002).

Following the same approach, Berg and Pattillo (1999a, 1999b) developed an improved early warning model (later used by the IMF) by adding some additional explanatory variables and changing the number of countries included in the sample, while making the analysis more appropriate for emerging countries. In addition, they embedded the previously used variables in a multivariate probit model and compared the results obtained within these approaches. The most important variables exceeding the threshold before crises (apart from exports, exchange rate, ratio of M2 to reserves) were also change in reserves and ratio of current account to GDP and in particular short-term external debt which proved to be highly significant.

Following their work, also using a signal extraction approach, Edison (2000) analysed the EWS for anticipating 1997/1998 crises. She introduced following innovations in the model: (1) expansion of the country coverage and adding several explanatory variables; (2) examination of regional differences and testing the robustness of the results to changes in crisis definition; (3) designing the model for individual countries and (4) testing the algorithm that does not require information using other countries. The results showed that Asian economies exhibited signs of vulnerability months before the crisis started in July 1997 which suggested that EWS could have helped to identify areas of vulnerability. However, the model frequently missed to predict some crises episodes and predicted crises that did not occur at all, suggesting that these models, while useful as a diagnostic tool, must be complemented by more standard country-level economic modelling (Edison, 2000).

Next, Burkart and Coudert (2000) worked on the sample of 15 emerging countries over the period 1980-1998, focusing on contagion effects and overvaluation of currencies as major factors of currency crises. Moreover, the authors introduced dummies on restrictions of capital flows in the set of explanatory variables and the study was carried out using the Fisher linear discriminant analysis technique[3]. The results showed that an increase in short-term debt, inflation or in M2 increases the probability of a crisis. In contrast, an increase in reserves or a reduction in total debt decreases the probability of a crisis. In addition, in a

[3] The idea was to find linear combination of the indicators that exhibit largest difference in the group means relative to the within-group variance. The sample is divided into 2 states where the 4 quarters preceding crisis represent state of *crisis* and all others represent the state of *tranquillity* (Abiad, 2003).

global score analysis[4], currency misalignment and debt and reserve ratios were found to be predominant indicators in reflecting vulnerability to currency crises (Burkart and Coudert, 2000).

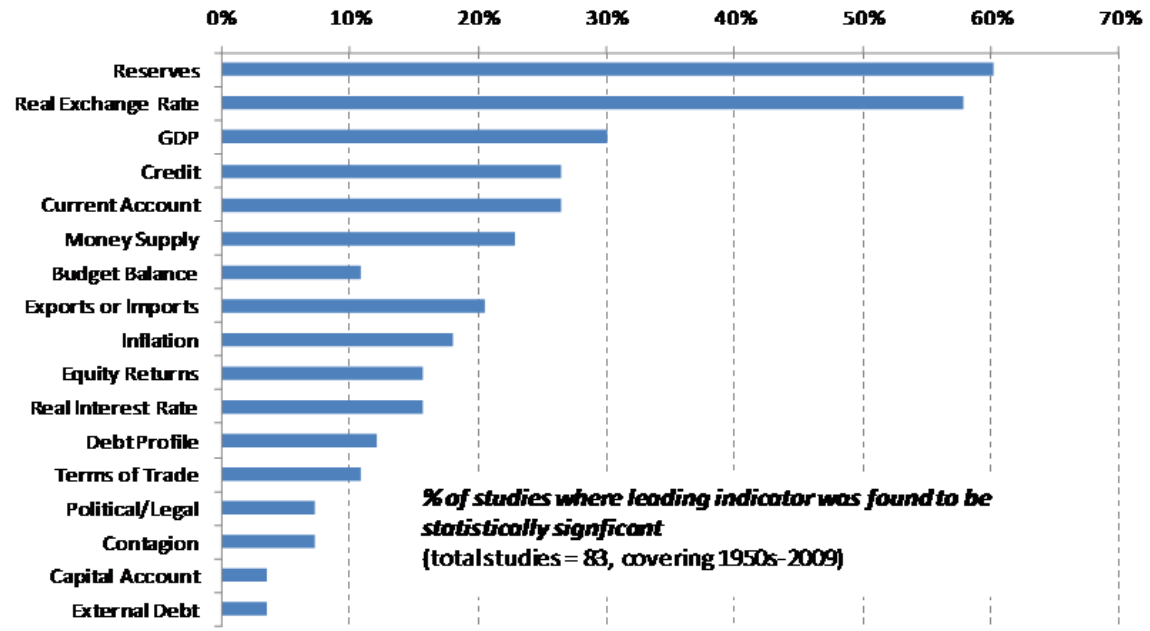
The most commonly used empirical approach in the recent analyses is the logit/probit methodology which encompasses a small set of variables covering different categories of indicators (overvalued exchange rate, current account/GDP ratio, short-term debt/reserves, real GDP growth rate, domestic credit to private sector, and equity market contagion). This approach is found to be the "state-of-the-art" and has been mostly used by the IMF, Fed and several investment banks (Bussiere and Fratzscher, 2002). However, while IMF has used an early warning system (EWS) to monitor currency crises it has no explicit EWS for banking crises (Davis and Karim, 2008). In addition, while logit approach is found to be the most appropriate approach for the global EWS, the "signal-extraction" approach is more appropriate for country specific EWS (Davis and Karim, 2008).

Although many results point out to the fact that crises occur with some early warnings, the predictive potential of these models is rather limited. In some cases, signals can even be misleading; i.e. sending warning signals that are not followed by a crisis or sending improving signals prior to the crisis. For example, Alvarez-Plata and Schrooten (2004) analysed whether the signalling approach could have predicted the currency crisis in Argentina and found that leading indicators were mostly misleading, while signals were sent too late for any policy intervention. More specifically, two years prior to the crisis only one indicator (output) was sending a warning signal while eight months prior to crisis the number of indicators sending signals increased to five, but output stopped sending signals. It is worth noting that even during "good times" there have been periods in which these five indicators were sending signals. Only four months prior to a crisis the number of signals dramatically increased; and one month before crisis the number of signals even decreased. So, the authors concluded that indicators were sending misleading or late information and the crisis could not have been mitigated.

Frankel and Saravelos (2010) gave an interesting overview of the early warnings indicators literature covering the period from 1950s to 2009 showing the percentage of studies within which particular leading indicator was statistically significant. The overview is shown in the figure below. We can see that international reserves and real exchange rate fluctuations can be outlined as two most important indicators.

[4] *Global* means that the function of leading indicators is calculated for the whole sample, i.e. it is not split by region or by country.

Figure 1. Percentage of studies where leading indicator was found to be statistically significant



Source: Frankel, J. and Saravelos, G., (2010): "Reserves and other early warning indicators work in crisis after all", http://www.voxeu.org/index.php?q=node/5258

Finally, we can conclude that researchers have adopted alternative methods in dealing with a number of issues regarding the definition of a crisis and the means of predicting it. Each of these approaches has its own advantages and disadvantages and there are certain methodological limitations that should be mentioned and taken into account. These could even include various political and institutional factors. One disadvantage common to all models is that they are based on historical data i.e backward looking and therefore cannot capture crises that might occur in different circumstances. Beside this, there is the issue of the so called *Lucas critique* – if policy makers were to draw lessons from the model, this could undermine its relevance as a predictive tool, while they might take actions to mitigate crisis (Bussiere and Fratzscher, 2002). Therefore, EWS models are not accurate enough to be used as the sole method to anticipate crises but can only contribute to the analysis of vulnerability in conjunction with more traditional surveillance methods and other indicators (Berg, Borensztein and Pattillo, 2004).

3. GLOBAL CRISIS IN 2008: WAS IT PREDICTED?

The global economic crisis that began in August 2007 as a US sub-prime loan crisis is by its magnitude, effects and impacts without precedent in the post-war economic history (European Commission, 2009). Although there have been many analyses on the underlying mechanism of previous crises, including development of EWS models (as presented in previous chapter), and the crisis has many features in common with similar crises in the past. It was preceded by a long period of rapid credit growth, low risk premiums, abundant availability of liquidity, strong leveraging, soaring asset prices etc. (European Commission, 2009).

Since most of the empirical literature before 2008 was dealing with currency or banking crises, the 2008 crisis is characterized with joint occurrence of banking, currency and debt crisis (Bucevska, 2011), making the research in this area even more challenging and it is true that the global economic crisis came rather unexpected.

There were only few economists (e.g. Nouriel Roubini and Peter Schiff) warning on the possibility of the crisis even before it started. The most specific was Roubini who, although he was criticized as being lucky in his predictions, in his famous paper (Roubini 2008), predicted further unfolding of the financial crisis pointing out to "*rising probability of a "catastrophic" financial and economic outcome, i.e. a vicious circle where a deep recession makes the financial losses more severe and where, in turn, large and growing financial losses and a financial meltdown make the recession even more severe*"[5]. Adding to that, in their book, Schiff and Downes (2007) forecasted a stock market crash, the bursting of the real estate bubble, due to over-valuations and credit expansion. The authors pointed out that savings are crucial for economic growth, stating that „*...living standards rise as a result of capital accumulation, which allows labor to be more productive, which in turn results in greater output per worker, allowing for increased consumption and leisure. However, capital investment can be increased only if adequate savings are available to finance it. Savings, of course can come into existence only as a result of [consuming less than one earns] and self-sacrifice*". [pp. 6-7].

Davis and Karim (2008) analysed to what extent the crisis was predicted by the four major institutions (IMF, ECB, Bank of England and BIS) and found that, although the institutions did foresee some features of the crisis, they did not predict its extent (e.g. seizing up of interbank markets, build-up of debt etc.) nor the possible links from financial instability to the real economy. First, the IMF saw short-term risks of spill over effects from US sub-prime mortgage markets, risks from rises in corporate leverage due to buyouts and rapidly rising capital inflows to emerging markets, but it concluded that none of these risks individually threaten financial stability. Next, ECB also noted direct exposures and possibility of spill over of the US subprime crisis to other markets. In addition, they were increasingly concerned over leverage in the euro-area corporate and household sectors, but predicted that the stability in financial system will be maintained. The Bank of England noted the US subprime market crisis was seen as risk only if corporate credit markets were to deteriorate. They also saw the risks of unwinding of low risk premium, lower market liquidity, further falls in asset prices etc. Finally, the BIS noted that there were a large number of indicators deviating from their normal levels. They were concerned about the risk of overpricing assets which could turn to undershooting of prices and the change in the credit cycle. They were the most precise regarding the prediction of global economic crisis as well as the possible actions that would have to be taken, e.g. restructuring the banking system, closing failing banks etc.

It seems that OECD Composite Leading Indicators system which was specifically developed in order to give early signals of turning-points in economic activity relative to trend, missed to predict the crisis. As Gyomai and Guidetti (2011) point out, the reason behind this is that CLIs capture movements in real economic activity and not necessarily those in financial markets. However, there is the contagion effect between the two, and the most recent crisis is a clear example. With this in mind, Gyomai and Guidetti (2011) investigated how soon the CLI was able to signal contagion effects and indicated that it was able to anticipate the downturn in the real economy at least 5 months ahead of its initial outburst.

Nevertheless, the crisis revived the importance of the EWS models and encouraged ex-post research of the underlying factors of the crisis, with the main goal of assessing whether these models could have helped in predicting and preventing the 2008/2009 crisis (Davis and Karim, 2008; Rose and Spiegel, 2009; Berkmen et al., 2009; Frankel and Saravelos, 2010

[5]For detailed description of each step see Roubini, N., (2008): **The Rising Risk of a Systemic Financial Meltdown: The Twelve Steps to Financial Disaster**, http://media.rgemonitor.com/papers/0/12_steps_NR [Accessed 20.04.2011].

etc.). The work is still on-going due to the lack of data and because the crisis did not end in 2008, but the empirical analyses mostly confirms the usefulness of leading indicators in explaining crisis incidence (Frankel and Saravelos, 2010).

In addition, Davis and Karim (2008) conducted empirical analysis for the UK and US economies using both the logit and binary recursive tree approach. The results show that the crisis could have been only partly predicted by EWS and point out to some specific features of US sub-prime crisis that were not typical in the previous banking crises in both developed and emerging economies. Berkmen et al. (2009) tried to explain the differences in the crisis impact across developing countries and emerging markets using cross-country regressions and focusing on revisions in GDP growth forecasts before and after the crisis. They found that a small set of variables explains a large share of the growth revisions variations, e.g. countries with more leveraged domestic financial systems and more rapid credit growth suffered from larger fall in GDP. They also provided some evidence that trade linkages are important in transmission of the crisis and that countries with a stronger fiscal position prior to the crisis were hit less severely.

Rose and Spiegel (2009) modelled the causes of the financial crisis with its manifestations on a cross-section of 85 countries, focusing on contagion effects. They combined changes in real GDP, the stock market, country credit ratings, and the exchange rate into a single measure of crisis incidence and investigate the links between these manifestations and their potential national and international causes. The results found little evidence in support of modelling the intensity of the crisis across countries using quantitative techniques and standard data that is either country specific or it links countries to the source of the crisis, showing that international linkages cannot be clearly associated with the incidence of the crisis (Rose and Spiegel, 2009).

Frankel and Saravelos (2010) conducted an analysis into which countries proved most vulnerable during the 2008/2009 crisis and found that the crisis indicators which were used in the literature before 2008 crisis also performed well in predicting which countries got hit in 2008/2009. They used 50 annual macroeconomic and financial variables and took into consideration the fact that the crisis has continued into 2009, which proved to be important for the final results. The results indicated that foreign exchange reserves expressed as a ratio to debt was the most significant indicator of crisis incidence; while other indicators also appeared potentially useful but not significant.

The paper which is especially interesting from the Croatian point of view is the one of Bucevska (2011) in which she conducted an econometric analysis of the early warning indicators of financial crisis incidence for the EU candidate countries using a binomial logit model. Her study found that the indicators of crises indeed work and that gross external debt relative to exports; the domestic loans and the bank deposits relative to GDP are the most significant early warning indicators of financial crisis incidence in candidate countries.

Among the ex-post analyses of the crisis it is also worth to mention the IMDs “Stress Test” (IMD, 2009) which is based on the method of selecting the relevant forecast and opinion survey criteria in four categories and ranking total of 57 countries according to their resilience to crisis, however, without testing the strength of individual indicators. Although the Stress Test was limited as (partly) based on opinion surveys, it provided an interesting “glimpse” into the future (IMD, 2009). A special value of IMDs stress test is in the ex-post analysis of the relationships between certain competitiveness indicators (including the opinion surveys) and the crisis intensity. The test results showed that small and export oriented economies were better in facing the economic slump.

4. NEW REGULATIONS ON EU MACROECONOMIC SURVEILLANCE

Most of the EU countries reacted swiftly to the crisis by expansive fiscal and monetary policy. However, the surge of public debt urged for introducing new mechanisms for the control of public finance, together with a new set of surveillance tools that would provide for better monitoring of the economic performance of individual countries in order to ensure their economic policies are in line with the need for fiscal stability, macroeconomic and structural reforms. In June 2010, The European Council adopted the Europe 2020 strategy *inter alia* asking for more stringent country reporting in fiscal policy and also „*core macroeconomic issues related to growth and competitiveness*". The Council reaffirmed importance of competitiveness and its role in macro-economic surveillance, urging for *developing a scoreboard to better assess competitiveness developments and imbalances and allow for an early detection of unsustainable or dangerous trends* (European Council 2010). As a goal, the Europe 2020 strategy stated that *"Member States should achieve a consolidation of well beyond the benchmark of 0.5 % of gross domestic product (GDP) per year in structural terms until medium-term budgetary objectives have been reached."* Also, member states should prioritise 'growth-enhancing items' such as education and skills, R&D and innovation and investment in networks, e.g. high-speed internet, energy and transport interconnections – i.e. the key thematic areas of the Europe 2020 strategy. Furthermore, sectoral support schemes should be ruled out early as they carry a large budget costs, while access-to-finance support should continue until there are clear signs that financing conditions for business have normalized.

Also in June 2010, the European Commission adopted a Communication[6] *outlining a set of tools to strengthen the economic governance of the EU and the euro area, based on enhanced surveillance of fiscal policies, macroeconomic policies and structural reforms.* The new "toolkit" shall include three main blocks of reform:

a) synchronization of the European Union surveillance with the national budget procedures in a single framework, the "European semester;
b) early detection of macroeconomic imbalances through a scoreboard of indicators;
c) surveillance of structural reforms in Member States in line with the overall goals of the Europe 2020.

Within the legislative package on economic governance adopted in September 2010, European Commission proposed an integrated approach, which would encompass actions of identifying imbalances in good times and taking corrective actions (EC, 2010b). While the prevention would take the form of a scoreboard for early detection of unsustainable or dangerous trends (consisting of various macroeconomic indicators with their alert thresholds), correction would take the form of an array of sanctions to prevent or correct excesses that could jeopardise the financial stability of the EU and the euro area. In addition, regarding the fiscal policy, EC (2010b) proposed that both the preventive and the corrective parts of the Stability and Growth Pact should be reinforced. Table 1 gives an overview of a set of indicators proposed by in September 2010 as well as their determined threshold levels.

[6] http://ec.europa.eu/economy_finance/articles/euro/2010-06-30 enhancing_economic_policy_coordination_en.htm

Table 1. Scoreboard indicators and their alert thresholds

Indicator	Threshold
Current account balance	-3% of GDP (absolute lower limit)
Net external position	+/- 60% (BIP) (absolute threshold)
Real effective exchange rate on the unit labour costs basis	1.5 percentage points deviation from the annual development in euro area unit labour costs (relative upper limit)
Real house price increases	+6% p.a.(absolute upper limit)
Public sector debt	60% (GDP) (absolute upper limit)
Private sector credit growth	10% p.a. (relative threshold)

Source: Heinen (2011)

Heinen (2011) conducted a research on the model of a macroeconomic scoreboard comprising the indicators listed in the table above, for the euro-area members in the period 2006-2010. The results suggest that supervising economic policy in the euro area countries with this model would not be helpful if the scoreboard would encompass only indicators listed above. Only current account balance and net external position show up as reliable indicators (e.g. indicator was above the threshold in recent years only in Greece, Ireland, Spain and Portugal). On the other side, real effective exchange rate would have been an early warning indicator only in the case of Ireland. Regarding the public sector debt and credit growth, there are some problems with threshold so they should be modified. The real house price increases could not be tested yet, as the database is still incomplete (Heinen, 2011). The author concluded, that the ECs proposal represents a step in the right direction; however missing to resolve important issues such as the use of historic data (i.e. backward looking) and *Lucas critique* (already mentioned in this paper).

5. EMPIRICAL ANALYIS OF THE IMPACT OF THE 2007/2008 CRISIS

In order to test the possible link between the different impact of the crisis in particular EU member countries (and Croatia), we intended to define a single variable that would capture the intensity of crisis in individual countries. After that, we created a list of (20) possible indicators that may have been early warning indicators of the 2007/2008 crisis.

Dependant variable

For the purpose of this paper, we developed a single indicator in order to capture the impact of the 2007/2008 crisis on the EU member states and Croatia. In general, the most used measure, when analysing the crisis impact, is the dynamics of the GDP since it is the most simple and widespread indicator of economic activities. At the EU27 level, the crisis had the largest impact on economic growth in 2009 with GDP decreasing by 4.2%. However, even in 2008, EU recorded a sluggish economic growth rate of 0.5%, while some countries that were more exposed to the initial crisis effects experienced even more significant downturn. Furthermore, a large number of countries did not succeed in mitigating the crisis and performed even significantly worse than the EU average in 2009 (1.8%).

The first step of the analysis included calculating the cumulative GDP index for the period of 2008-2010. In addition to GDP, we also decided to take into account data on employment and public debt. First, comparing the data for the third quarter of 2010 to the same period in 2007, we found a striking fall in employment in certain countries (more than 10% in Ireland and

Baltic states and close to that figure in Spain, Croatia and Bulgaria). However, it is important to note that employment index has some shortages in measuring impact of the crisis since many countries were not able to reduce employment in the public sector due to the labour market rigidity or political pressure. The latter may be true for Greece, where employment fell by only 3% in the period under review. Second, some countries have been rather successful in mitigating the exposure to the crisis (measured by GDP and employment) through significant increase of public expenditure and national debt, thus just *shading* the crisis impact. Therefore, we also used the indicator of cumulative deficit of consolidated general government as percentage of GDP (for the 2008Q3-2010Q3 period). This indicator also has its shortages since there are some countries that were more able to withstand the public debt increase in due to lower level of indebtedness and/or better access to financial sources.

Finally, we have constructed a single composite indicator (Crisis Resilience Index) for each country by calculating average of the standardized values of the three single indicators (GDP, employment and cumulative debt). The goal of this analysis was not to construct and test a *perfect* indicator but only to obtain a simple single dependant variable suitable for the purpose of this paper. The results are shown in Table 2 and Figure 2.

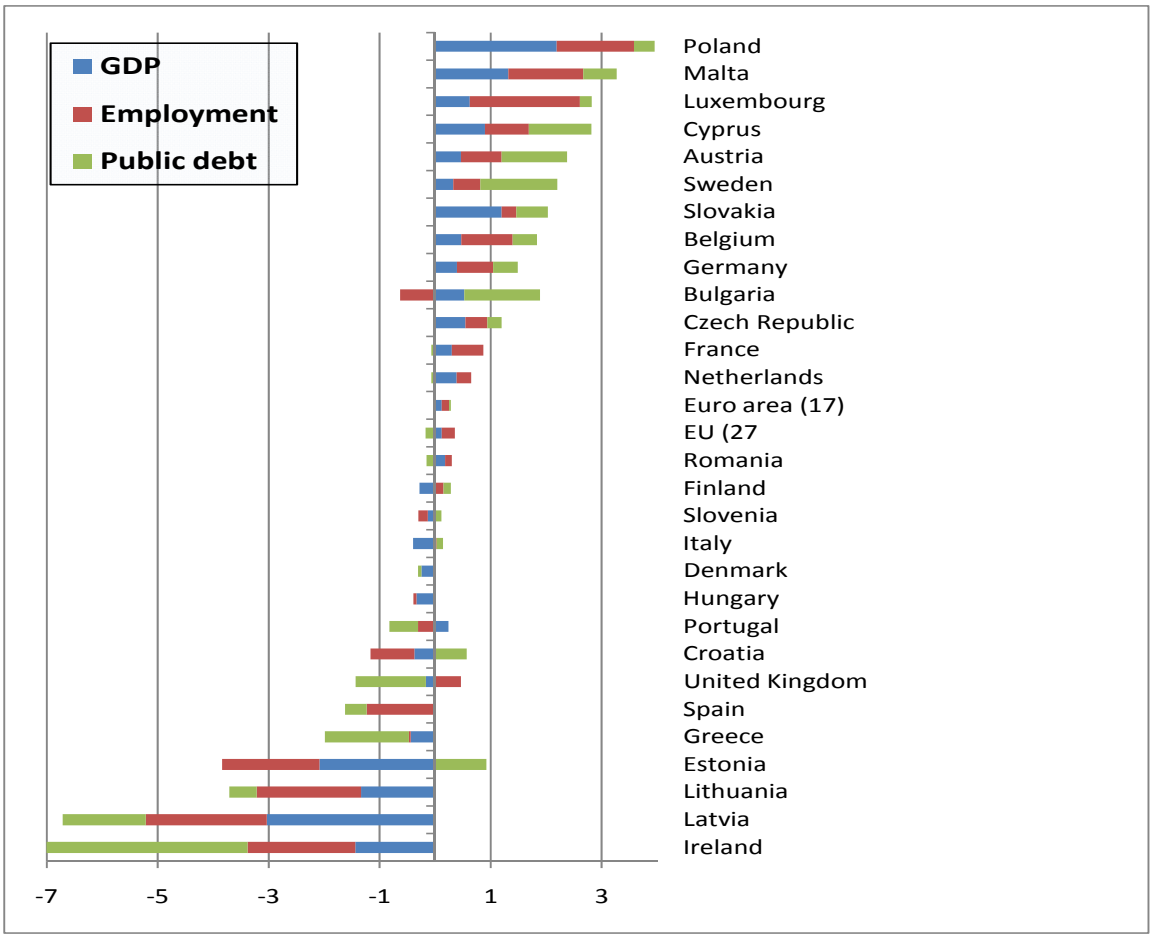
Table 2: Calculation of the Crisis Resilience Index

	1. GDP 2010/2007	Employment III2010 / III2007	General government balance III 2010 / III 2007 (% GDP)	standard 2	standard 3	standard 4	average 5-7
1	2	3	4	5	6	7	8
Poland	110.9	105.0	-10.4	2.19	1.39	0.37	1.32
Malta	105.5	104.8	-7.4	1.32	1.35	0.61	1.09
Luxembourg	101.2	108.3	-12.5	0.63	1.98	0.21	0.94
Cyprus	102.9	101.6	-0.7	0.90	0.80	1.12	0.94
Austria	100.2	101.3	0.0	0.47	0.73	1.18	0.79
Sweden	99.3	99.9	2.7	0.33	0.48	1.39	0.73
Slovakia	104.8	98.7	-7.9	1.20	0.27	0.57	0.68
Belgium	100.2	102.3	-9.6	0.47	0.92	0.44	0.61
Germany	99.7	100.8	-9.5	0.39	0.65	0.44	0.50
Bulgaria	100.6	93.6	2.4	0.53	-0.63	1.36	0.42
Czech Republic	100.7	99.4	-11.9	0.54	0.40	0.26	0.40
France	99.2	100.3	-16.1	0.30	0.56	-0.07	0.27
Netherlands	99.7	98.6	-16.1	0.39	0.26	-0.07	0.19
Euro-area	98.0	97.9	-14.9	0.12	0.14	0.03	0.09
EU 27	98.0	98.5	-17.5	0.12	0.24	-0.18	0.06
Romania	98.4	97.9	-17.2	0.18	0.12	-0.15	0.05
Finland	95.5	98.0	-13.5	-0.28	0.15	0.13	0.00
Slovenia	96.4	96.2	-13.8	-0.13	-0.17	0.11	-0.06
Italy	94.8	97.3	-13.7	-0.40	0.03	0.12	-0.08
Denmark	95.7	97.2	-16.0	-0.25	0.00	-0.06	-0.10
Hungary	95.2	96.8	-15.2	-0.34	-0.06	0.00	-0.13
Portugal	98.8	95.4	-21.9	0.24	-0.31	-0.52	-0.19
Croatia	94.9	92.7	-7.9	-0.38	-0.79	0.57	-0.20
United Kingdom	96.2	99.8	-31.6	-0.16	0.46	-1.27	-0.32
Spain	97.1	90.4	-20.3	-0.03	-1.20	-0.39	-0.54
Greece	94.5	97.0	-34.8	-0.44	-0.03	-1.52	-0.66
Estonia	84.2	87.3	-3.3	-2.09	-1.75	0.92	-0.97
Lithuania	88.9	86.6	-21.6	-1.34	-1.88	-0.49	-1.24
Latvia	78.3	84.9	-34.6	-3.03	-2.18	-1.50	-2.24
Ireland	88.3	86.3	-62.0	-1.44	-1.94	-3.62	-2.33

Source: Eurostat

The results obtained are consistent with a common perception of the crisis impact on EU countries where Baltic States and Ireland were faced with the most severe consequences. On the other side, it is somewhat surprising that our Index *awarded* Greece, a country with the most evident impact of the crisis. However, from the figures we can see that Greece significantly increased only public debt, without immense fall in GDP and employment in the period under review. The following group of the exposed country includes Spain, UK, Croatia, Portugal, Hungary and (surprisingly) Denmark, due to cumulative loss of 4.3% of GDP. At the top of the figure, indicating the best resilience to the crisis, Poland stands out together with a group of very small countries (Malta, Luxembourg and Cyprus) that performed rather well through the last 3 years. A group of strong performers also encompasses Austria, Sweden, Belgium and Germany. Looking from the aspect of geographical position, it seems that (apart from Malta and Cyprus), central and eastern EU countries proved to be more resilient to the crisis, while southern and western countries performed worse.

Figure 2. Crisis Resilience Index



Source: Authors own calculations

Independent variables

We have created a list of 10 hard-data indicators to test their possible strength in explaining the outcome of the crisis in the 27 EU members and Croatia. Most of the indicators are the traditional ones (reserves, external balance and investment, savings and inflation) while we have added also those that may capture the signals of the crisis through the bubble in housing, final consumption and overheated banking and stock markets. Table 3 presents data for the selected indicators for the EU27 countries in the 2006-2009 period. It appears that for the EU27 countries, there is a significant change in net position of international investment, price index for housing while other variables have not changed substantially.

Table 3: Selected hard-data indicators and their values for the EU27 countries

	Values	2006	2007	2008	2009
Foreign official reserves	% of GDP	9.8	9.6	9.0	11.1
External balance of goods and services	% of GDP	0.4	0.5	0.3	1.0
International investment net position	% of GDP	-22.85	-29.38	-35.24	-37.35
Gross saving (EU15)	% of GDP	20.4	20.7	19.6	18.2
Inflation (HICP)	2005=100	102.20	104.59	108.42	109.49
Housing, water, electricity, gas and other fuels price index	2005=100	105.41	108.94	115.63	117.38
Actual rentals for housing	2005=100	102.23	104.66	107.19	109.36
Household and NPISH final consumption expenditure	% of GDP	57.9	57.3	57.5	58.4
Gross value added - Financial intermediation and real estate	% of total	27.8	28.1	28.2	29.0
Stock market capitalization	% of GDP	69.44	74.02	29.62	40.49

Source: Eurostat database

Also, we tested a possible explaining power of survey indicators, selected among the ones used by the World Economic Forum in its "Global Competitiveness Report" series. The indicators are presented in the following table, as well as average values of the surveys for 2006-2009 for 27 countries[7] under review. We selected the indicators that would supposedly well capture the underlying causes of the crisis i.e. those related to financial markets, management of public funds (related to public debt), indicators of labour market flexibility.

Also, we tested the indicator that should directly capture future recession, if the surveyed persons (top executives) would be able to forecast it.

[7] EU member countries (Luxemburg is not included in the WEF analysis) and Croatia

Table 4: Selected Survey Indicators

	Indicator	Survey question	2006	2007	2008	2009
Financial markets	Soundness of banks	Banks in your country are: (1 = Insolvent and may require a government bailout ; 7 = Generally healthy with sound balance sheets)	6.10	6.16	6.12	5.39
	Strength of auditing and accounting standards	Financial auditing and reporting standards regarding company financial performance in your country are: (1 = Extremely weak ; 7 = Extremely strong – the best in the world)	5.47	5.47	5.45	5.33
	Financial market sophistication	The level of sophistication of financial markets in your country is: (1 = Poor by international standards ; 7 = Excellent by international standards)	4.97	5.15	5.29	5.19
	Ease of access to loans	How easy is it to obtain a bank loan in your country with only a good business plan and no collateral? (1 = Impossible ; 7 = Very easy)	4.25	4.24	4.12	3.50
Public funds management	Favoritism in decisions of government officials	When deciding upon policies and contracts, government officials in your country: (1 = Usually favour well-connected firms and individuals ; 7 = Are neutral)	3.84	3.74	3.81	3.67
	Government spending	The composition of public spending in your country: (1 = Is wasteful ; 7 = Efficiently provides necessary goods and services not provided by the market)	3.54	3.64	3.63	3.47
	Public trust of politicians	Public trust in the financial honesty of politicians in your country is: (1 = Very low ; 7 = Very high)	3.26	3.41	3.50	3.38
Labor market flexibility	Flexibility of wage determination	In your country, wages are: (1 = Set by a centralized bargaining process ; 7 = Up to each individual company)	4.56	4.54	4.54	4.51
	Hiring and firing practices	The hiring and firing of workers is: (1 = Impeded by regulations ; 7 = Flexibly determined by employers)	3.39	3.35	3.39	3.47
	Recession expectations	Your country's economy: (1 = Will likely be in a recession in the next 12 months ; 7 = Will have strong growth in the next 12 months)	4.56	4.76	4.33	2.90
	Average	Average above	4.39	4.44	4.42	4.08

Source: Global Competitiveness Report (WEF 2006, 2007, 2008, 2009)

It is important to note that the average values of the used indicators actually improved in 2007 and 2008 and only deteriorated in 2009. Actually two indicators (financial market sophistication and public trust of politicians) significantly improved in 2008 and 2009, and these indicators may be even tested as sound *misleading indicators* – showing improvement while the actual problems are hidden somewhere else, to reveal later.

6. ANALYSIS OF POTENTIAL LEADING INDICATORS

In the following step we performed correlation analysis between CRI and potential leading indicators with aim to identify the most relevant ones. Table 5 and 6 show the results of the correlation analysis between CRI and hard-data and survey indicators.

Correlation coefficients are firstly calculated for the level indicators for year 2007 (second column of table 5) which is taken as the last year before the financial and economic crisis

significantly hit the European economy. Third column lists the coefficients for dynamic indicators defined as the changes in respected indicators during 2005-07 period.

Table 5: Correlation coefficients for CRI and hard data indicators

Indicators	Coefficient of correlation with CRI	
	2007	2005-07
International investment net position	**0.46**	0.07[a]
External balance of goods and services in % of GDP	0.36	-0.03
Stock market capitalization	0.23	0.18
Gross saving in % of GDP	0.20	**0.44**
Gross value added - Financial intermediation and real estate	0.15	-0.03
Household and NPISH final consumption expenditure in GDP	-0.14	**-0.53**
Housing, water, electricity, gas and other fuels price index (2005=100)	-	**-0.57**
Inflation-HICP (2005=100)	-	**-0.49**
Actual rentals for housing (2005=100)	-	**-0.43**
Terms of trade index Unit value of exports / unit value of imports (2005=100)	-	-0.04

Note: Marked are statistically significant correlations at the 0.05 level
Source: Authors' calculation

First conclusion that can be drawn from the table is that level and dynamic "versions" of the same indicators can significantly differ in their values and implications. From the selected indicators neither one is both level and dynamic relevant. With respect to the level indicators, obtained results indicate that International investment net position (0.46) and External balance of goods and services (0.36) have the highest predictive power among the selected indicators. Their positive sign means that higher value of these indicators has been associated with countries' better performance during the crisis. On the other hand, Share of financial and real estate services and Share of private consumption in GDP note the lowest level of correlation with CRI. As for the dynamic indicators, several indicators stand out as the most influential. The highest correlation is noted in case of Housing, water, electricity, gas and other fuels price index (-0.57), followed by changes in Share of household and NPISH final consumption expenditure in GDP (-0.53), Inflation-HICP (-0.49), Share of Gross savings in GDP (0.44), and Actual rentals for housing (0.43). As expected, price indexes bear negative sign, meaning that faster increase in prices before the crises has been associated with poorer performance during the crisis. Since three out of six pointed indicators are various types of price indexes, we may conclude that the latter ones appear as very good candidates for the leading crisis indicators. Similarly, the relationship between the savings and consumption in relation to GDP is another very good crisis indicator. Those countries that have been able to increase the level of savings and decrease the level of private consumption with regard to GDP have performed much better in crisis. We now move to the analysis of survey indicators, with table 6 comprising the correlation coefficients for the selected survey indicators.

Table 6: Correlation coefficients for CRI and survey indicators

Indicator	Survey question	2007	2006-2007
Public trust of politicians	*Public trust in the financial honesty of politicians in your country is: (1 = Very low ; 7 = Very high)*	0.22	-0.13
Flexibility of wage determination	*In your country, wages are: (1 = Set by a centralized bargaining process ; 7 = Up to each individual company)*	-0.19	0.11
Recession expectations	*How would you describe the outlook for your country's economy in the next 12 months? 1 = Will likely be in a recession, 7 = Will have strong growth*	-0.18	**0.56**
Favoritism in decisions of government officials	*When deciding upon policies and contracts, government officials in your country: (1 = Usually favor well-connected firms and individuals ; 7 = Are neutral)*	0.15	0.09
Government spending	*The composition of public spending in your country: (1 = Is wasteful ; 7 = Efficiently provides necessary goods and services not provided by the market)*	0.07	0.07
Strength of auditing and accounting standards	*Financial auditing and reporting standards regarding company financial performance in your country are: (1 = Extremely weak ; 7 = Extremely strong – the best in the world)*	0.05	0.17
Hiring and firing practices	*The hiring and firing of workers is: (1 = Impeded by regulations ; 7 = Flexibly determined by employers)*	-0.04	0.23
Soundness of banks	*Banks in your country are: (1 = Insolvent and may require a government bailout ; 7 = Generally healthy with sound balance sheets)*	-0.03	0.15
Ease of access to loans	*How easy is it to obtain a bank loan in your country with only a good business plan and no collateral? (1 = Impossible ; 7 = Very easy)*	0.01	0.02
Financial market sophistication	*The level of sophistication of financial markets in your country is: (1 = Poor by international standards ; 7 = Excellent by international standards)*	0.01	0.13

Note: Marked are statistically significant correlations at the 0.05 level
Source: Authors' calculation

Estimated coefficients suggest in general existence of poor correlation between level indicators and CRI, meaning that selected soft indicators have weak predictive power. Highest correlation coefficients are noted in case of Public trust in financial honesty of politicians, Wage rigidity and Recession expectations. Interestingly, the last two coefficients are negative, suggesting that (perception of) more flexible labour market in terms of setting wages and higher optimism with regard to economic prospects before the crisis are associated with less successful performance of the economy during the crisis. In case of dynamic indicators, we can single out recession expectations as the most significant one for all the survey indicators. Its positive value means that respondents have on average rightly detected the course of changes in country's economic prospects. However, the previously mentioned value of level indicators shows that they have been far too optimistic in many countries with respect to the level of future economic outlook.

6. CONCLUSIONS

The paper provides an overview of the existing theoretical and empirical literature on early warning systems and offers some new insights on the possible leading as well "misleading indicators" of the future economic crisis on the basis of the past experience. While significant effort has already been put in place to further improve existing EWS and introduce new ones, there still remain many avenues for further research. In the empirical part of our paper we have attempted to bring out some ideas about the potential leading of misleading crisis indicators.

We have started the empirical analysis by creating a composite indicator of the impact of 2007/2008 crisis, based on standardized values of GDP, employment and public debt data for EU-27 and Croatia. The resulting indicator called Crisis resilience indicator has been used to test a group of 20 indicators, identified as potential leading indicators, comprised from the hard-data and survey data. The results of the correlation analysis gave advantage to the former ones, with much bigger number of potential leading indicators than in case of survey indicators. The analysis of the values of survey indicators after the crisis has indicated that respondents act much more "ex-post" than "ex-ante" when thinking about their economy's prospects, which reduces the value of survey data as potential leading indicators.

The analysis also showed that almost all applied indicators were significant only as either level or dynamic indicators, which calls for more attention when deciding between the static and dynamic approach in selection of indicators. In some cases values of the level and dynamic-type of particular indicator even led to opposite conclusions. The example is the indicator called Recession expectations, which is negative as level indicator while positive as dynamic indicator. In this case level-type indicator can be attributed as "misleading", while the dynamic-type indicator is a good candidate for the "leading" indicator. Other most relevant candidates for leading indicators include hard indicators, most notably changes in price indexes and dynamics of savings and private consumption. The results suggest that those countries with moderate increase in prices, growth of the level of savings and decreased level of personal consumption before the crisis performed much better during the crisis.

Finally, we would like to stress that these are only preliminary results, obtained through a very simple statistical analysis that needs to be further testing with more sophisticated statistical methods in order to verify its relevance regarding the identification of leading, i.e. misleading indicators.

BIBLIOGRAPHY

Abiad, A., (2003): **Early Warning Systems: A Survey and a Regime-Switching Approach**, IMF Working Papers WP/03/32, International Monetary Fund.

Abiad, A., (19999: **Early Warning Systems for Currency Crises: A Markov-Switching Approach with Application to Southeast Asia,** http://www.ssc.upenn.edu/~abiad/paper1213.pdf [Accessed 20.04.2011].

Alvarez-Plata, P. and Schrooten, M., (2004), **Misleading indicators? The Argentinean currency crisis,** Journal of Policy Modelling**,** 26(5): 587-603.

Berg, A., Borensztein E. and Pattilo, C., (2004):**Assessing Early Warning Systems: How They Worked in Practice**, IMF Working Paper WP/04/52.

Berg, A., and Pattilo, C., (1999a): **Are Currency Crises Predictable? A Test**, IMF Staff Papers, 46(2), International Monetary Fund.

Berg, A., and Pattilo, C., (1999b): **Predicting currency crises:: The indicators approach and an alternative**, *Journal of International Money and Finance*, 18(1999): 561-586.

Berkmen, P., Gaston G., Robert R., and Walsh, J., (2009): **The Global Financial Crisis: Explaining Cross-Country Differences in the Output Impact**, IMF Working Paper 09/280.

Bucevska, V., (2011): **An analysis of financial crisis by an early warning system model**: **The case of the EU candidate countries**, *Business and Economic Horizons*, 4(1): 13-26.

Burkart, O. and Coudert, V., (2000):**Leading Indicators of Currency Crisesin Emerging Economies**, Banque de France, http://www.banque-france.fr/gb/publications/telechar/ner/ner74.pdf [Accessed 20.04.2011].

Busiere, M. and Fratzscher, M., (2002), **Towards a New Early Warning System of Financial Crises**,Working paper No. 145, http://www.ecb.int/pub/pdf/scpwps/ecbwp145.pdf [Accessed 15.04.2011].

Davis, P., Karim, D., (2008): **Could Early Warning Systems Have Helped to Predict the Sub Prime Crisis?**, *National Institute Economic Review*, 206: 35-47.

Edison, Hali J., (2000): **Do indicators of financial crises work? An evaluation of an Early Warning System**, *International Journal of Finance and Economics*, 8(1): 11-53.

European Commission, (2010): **Proposal for a Regulation of the European Parliament and of the Council on the prevention and correction of macroeconomic imbalances,** http://ec.europa.eu/economy_finance/articles/eu_economic_situation/pdf/com2010_527en.pdf [Accessed 20.04.2011].

European Commission, (2009): **Economic Crisis in Europe: Causes, Consequences and Responses**, *EUROPEAN ECONOMY 7/2009*, http://ec.europa.eu/economy_finance/publications/publication15887_en.pdf [Accessed 15.04.2011].

Frankel, J. and Saravelos, G., (2010), **Can Leading Indicators Assess Country Vulnerability? Evidence from the 2008-09 Global Financial Crisis**, http://www.hks.harvard.edu/fs/jfrankel/areleadingindicatorsuseful.pdf [Accessed 20.04.2011].

Gyomai, G. and Guidetti, E., (2011): **The Performance of the OECD's Composite Leading Indicator during the 2007 Financial Crisis,** in The Statistics Newsletter, OECD Statistics Directorate, 51: 3-6.

Heinen, N., (2011): **Macroeconomic coordination. What can a scoreboard approach achieve?,** *Deutsche Bank Research*, http://www.dbresearch.com/PROD/DBR_INTERNET_EN-PROD/PROD0000000000269188.pdf [Accessed 20.04.2011]

IMD, (2009): **Stress Test**,in IMD World Competitiveness Yearbook 2009, http://www.imd.org/news/upload/Stress_2009.pdf [Accessed 20.04.2011].

Kaminsky, G, Lizondo, S. and Reinhart, C., (1998):**Leading Indicators of Currency Crises**, IMF Staff Papers, 45, No.1: 1-48.

Kaminsky, G. and Reinhart, C., (2000):**On Crises, Contagion, and Confusion,***Journal of International Economics*; 51(1): 145-168.

Krugman, P., (1979): **A Model of Balance of Payments Crises,***Journal of Money Credit and Banking*, 11: 311-328.

Krznar, I., (2004): **Currency crisis: Theory and practice with Application to Croatia**, Working Papers W-12, Croatian National Bank.

Rose, Andrew K. and Spiegel, Mark M., (2009), **The Causes and Consequences of the 2008 Crisis: International Linkages and American Exposure,** National Bureau of Economic Research, http://www.nber.org/papers/w15358.pdf?new_window=1 [Accessed 15.04.2011].

Roubini (2008), **The Rising Risk of a Systemic Financial Meltdown: The Twelve Steps to Financial Disaster,** RGE monitor**,** http://media.rgemonitor.com/papers/0/12_steps_NR

Schiff P.D., Downes J. (2007) **Crash Proof: How to Profit From the Coming Economic Collapse**, John Willey & sons inc, Hoboken, USA

TERRITORIAL UNITS' COMPETITIVENESS: A SELF-RELIANT CONCEPT OR A DERIVATIVE CONCEPT OF FIRMS' COMPETITION?

Kapitsinis Nikolaos,
University of Groningen,
Faculty of Spatial Sciences, Landleven 1, P.O. Box 800,
9700 AV Groningen, The Netherlands
Phone: +31626288342; Fax: -
E-mail: n.kapitsinis@student.rug.nl

Metaxas Theodore,
University of Thessaly,
43 Korai str., 38333, Volos, Greece
Phone: +302421074917; Fax: -
E-mail: metaxas@uth.gr

Duquenne Marie Noelle,
University of Thessaly,
Pedion Areos, 383 34, Volos, Greece
Phone: +302421074438 ; Fax: -
Email: mdyken@prd.uth.gr

Key words: *competitiveness, territorial unit, firms, bankruptcy, Greece, Dubai*

ABSTRACT

In the modern globalized economy there are some concepts which are very important for the current socio-economic system. One of them is competition. Though in classical political economy, the economic realm, with competition as its centerpiece, seems to be carrying it over all other fields, today competition appears as the sole immanent category imbuing all aspects of everyday life. So, in current globalized economic background, competition has been extended in fields of education, health, wealth fare and spatial science - competition among territorial units (cities, regions or states). There are three particular approaches regarding territorial competitiveness: this which defends it, this (critical) which disputes it and the neutral approach. It is examined if territorial units' competition is a self-reliant concept or a concept which is derivative of firms' competition. Within this context the cases of Greece and Dubai present remarkable interest regarding their behaviour after their bad economic performance and its comparison with a firm's one, particularly in case of bankruptcy.

1. INTRODUCTION

Territorial Competition, which has been discussed in a high frequency during the last 20 years, is a phenomenon which takes place among territorial units (states, regions or cities) in order to have the highest profits (developing, economic, social) for the 'winner' territorial unit. There have been developed many theories about territorial competitiveness and there

have been formulated three approaches. The first approach, the 'defenders' (Storper, 1997; Cheshire and Gordon, 1996; Porter, 1999) is this which defends territorial competitiveness, the critical one (Krugman, 1996; McFetridge, 1995; Yap, 2004) which disputes it and the neutral one.

The first issue that this paper deals with is whether territorial competitiveness is a self-reliant concept or it is a derivative concept of firm competition. It is now broadly accepted that space is not flat and neutral and has different characteristics (Derruau, 1976) which affects the different levels of development and different speed of growth (Krugman, 1998b) for each territorial unit. Space creates social situations, both negative and positives and determines administration and its structure (Harvey, 2001). Every economic and social phenomenon reflects in space. So, competition is related with space; the kind of this relationship is examined: if it is direct or indirect, if territorial competitiveness is a self-reliant or derivative concept.

The second basic question of this paper focuses on the comparison between the way that a firm and a territorial unit behave, especially in case of 'bankruptcy'. Thus, the cases of Greece and Dubai which had recently (and still have) very bad economic performance are examined in order to prove that the way that a firm (which disappears after a bankruptcy) behaves is different to this of a territorial unit. Defenders claim that territories can bankrupt (Camagni, 2002; Blazy *et al.*, 2008) whilst critical approach (which in many topics agrees with neutral one) claims that territories cannot go out of business (Krugman, 1994; Bristow, 2005).

This paper aims at participating in the discussion about territorial competitiveness which includes many interesting opinions of economists, planners and geographers. The two basic topics that are examined in this article could be considered as original since the core topic of literature's majority is to promote appropriately territorial competitiveness. Especially the examination of the origins of territorial competitiveness is an issue that is important in order to understand its meaning and usefulness, particularly as a regional development policy in the context of current crisis.

In an effort to summarize the issues to which are given emphasis, the contribution of this paper to the current affairs regarding territorial competitiveness and the topics which enhance the literature are considered to be:

1. A deep review of the theoretical review for territorial competitiveness. The classification of all the opinions in three approaches: defenders, critical, and neural.

2. An answer is given to the question whether territorial competitiveness is a self-reliant concept or a derivative concept of firm competitiveness.

3. There is a comparison between the behaviour of a firm and of a territory in case of bad economic performance or bankruptcy: through the case studies it is examined whether the territories can go out of business due to bad economic performance or to extinct after the announcement of their bankruptcy.

All these questions are very important to be examined and answered in order to solve many misconceptions regarding territorial competitiveness, in both terms of theory and policy, giving a broad perception of this. An integrated review can contribute to a better understanding of the notion of territorial competitiveness. Finally, by the case studies it is

shown if a state can really bankrupt and so if national competitiveness is a real concept revealing if all these measures that are announced due to the 'crisis of the national competitiveness' are reasonable or not.

2. COMPETITION IN GENERAL

Competition means different things to different people (McFetridge, 1995). Generally speaking, competition is considered to be an interaction which arises between two or more individuals or groups when they strive for something that all cannot obtain and in its economic perspective it describes a situation where 'the individual buyer does not influence the price by his purchase or sales' (Stigler, 1966: 87). Competition is the basis of capitalism and one of the most important powers that act within it and even many critics of orthodox theory, such this of Marx, could not avoid taking a position on it; thus without it the capitalist society could not exist (Harman, 1969).

According to Porter (2008: xi), the theory that competition is one of most powerful forces for making things better is truer nowadays than it had never been before, because competition appears in almost every aspect of our life, including education, health, arts, wealth fare, politics and others (Porter, 1999). One of these fields is space and geography resulting in the creation of territorial competitiveness.

Territorial competitiveness was introduced in policy and science discussion in the period of globalization, characterized by increasing complexity and density of global supply chains, internationalization of finance, market and commerce by opening national borders and, mainly, high accumulation of wealth in large multinational corporations and elites who benefit from them (Harvey, 2005). These important changes have been processed by national policies which support and are promoted by dominant school of thought, neo-liberalism.

3. THE THREE APPROACHES REGARDING TERRITORIAL COMPETITIVENESS

3.1. The defenders

It is general admitted that this period is dominated by the perspective, widely known as 'New Regionalism' (Storper, 1997). This era begins from the assertion that changes in the market and economic system have influenced in a high degree and created new circumstances and challenges for regional and, more generally, territorial development. The starting point for New Regionalism is regional competitiveness (Webb and Collins, 2000).
Throughout evolution of economic geography, mainly during last 20 years, a particular approach, defended by many authors, has introduced the concept of territorial competitiveness, meaning competition among territories (states, regions, cities). There have been expressed many definitions regarding territorial competitiveness:

> In terms of economic basis and productivity:
> 'The degree to which territories (nations, regions or cities) can produce goods and services which meet the test of the wider regional, national and international markets, while simultaneously increasing real incomes, improving the quality of life for citizens and promoting development in a way which is sustainable.'
>
> (Lever and Turok, 1999)

> In terms of governance:
> 'The process through which groups, acting on behalf of territorial economy, seek to promote it as a location for economic activities, either implicitly or explicitly, in competition with other places.'
>
> (Cheshire and Gordon, 1996)

> In terms of territorial units' characteristics:
> 'The ability of a territory to exploit or create comparative advantage and thereby to generate high and sustainable economic growth relative to its competitors.'
>
> (D' Arcy and Keogh, 1999)

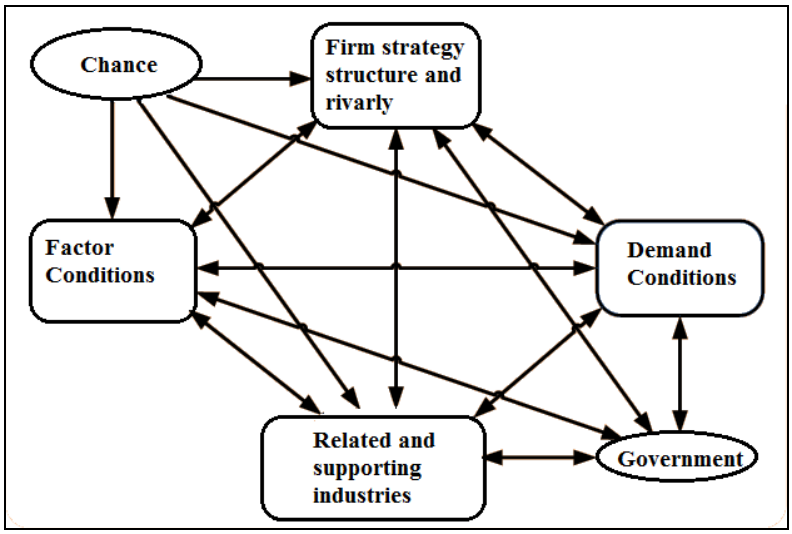
Aiginger (2006) relates territorial competitiveness with the ability of a territory to create welfare. On the other hand, Olson (1965) and Cheshire and Gordon (1996) claim that local growth promotion is equal to territorial competitiveness. According to Reinert (1995), a region is competitive when there are the conditions for a rise of its standards of living. Regional competitiveness is the capability of a region to attract and keep economic activities while the standards of living maintain stable or increasing (Storper, 1997; Florida, 2002). Maybe the first definition regarding competition among states was made by Balassa in 1964: 'a state has become more or less competitive if, as a result of cost-and-price-developments of other factors, its ability to sell on foreign and domestic markets has improved or deteriorated'. Territorial competitiveness is the 'ability of the territorial economy and society to provide an increasing standard of life for its inhabitants' (Malecki, 2000).

According to Camagni and Capello (2005), competitiveness at territorial level is meant as territorial accessibility (ensures the sources of production and the success of market areas in short time) and as territorial attractiveness (the efficiency of a territorial unit to attract production activities). It is not only the marketing or the attempts for selling the territories, but also the improvement of the factors that make the territory attractive for investment and migration (Malecki, 2004), increasing the territorial competitiveness which is related to traditional production, infrastructure and location factors, economic structure, and quality of life.

Porter introduced the concept in new era, 'new territorial competitiveness' in 1990 with his work and views with regards to competition which takes place among nations and states. He equalized territorial (mainly national) competitiveness with productivity (Porter, 1990: 6). Porter claimed that the regions compete each other for providing the best possible working conditions for the sector of business. Additionally, he emphasizes the role of clusters (which represent a combination of competition and co-operation) and their positive influence to the competitive advantage of the locations (2000). Porter relates the influence the advantage of one state on competition to four, well known as the 'National Diamond'.

In addition, territorial competitiveness and its theoretical legitimacy could be enhanced by the concept of 'collective learning' (Capello, 1999): territorial competitiveness role to provide a competitive background for the firms and individual companies is secondary compared to its primary role in the procedures of knowledge accumulation and the development of co-operations which are the basis for local and regional enterprises' innovative progress (Camagni, 2002).

Graph 1. The 'National Diamond'



Source: Porter, 1990

Territorial competitiveness has been promoted in an important rate by institutions and organizations like EU and OECD. The language of competitiveness could be characterized as the language of the business community (Bristow, 2005). EU has established commissions and councils which analyse, examine, present and propose principles and policies related to territorial units' competitiveness. EU gives to territorial competitiveness (one of the Lisbon Treaty goals) the following definition: 'the degree to which a country can, under free and fair market conditions, produce goods and services which meet the test of international markets, while simultaneously maintaining and expanding the real incomes of its people over the long term' (Commission, 1999:75). Territorially competitive policy (mainly national) has been connected with cohesion one: in the document 'Territorial State and Perspectives of the European Union' (Informal Ministerial Meeting, 2005) it is claimed that 'territorial development policies must help areas increase their territorial capital as part of the overall effort to increase Europe's competitiveness' (Vanolo, 2010).

OECD (1996) defined competitiveness (in a general level) as 'the capacity of firms, regions, places to produce high level of income and employment'. An important problem is that OECD defines competitiveness for all the levels (firms, regions, places) without separating them, claiming that regions and places compete against each other in the same way that the firms and enterprises do.

It is broadly accepted that competition is a zero-sum game; it has winners and losers (Marx, 1844). Especially, Cheshire and Gordon (1998) mention that the success of one territory, which is depended partly on the policies that are designed to promote territorial economic activity, can only be a fact at the expense of others. Cheshire (1999) claimed that the territories with the highest capacity 'to have incentive to develop territorially competitive efforts would be the potential gainers'. So, the most competitive territory wins. However, international trade is not a zero-sum game, but a positive-sum one since all the participants have small or big benefits (Cellini and Soci, 2002; Yap, 2004). According to many authors, in this environment territories cannot compete, but firms do (Poot, 2000: 205). So, it is considered that here is a first problem regarding territorial competitiveness.

An important question regarding territorial competitiveness is the possible or not existence of competition between territories in the three different spatial levels (state, region, city) and differences among these type of competitiveness (Malecki, 2004). Xu and Yeh (2005) claim that is it exists in all the levels in a similar way. The basic question and discussion within defenders' approach is whether the territories compete in the same way that the firms do and whether territories could be considered as products. Within this approach there seems to exist conflicting views: Van den Berg and Braum (1999) consider that territories compete in the same way with the firms while Turok (2004) and Malecki (2007) claims that the way is different. Competition among firms is a self-reliant concept and is 'converted' to territorial competition due to the 'quality' (the ability to achieve and maintain the quality of products) and 'innovative' (the ability to innovate) dimension: these two dimensions of competitiveness meet conditions which are external to a firm (Porter, 1999) that changes the situation that the territories are the locations for 'competitive activity' by firms in a situation that the territories must be 'themselves competitive' (Courchene, 1999).

3.2. The critical approach

In the fields of spatial economics, competitiveness has been applied into three different levels: 1.the firm 2.the industry 3.the nation (territory). First of all, this approach claims that firm's competitiveness is the most meaningful level (McFetridge, 1995). A direct extension of competitiveness from firms' to national level is *a priori* faulty (Yap, 2004). The theory of change of the 'currently predominant electric or a-theoretical approaches to regional competitiveness' is less robust than this provided of New Economic Geography (Potter, 2010).

So, it would have great interest to examine the connection between New Trade Theory and economy's competitiveness. In a period that the neoclassical paradigm was the dominant for many decades, the development of New Trade Theory, in 1991 by Krugman, represented efforts to relax the restrictive assumptions of neoclassical framework, which assumes the existence of competitive markets, factor substitutability and mobility, and profit maximization (Yap, 2004). Its basic goal was to shift the focus on technological capability as the primary determinant of an economy's competitiveness. Imperfect markets include valid issues concerning territorial competitiveness both as a concept and as the ability of a territorial unit to be competitive (Krugman, 1994).

Territorial competitiveness is a meaningless and useless concept and a result - derivative of firms' one (Krugman, 1996). According to Krugman (1997), 'competitiveness is a kind of ineffable essence that cannot be either defined or measured'. So, it is a case of firms' competition about the location; the firms are the principal actors and not the territories:

> The concept of competitiveness has a clear meaning only when applied to commensurable units (firms) engaged in commensurable activities (competing in a market) so that relative performance can, in principle, be measured along a common scale. When applied to territorially-defined social aggregations such as cities or regions, the term losses all coherence.
>
> (Lovering, 2001)

There are many reasons that territorial competitiveness is a dangerously misleading concept:

- Firstly, urban, regional and national environment is very important for firm competition but not determinant (Krugman, 1997): the determinant factors of firms' success are internal to them (cost efficiency, innovation and marketing).

- Secondly, the distribution of economic activities is space occurs as a physical result of market under agglomeration economies' conditions.

- Thirdly, when competition is under discussion it has to be considered that the competitors are economic systems with the real meaning so that they can go out of business. But the territorial units cannot go out of business like firms (Krugman, 1997: 6). This issue is examined in the second part of this paper.

- Growth is a concept at which a territory aims for its own sake and not in order to compete the others (particularly for a state): 'Maintaining productivity growth and technological progress is extremely important; but it is important for its own sake, not because it is necessary to keep up with international competition' (Krugman, 1997: 101). Thus, the factors of standard of living depend, mainly, on domestic market and policies that are implemented (Krugman 1994; Yap 2004).

In addition territorial competitiveness is very different to productivity if and only if purchasing power grows significantly more slowly than output (Krugman, 1994). It is also different to cohesion even if it is equated with it mainly by the neoliberalism (Vanolo, 2010). Territorial competitiveness is a narrow concept that portrays regions as being locked in fierce head-to-head battles with one another for mobile capital and resources (Kitson *et al.*, 2004). Thus, what is the meaning of a war between territories? According to Krugman (1996) it has no meaning and no usefulness.

3.3. Neutral approach

Apart from the absolute views there is an approach that does not defend or dispute territorial competitiveness but criticizes it and its use as the core of regional development policies (because it was not conceptualized by theoreticians of space and economy but by practical policy makers) and proposes a better way that it could be used in terms of development. Territorial competitiveness and technology are buzz words, i.e. they are used widely but vaguely, without their real meaning and outside from their theoretical and technical context (Fagerberg, 1996). Moreover, defenders' approach over-emphasizes on the one side the significance of the territory to the firm competitiveness (of course without claiming that the territory is irrelevant to the performance of economic activity and firms) and on the other side the role of firm competitiveness in regional prosperity (Bristow, 2005). Bristow, also, claims that defenders have very simply assumed that what applies to the level of firms (like competitiveness) can be transferred to other entities like territories and that this is not only a belief or opinion of them but the concrete reality. Territorial Competitiveness is meaningful only under some prerequisites, i.e. when 'territorial prosperity depends on territorial specific intangible assets embodied in a knowledge and competence base' (Boschma, 2004).

According to Jessop (2008), territorial competitiveness is a 'key discursive construct' to which, recently, much rhetoric has been given serving particular interests that reinforce capitalist relations and which hurts regional resilience. Territorial competitiveness is constructed narrowly and is much more that the 'simple head-to-head stereotype and market motivations manifested in multiple ways' (Bristow, 2005). Bristow, also, claims that the

acceptance of territorial competitiveness in the policy and its measurement have taken place without dealing with many important questions and topics regarding it. As a consequence of defenders approach there has been spread a narrow unsophisticated and 'de-contextualized' meaning of territorial competitiveness which could be named as 'placeless' (Bristow, 2010) and creates policy decisions and tools that are not related with space and context. Territorial competitiveness is introduced in a background which is characterized by the lack of any effort to conceptualize regions as territorially defined social aggregations, each of them with its own economic and political characteristics (Lovering, 1999).

Table 1. Basic Characteristics of the three approaches

Topic	Defenders	Critical	Neutral
Determinant factors of firms' economic performance	External to firm (Porter, 1999)	Internal to firm (Krugman, 1996)	Internal to firm (Bristow, 2005)
Determinant factors of firms' innovation (central to territorial competitiveness)	External to firm (Capello, 1999)	Internal to firm (Sternberg and Arndt, 2001)	Internal to firm (Bristow, 2005)
Territories can bankrupt	Yes (Camagni, 2002)	No (Krugman, 1994)	No (Bristow, 2005)
Territories compete in the same way like firms do	Yes (Van den Berg, Braum, 1999) + No (Turok, 2004)	No (Krugman, 1997)	-
Direct extension of competitiveness from firm to territories	Right (Courchene, 1999)	False (Lovering, 2001)	False (Jessop, 2008)
Territorial competitiveness → a buzz and fuzzy concept	No (Cheshire and Gordon, 1996)	Yes (Cellini and Soci, 2002)	Yes (Fagerberg, 1996)
A territory increase its growth and productivity for	Competing the others (Lever and Turok, 1999)	Its own sake (Krugman, 1997)	Its own sake (Jessop, 2008)
Territorial competitiveness	Meaningful and useful, the basis for territorial development (Storper, 1997)	Useless and meaningless (McFetridge, 1995)	Placeless and de-contextualized (Bristow, 2010)
Increase of firms' competitiveness → increase of standards of living	Yes (Malecki, 2000)	Not necessarily (Yap, 2004)	Not necessarily (Lovering, 1999)
Increase of standards of living equals the growth rate of productivity relative to	Competitors (Begg, 1999)	Domestic productivity (Krugman, 1994)	-

Talking in general, competitiveness is not an absolute but a relative term because there is care about how much good is the performance relative to other (Fagerberg, 1996). National competitiveness is the 'ability of a country to realize central economic goals, especially growth in income and employment, without running into balance of payments difficulties' (Fagerberg, 1988). When competitiveness is applied to a country, a region or a city (a territorial unit in general) it must have a double meaning: economic welfare of citizens and nation's trade performance.

4. WEAK ISSUES OF TERRITORIAL COMPETITIVENESS

There have been indicated many problems related to territorial competitiveness. Firstly, there seems to be problems regarding the definition of territorial competitiveness: there has not yet been a clear definition that will be generally accepted (Malecki, 2002; Bristow, 2005). Furthermore, there are many problems with regards to measuring and indicators of territorial competitiveness. A totally accepted indicator has not been found yet or three have been found many but there is not a general agreement for it (Begg, 1999).

Territorial competitiveness in terms of international trade is problematic itself: international trade, the basis of territorial competitiveness, is a positive-sum game whereas territorial competition is a zero-sum one (Krugman, 1997: 96-99; Yap, 2004). So, they cannot co-exist and depend on each other, because they result in different situations: competitiveness in winners and losers whereas international trade in benefits for all the participants (Cellini and Soci, 2002).

The defending approach claims that the growth rate of living standards essentially equals the growth rate of productivity relative to competitors and not the domestic productivity (Krugman, 1994). Even though world trade is larger than ever before, living standards are always determined by domestic factors and not by some competition for world markets. The very characteristic case of USA in 1990, that produced and still produces goods and services for its own use in a percent of almost 90%, was presented above. Growth is a concept at which a territory aims for its own sake and not in order to compete the others (Krugman, 1997).

Furthermore, a firm owner in order to have a competitive firm can intervene in the interior of firm and make the desirable changes. On the other hand, if a territory's authorities cannot intervene and change factors, connected with space and local economic system which is a territory (Garafoli, 2002) in order to make their territory competitive, territorial competitiveness is under controversy. But generally, it is admitted that territorial units' authorities 'have less control over their assets and liabilities than firms' (Turok, 2004). This is another problem regarding the most important factor of economic activity's location choice for the majority of sectors which is the labor cost. In this factor any territorial unit, region or city, cannot intervene. As a result competition among these territories for economic activity attraction is considered to be disputed.

Territorial (national, regional or urban) environment and space are very important factors for economic activity location, success and competitiveness, but they are not the determinant ones. The determinant factors of firms' competitiveness are within firms' environment (Krugman, 1997). Especially regarding Multinational Enterprises, the dominant in current globalized economy, the factors that drive the re-investment process in regions are internal in them and totally disconnected with territories (Phelps *et al.*, 2003). But even non-multinational firms are, also, greatly affected by international networks in which they participate (Tracey and Clark, 2003).

Firms' innovation, a very important concept for territorial competitiveness (Capello and Fratesi, 2009), is affected by both firms' internal and regional factors in an equal way (Bristow, 2005). In many cases the internal factors are much more important than regional one (Sternberg and Arndt, 2001).

Table 2. Weak issues of territorial competitiveness

1.no clear definition generally accepted → buzz and fuzzy concept (Bristow, 2005)
2.territorial competitiveness (zero-sum game) cannot be constituent to international trade (positive-sum game) (Yap, 2004)
3.living standards are always determined by internal factors (Krugman, 1994)
4.no general accepted measurement (Begg, 1999)
5.determinant factors for the firms' performance → internal to firms (Krugman, 1996)
6.different level of intervention in firms and in territories mainly in labor cost (Garafoli, 2002)
7.Territories cannot go out of business (Krugman, 1994)

When competition is under discussion it has to be considered that the competitors are economic systems - subjects with all their characteristics, so they can go out of business. Camagni (2002) claims that territories and mainly regions can go out of business 'if the efficiency and competitiveness of all its sectors is lower than that of other regions'. However, territorial units cannot bankrupt like firms, cannot extinct (Krugman, 1994). Having lower levels of efficiency of all the sectors does not result in a bankruptcy of a territory. Malecki (2007) claims that when comparative advantage and specialization miss, then the absolute advantage (and so the exchanges and the avoidance of country's bankruptcy) will appear only in countries and not in regions or cities. This is considered to be only half right: in the new globalized background, where the regions' exchanges take place not in a national but in an international level (but still in an inter-regional way), the trade is based on comparative advantage and not absolute advantage (Armstrong and Taylor, 2000: 123) and each region will have a specialization.

So, concerning all the problems regarding territorial competitiveness that were quoted above and with kind respect to all the approaches we could argue that territorial competition is not a self-reliant concept but it is a concept which is derivative of firm's competition. It was introduced in order to bring territorial development by putting territorial units in a war among them with only goal to win. This concept is under controversy with regards to its real existence. However, even if it exists, territorial competition has three basic characteristics. Firstly, it is not a self-reliant concept but a derivative of firms' one, secondly, its real existence is under controversy and finally, it results in increasing territorial and interpersonal inequalities (Cox, 1995). One of the basic reasons for this is that territories cannot extinct even if they have announced their bankruptcy, a situation which is described below.

5. DO TERRITORIAL UNITS, AND PARTICULARLY STATES, EXTINCT AFTER 'BANKRUPTING'?

Competition exists among 'subjects' which have all the characteristics of economic systems, including this one of bankruptcy and total extinction of the subject. Below it is indicated that territorial units may have bad performance or even they may, in such a way, bankrupt and lose their economic and political autonomy but they cannot 'extinct from the world map', instead they always exist (Krugman, 1994). This situation indicates a big problematic regarding territorial competitiveness both connected with its existence or not as a self reliant concept and with the way that it is applied between territorial units compared to firms' way of competition (Bristow, 2005).

The situation, that almost all states have at least a quite bad economic performance, takes place due to the policies that have been implemented during the last 150 years by the dominant school of thought, the liberal-neoliberal one and mainly nowadays due to current economic crisis forced by these policies. There is a mechanism and a combination of policies that have been applied since the colonial period and the early stage of capital internationalization which have two pillars:

1. States borrow huge loans from international markets in order to: make imports (Bina and Yaghmaian, 1991), pay their huge internal (public) financial obligations (Ruccio *et al.*, 1991), enhance military and police control of the working class and to finance the local industrialization (Cleaver, 1989).

2. States don't tax all the citizens equally and in most of times they do not tax the upper class and the manufacturers (Cipolla, 1992; Byrne, 2001). So, they do not have revenues in order to decline the debts resulting in a great increase of their deficits.

Table 3. World CDS in 2009

	CDS
United States	33
United Kingdom	77
Germany	23
Italy	90
Spain	91
France	26
Netherlands	29
Ireland	155
Greece	200[1]
Portugal	73
Japan	67
Russia	195
China	75

Source: Datastream, 2010

This situation is deteriorated by the 'financial games' that take place in global financial market by transactions of invisible financial values (Carchedi, 1997). After 1990 the Credit Default Swap (CDS) introduced in the global financial market as the indicator of how risky or certain is to lend in a particular state. It is a derivative contract between the buyer and the seller, in a relationship characterized the payoff of the seller to the buyer and the payments of buyer to the seller. So, every government has particular CDS which are documented by International Swap and Derivatives Association (ISDA); the highest the CDS are the most risky the lending to this state is and the lowest the CDS are the safest the lending to this state is (Ranciere, 2002). The CDS of many states are over 80 units (see table 3) which means that is quite risky to lend to these due to their high deficits (see table 5).

[1] In 19th January 2011 the CDS for Greece had extremely increased in 915 units.

This situation was the main reason for the establishment of organizations like International Monetary Fund which lend money to states with the exchange of controlling their economy (Cleaver, 1989). The high debts that occur in almost all the states, taking into account all the above procedure, could be characterized only as fake for the majority of the society and could not be separated to legal or illegal in cases of corruption. In current socioeconomic system the debts can show how bad the performance of a national economy is, always in the terms of system; this is a mechanism for new and harder measures which on the one hand deteriorate more the position of the workers and youths (Moran, 1998) and on the other they contribute to the reproduction of the system.

Current economic crisis has worsened the situation of huge national debts and deficits (Radice, 2011). This crisis originated from the global financial sector, well known as quaternary sector and the housing market (Dadkhah, 2009: 241-243) and has spread to all sectors of production and affected mainly the developed economies of the West World (USA and EU). It has the characteristics of a crisis of capital hyper - accumulation (see Mandel, 1985) and has seriously affected all aspects of socioeconomic life in the West World. It is a strong, long and deep crisis and shows high resistance against all attempts to face it. The data[2] indicate the situation:

A. total world growth in 2008 was -4.5%

B. real GDP growth in OECD countries was -3.3% in 2009 (0.5% in 2008, 2.8% in 2007 and 2.8% average in 1997-2006)

C. world GDP per capita in 2008 was 10,700$ whereas in 2009 it was 10,500$ (CIA, 2010)

D. total unemployment in OECD countries was 6% in 2008, 8.1% in 2009 and 8.5% in 2010

E. in 2009 the world real GDP growth was -0.9%

F. world trade growth was -11%

5.1. Case studies

There are many examples of states (mainly recently due to economic crisis) that had a very bad performance and announced their 'bankruptcy' or, at least, their accession in mechanism of support (mainly under IMF). Below, they are presented two very characteristic cases of states in a situation like this: Greece with bad economic performance and Dubai with the announcement of bankruptcy. There are many examples of territories which announced or were threatened by bankruptcy but these two were selected for this research for specific reasons:

1. These are two very suitable cases in order to examine the behaviour of a state when it announces its bankruptcy or when it just performs very badly in economic terms.

[2] The source of all the data in this section (except of them that there is a source in the article) is the annual Economic Outlook of OECD, 2010

2. These two states are the two most recent cases, until these lines are written, which announced or were very close to announce their bankruptcy.

3. They are presenting great interest to examine the situation and their reaction after the announcement of bankruptcy or the threaten of this, from which there can be drawn conclusions regarding the behaviour of a territory in case of bad economic performance and its comparison with firm's one.

4. Greece was selected because it is the first state of EU that was introduced into the mechanism of support which both EU and IMF created while Dubai because until 2008, that its 'bankruptcy' was announced, was the symbol of huge economic development worldwide.

5.2. The case of Greece

Greece is one of these many states that had borrowed huge loans for all the reasons that have explained above. But, throughout the years, the situation has worsened in a high degree: on the one hand Greece (like the majority of developed states) did not borrow in order to invest for development but to pay the wages and the public expenditures and on the other hand there was evasion of the big majority of the upper class. So, the revenues of the state were not increasing resulting in the high increase of deficit. This situation had deteriorated by the organization of Olympic Games in 2004 which took place in Greece, creating a higher public deficit and debt despite higher levels of development.

Greek economy had very bad performance during the last years, a situation which was getting worse year by year (see tables 4, 5 and graph 2). Because of this situation, Greek government had recourse to IMF resulting in very big cuts in public expenditures and wages in public sector. All these political decisions took place in the name of competitiveness and many approaches claim that this crisis is also is a crisis of Greece's competitiveness.

The rate of deficit of Greek economy in 2000-2003 is one of the highest in EU (see table 4). 2004 was the Olympic Games year which was very important for Greek economy's structure: this mega-event was mentioned as the basis for a beginning of Greek economy's growth. However, it had never had the results and benefits that were expected in Greek economy. In contrary the deficit and the borrowings of Greece increased and as a result the Greek rate of deficit in total GDP was the highest in EU in 2004 (-7.5%), the year that all the financial obligations of Greek economy took place due to the fulfillment of the Olympic projects.

After 2004 Greek rate of deficit slightly decreased before being the highest in EU for the years in the row (2007, 2008, and 2009), a situation which indicates the huge negative effects that global economic crisis had on Greek economy revealing the previous bad performance in the most emphatic way. In 2009 the deficit is -15.4% of total GDP of Greek economy. Except Greek economy the other ones that face big problems at this period (and either have recourse to supportive mechanism of IMF or not) had very high rates of deficit in total GDP (like Ireland, Spain, Portugal, Latvia). Even in absolute numbers (see table 5) the Greek deficit is extremely high having the 6th place in EU27 lower only than the 5 big-size economies of the Union (Germany, France, Spain, Italy, UK) and higher than bigger economies like the Netherlands. This is very important since the economy of reference (Greek) is a medium-size one.

Table 4. EU-27 Rate of Deficit in Total GDP (%)

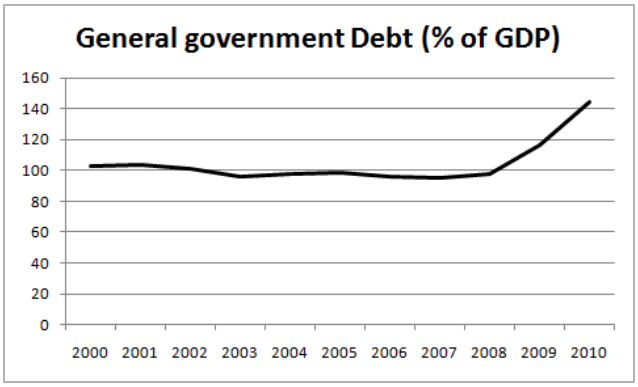
	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
European Union (27 countries)	-6.8	-2.3	-0.9	-1.5	-2.5	-2.9	-3.1	-2.5	-1.4	0.6
Belgium	-6	-1.3	-0.3	0.2	-2.7	-0.3	-0.1	-0.1	0.4	0
Bulgaria	-4.7	1.7	1.1	1.9	1.9	1.6	-0.3	-0.8	0.6	-0.3
Czech Republic	-5.8	-2.7	-0.7	-2.6	-3.6	-3	-6.6	-6.8	-5.6	-3.7
Denmark	-2.7	3.4	4.8	5.2	5.2	2.1	0.1	0.4	1.5	2.3
Germany	-3	0.1	0.3	-1.6	-3.3	-3.8	-4	-3.7	-2.8	1.3
Estonia	-1.7	-2.8	2.5	2.4	1.6	1.6	1.7	0.3	-0.1	-0.2
Ireland	-14.4	-7.3	0	2.9	1.6	1.4	0.4	-0.3	0.9	4.8
Greece	-15.4	-9.4	-6.4	-5.7	-5.2	-7.5	-5.6	-4.8	-4.5	-3.7
Spain	-11.1	-4.2	1.9	2	1	-0.3	-0.2	-0.5	-0.6	-1
France	-7.5	-3.3	-2.7	-2.3	-2.9	-3.6	-4.1	-3.1	-1.5	-1.5
Italy	-5.3	-2.7	-1.5	-3.4	-4.3	-3.5	-3.5	-2.9	-3.1	-0.8
Cyprus	-6	0.9	3.4	-1.2	-2.4	-4.1	-6.5	-4.4	-2.2	-2.3
Latvia	-10.2	-4.2	-0.3	-0.5	-0.4	-1	-1.6	-2.3	-2.1	-2.8
Lithuania	-9.2	-3.3	-1	-0.4	-0.5	-1.5	-1.3	-1.9	-3.6	-3.2
Luxembourg	-0.7	3	3.7	1.4	0	-1.1	0.5	2.1	6.1	6
Hungary	-4.4	-3.7	-5	-9.3	-7.9	-6.4	-7.2	-8.9	-4	-3
Malta	-3.8	-4.8	-2.3	-2.7	-2.9	-4.7	-9.8	-5.5	-6.4	-6.2
Netherlands	-5.4	0.6	0.2	0.5	-0.3	-1.7	-3.1	-2.1	-0.2	2
Austria	-3.5	-0.5	-0.4	-1.5	-1.7	-4.4	-1.4	-0.7	0	-1.7
Poland	-7.2	-3.7	-1.9	-3.6	-4.1	-5.4	-6.2	-5	-5.3	-3
Portugal	-9.3	-2.9	-2.8	-4.1	-6.1	-3.4	-2.9	-2.8	-4.3	-2.9
Romania	-8.6	-5.7	-2.6	-2.2	-1.2	-1.2	-1.5	-2	-3.5	-4.7
Slovenia	-5.8	-1.8	0	-1.3	-1.4	-2.2	-2.7	-2.5	-4	-3.7
Slovakia	-7.9	-2.1	-1.8	-3.2	-2.8	-2.4	-2.8	-8.2	-6.5	-12.3
Finland	-2.5	4.2	5.2	4	2.7	2.3	2.4	4	5	6.8
Sweden	-0.9	2.2	3.6	2.3	2.3	0.8	-0.9	-1.2	1.6	3.7
United Kingdom	-11.4	-5	-2.7	-2.7	-3.4	-3.4	-3.4	-2.1	0.5	3.6

Source: Eurostat, 2010

As it concerns Greek Government debt (see graph 2) from 2000 until 2007 it has wild fluctuations; from this year it starts to increase until 2010 when it rockets up to 144% of GDP in 2010. Greek debt increased so much due to the increased borrowings of Greek economy in order to pay its basic obligations (like pensions, health and education) and the development projects expenditures which were very high (Olympic Games); however they did not affect Greek economic growth in a positive way.

Global economic crisis had a very negative effect in Greece, like in the most developed states, increasing the level of interest rates in the 'markets' in 6% (March 2010) since they did not trust, yet, this state as a guarantor. Unemployment reached 7.7% (2008) and 9.5% (2009) (ELSTAT). Then, the government turned to the solution of International Monetary Fund (with the agreement and help of EU, too) because the fames of possible bankruptcy became more and more. Regarding upper data, Greek economy's very bad performance, mainly in current decade, is culminated by its recourse to IMF and EU for the highest loans that had ever been given (almost 150 billion euro).

Graph 2. Greece General Government Debt (% of GDP)



Source: Eurostat, 2010

On the other side of the coin the political and economic process of Greece is controlled by IMF and EU. The situation of Greek workers and youths at this period (working relationships, increase of cuts in public expenditures) is continuously exacerbated by the 'orders-interventions' of IMF in the political and economic affairs of Greece in a same way that it takes place in all the states that IMF interferes (Moran, 1998). Unemployment in Greece in December of 2010 was rocketed in 14.8% (ELSTAT, 2011).

Greece had reached so close to announce its bankruptcy but it preferred to lose its autonomy and go under the control of IMF and EU. Even if Greece had bankrupted or even now that it has lost its political and economic autonomy, it did not behave like a firm, it did not disappear or extinct from the world map, because Greece is not a firm but a territorial unit and, so, it represents much more than a firm. A firm which cannot cover the financial obligations of the business due to the lack of capital (Boardman *et al.*, 1981) bankrupts and extinct i.e. it is sold by the trustee in a public auction or as going concern (Thorburn, 2000; Helwege, 2010).

Table 5. Total Government Deficit/Surplus in EU-27 (millions of euro)

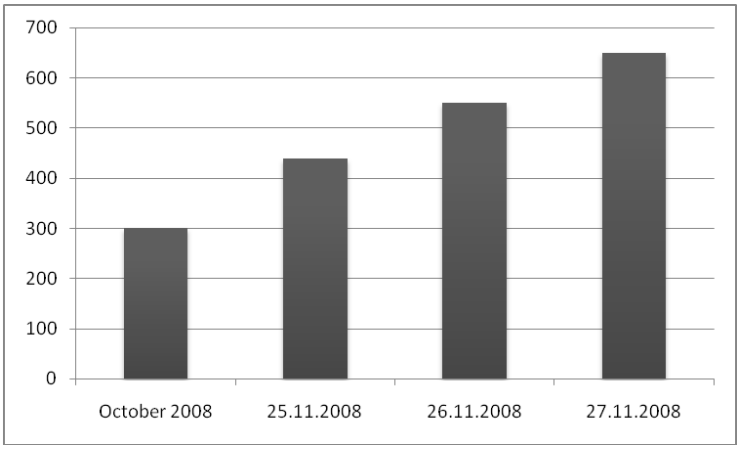
	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
European Union (27 countries)	-800,429.6	-292,783.2	-106,247.7	-173,318.6	-271,324.1	-304,157.6	-313,245.4	-249,267.8	-136,494.7	56,376.3
Belgium	-20,351.4	-4,622.3	-1,105	573.2	-8,232.7	-843.3	-290.7	-231.9	1,055.7	-91.4
Bulgaria	-1,641.6	587.4	349.2	491.1	413.5	310.3	-59.6	-131.7	96.5	-43.8
Czech Republic	-7,954.1	-4,022.5	-859.9	-2,995.6	-3,584.3	-2,611.3	-5,355.7	-5,414.5	-3,869.8	-2,288.6
Denmark	-6,090.9	7,917.8	10,852.3	11,287.6	10,804.2	4,117.9	183.2	684.3	2,666	3,928.9
Germany	-72,910	2,820	6,550	-36,830	-73,950	-83,520	-87,220	-78,320	-59,610	27,090
Estonia	-239.9	-456.7	402.2	327.7	180.2	159.7	145.7	20.8	-4.4	-14.1
Ireland	-22,957.9	-13,148.8	46.5	5,198	2,661	2,080	559	-454	1,017	4,987
Greece	-36,150	-22,363	-14,465	-12,109	-10,068	-13,940	-9,738	-7,465	-6,542	-5,092.6
Spain	-117,306	-45,189	20,066	19,847	8,759	-2,862	-1,622	-3,312	-4,361	-6,161
France	-143,834	-64,677	-51,433	-41,066	-50,368	-59,576	-65,390	-48,700	-23,172	-21,020
Italy	-80,863	-42,694	-23,517	-49,921	-61,432	-48,572	-46,614	-37,085	-38,501	-9,962
Cyprus	-1,011.1	157.6	539.8	-175.3	-330.3	-518.6	-764.7	-492	-240.9	-233.2
Latvia	-1,899.6	-957.6	-66.8	-74.5	-51.7	-115.8	-162.3	-225.5	-194.6	-236.1
Lithuania	-2,433.4	-1,061.2	-289.9	-107.5	-104.8	-279	-210.7	-281.5	-482.5	-397.8
Luxembourg	-274.3	1,182.7	1,388.5	459.2	1	-301	120	504	1,379	1,313
Hungary	-4,124.9	-3,979.6	-5,069	-8,376.8	-7,003.6	-5,290	-5,363.4	-6,321	-2,413	-1,528.3
Malta	-216.9	-273.7	-124.7	-140.9	-137.6	-213.1	-435.4	-244.9	-276.5	-260.7
Netherlands	-30,915	3,389	1,048	2,919	-1,359	-8,584	-14,898	-9,709	-1,076	8,244
Austria	-9,607.5	-1,328.2	-1,159	-3,854	-4,031	-10,232	-3,170	-1,466	-20	-3,504
Poland	-22,488.4	-13,339.3	-5,849.8	-9,876	-9,957	-10,995.2	-11,867.4	-10,451.9	-11,191.1	-5,623.7
Portugal	-15,700.9	-5,037.7	-4,671.2	-6,491.3	-9,082.9	-4,831.4	-3,993.9	-3,845.5	-5,518.3	-3,568.9
Romania	-9,996.4	-8,018.4	-3,234.3	-2,186.6	-923.6	-744.3	-786.2	-973	-1,582.7	-1,897.3
Slovenia	-2,060.5	-666.7	-1.3	-404.3	-412	-602	-688.8	-602.1	-902.7	-798
Slovakia	-4,999.4	-1,346.5	-994.4	-1,412.2	-1,082.9	-801.9	-818.6	-2,134	-1,534.4	-2,704.4
Finland	-4,261	7,788	9,314	6,645	4,253	3,501	3,550	5,689	6,909	9,031
Sweden	-2,694.1	7,342.4	12,038.5	7,436.6	6,656.3	2,253.5	-2,536.4	-3,145	4,055.2	9,985.7
United Kingdom	-177,447.4	-90,785.9	-56,001.4	-52,481.2	-62,940.9	-61,147	-55,817.3	-35,160.5	7,820	57,222.6

Source: Eurostat, 2010

5.3. The case of Dubai

Dubai, an emirate among the seven of United Arabic Emirates, has been one of the fastest growing economies in the world having its economic basis mainly on oil and real estate. But, it had, also, borrowed huge loans which contributed in a high degree to Dubai's very high foreign debt of $88 billion (Economist, 2009). In 29 November 2008 it announced that it would delay repayment of the debts and economic councils hurried to announce its bankruptcy. The data[3] regarding this emirate indicate that after 2007 and especially in the beginning of the crisis it had a very bad economic performance.

Graph 3. Dubai's CDS



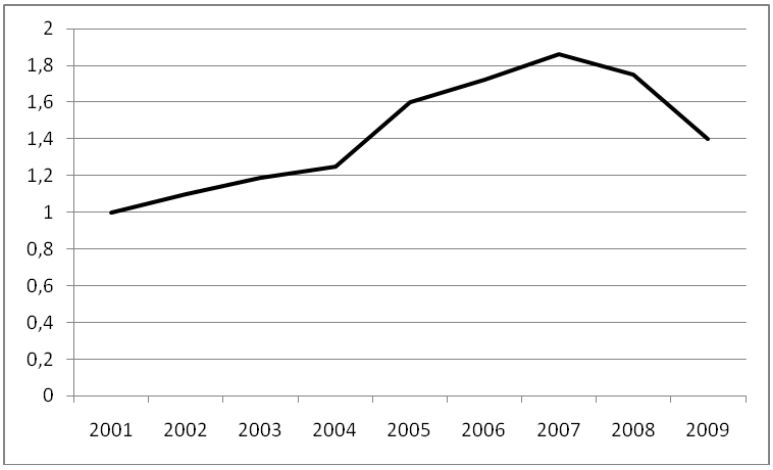
Source: CMA Datavision, 2009

[3] Great difficulties were faced in order to collect all the data for Dubai since it is not a separate state but it is in an intermediate situation being a member of the state of United Arabic Emirates (it is one emirate of this state): All the available data referred to the level of UAE.

Dubai CDS (see graph 3) increased extremely in the last days of November i.e. in the period that it was announced its delay for the repayments of its debts (from 440 CDS in 25 November 2008 it increased in 650 CDS two days later). The debt of the emirate of Dubai has increased dramatically during the last years (Economist, 2009) and almost $8 billion in one year, from 2007 to 2008 (see table 6). UAE Government Debt increased steadily from to 2001 until 2008 (see graph 6).

The Moody's Real Commercial Property Price Index (CPPI), which was introduced by MIT's Center for Real Estate (MIT CRE) and is published by Moody, is a 'periodic same-property round-trip investment price change index of the U.S. commercial investment property market'. It was firstly used in order to understand the movement of the U.S. commercial real estate prices but later it is used as an indicator in order to ascertain the situation and movement of perspective markets and the collinearity of the risks that could be resulted. So, the highest the CPPI is the most uncertain is the lending to a state while the lowest it is the safest is the lending to a state. 2001 was the year of the basis (so CPPI is equal to 1) and until 2005 it increases steadily. In 2006-2008 the indicator had a sharp increase which made the lending to Dubai much more difficult and uncertain.

Graph 4. Moody's Real Commercial Property Price Index (CPPI) for Dubai



Source: AGORAFINANCIAL, 2010

Furthermore, the real annual GDP growth in UAE (see graph 5) had a stable decline from 2005 until 2008 (from 8% to 4.5%) when it decreased by 5.5% in only one year (from 4.5% to -1% in 2009). The decline in economic growth of Dubai which influences so much UAE (Economist, 2009) occurred as a result of global economic crisis and affected the emirate's ability to borrow loans for reducing its debt. This entire situation obligated Dubai emirate to announce its delay to foreign debt's repayments. In order to continue its repayments and since Dubai could not borrow from the markets, the solution was given by a very high loan which Dubai borrowed from Abu Dhabi Prince.

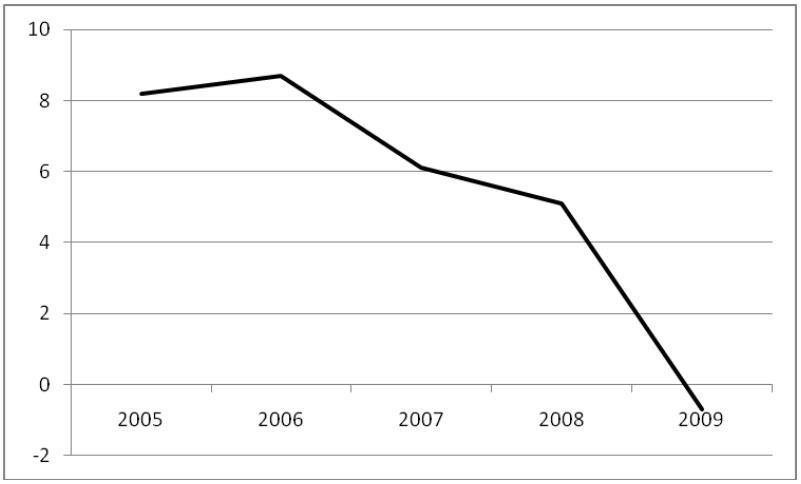
Table 6. Debt of Dubai

2007	$80 billion
2008	$88 billion

Source: DSC, 2010

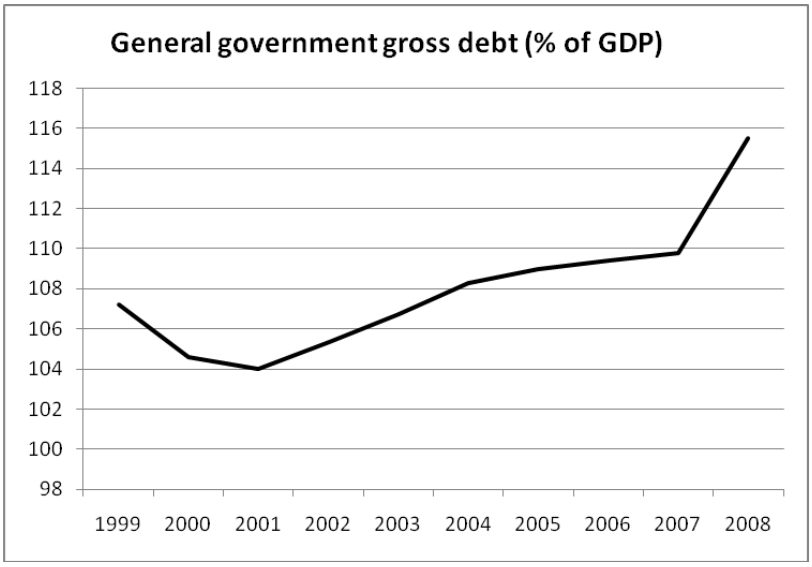
Despite this very bad economic performance, the decline in all its important economic sectors and consequently Dubai's bankruptcy, this emirate-state is still alive and active and it has not disappeared like a firm would have done. So, it is another indication that territorial units are not subjects with all the characteristics of economic systems and especially the characteristic of disappearing or closing after a possible bankruptcy. So, it is considered that territorial competitiveness is under controversy, since competition can only exist among economic subjects with all the characteristics that an economic system has.

Graph 5. Real annual GDP growth (%) in United Arabic Emirates



Source: DSC, 2010

Graph 6. UAE General Government Gross debt (% of GDP)



Source: Ministry of Finance of UAE (2009)

6. CONCLUSIONS

In the first part of this paper there has been examined and analysed the concept of territorial competitiveness, the procedure which takes place among territories for attracting investments, residents and events and which has been examined in the scientific and policy discussion in a

high rate. There was a review in the literature regarding territorial competitiveness resulting in the classification of the opinions in three main approaches: defenders, critical and neutral, which satisfied the first two aims of this paper. Each of the three approaches, which have been structured related to territorial competitiveness, has developed an entire theory about the concept. Taking into account the problematic issues that were indicated throughout the examination of territorial competitiveness concept it is strongly considered that this concept is not a self-reliant concept but a derivative one from firms, that its real existence is disputed and that its use as the basis of territorial development has increased the social and spatial inequalities. This could be considered as the answer in the question of the third aim of this paper.

In order to indicate the allegation that territorial competitiveness is not a self-reliant concept but its origins are in firms' competition, there were efforts to show that territories are not systems with all the characteristics of economic subjects, so they cannot compete each other: according to radical political economy only systems with all the characteristics of economic subjects can compete. One of these characteristics is the bankruptcy. In the second part of this paper that it was examined the way that a territorial unit behaves in case of bad economic performance or even after its ostensible bankruptcy and its comparison with a firm's behaviour.

So, above there were quoted data of territorial units, and particularly Greece and Dubai, which had so bad performance that they announced or almost announced their bankruptcy and they lost their autonomy (economic and political) resorting to solutions like IMF which now almost controls the whole state political and economic process. But in this procedure there must be mentioned a great difference between the economic system of an enterprise and the system of a territorial unit, regarding their characteristics.

A territorial unit may have bad performance like a firm. A territorial unit may bankrupt like a firm. As a result a territorial unit may lose its autonomy resorting to controlling mechanisms like firms. However, a territorial unit cannot extinct or disappear like a firm. Many territorial units disappeared by an institutional change or by merging with another (after wars or change in the local-regional administrative system) but no of them extinct due to bankruptcy. So, a firm is possible to bankrupt and to extinct whereas a territorial unit which represents much more aspects than a firm cannot extinct even after the announcement of its bankruptcy.

Territorial unit's system may have bad economic performance, bankrupt and lose its autonomy but until now in current globalized economy no territorial unit has lost its substance and disappeared from global map due to 'bankruptcy' opposed to firms that a great number of them have already disappeared. So, all these measures announced in the name of the crisis of national competitiveness (European Summit in Brussels, 24-25 March 2011) are not reasonable since the state cannot bankrupt, as it was shown above. Thus these measures are announced due to other reasons like the stability or increase of profit rate and the face of crisis in favour of the rich and strong social subjects.

Through all the procedure of this paper it is considered that all of the initial goals were achieved because it gave answers to all the initial questions that have been asked. Especially, the selected case studies that were examined contributed in a very high rate in the effort to answer the initial questions: the comparison between the behaviour of a firm and of a territory in case of bad economic performance or bankruptcy and the examination whether the territories can go out of business due to bad economic performance or to extinct after the

announcement of their bankruptcy contributed for giving a negative answer to the question whether territorial competitiveness is a self-reliant concept. It is derivative of firm competitiveness.

This is also the contribution of this paper to the discussion: it indicates (after an integrated review in the literature about it) that territorial competitiveness is not a self reliant concept (after an integrated review in the literature about it) and fairly it is disputed and that there is a very different behaviour between firm and territory when their economic performance is bad. The firm can extinct whereas the territory not. It can only lose its political and economic independence.

However, the research regarding territorial competitiveness and its theoretical perspective has more things to contribute. Some future research issues could be the direct examination of its real existence or the reasons to avoid territorial competitiveness as the main development policy.

ACRONYMS

CDS: Credit Default Swap
CPPI: Commercial Property Price Index
DCS: Dubai Statistical Center
ISDA: International Swap and Derivatives Association
ESPON: European Observation Network for Territorial Development and Cohesion
EU: European Union
EU27: European Union with 27 Member States
GDP: Gross Domestic Product
IMF: International Monetary Fund
MIT CRE: Massachusetts Institute of Technology Center for Real Estate
MS: Member States
OECD: Organization for Economic Co-operation and Development
UAE: United Arabic Emirates
USA: United States of America

BIBLIOGRAPHY

Agorafinancial (2010) **Statistics Database Homepage,** http://www.agorafinancial.com (Accessed on 29 October 2010).

Aiginger, K. (2006): **Competitiveness: From a Dangerous Obsession to a Welfare Creating Ability with Positive Externalities,** ***Journal of Industry, Competition and Trade,*** 6: 161-177.

Armstrong, H. and J. Taylor (2000): **Regional Economics and Policy**, Oxford: Blackwell,.

Balassa, B. (1964): **The Purchasing Power Parity Doctrine: A Reappraisal,** ***Journal of Political Economy,*** 72(6): 584-596.

Begg, I. (1999): **Cities and Competitiveness,** ***Urban Studies,*** 36(5-6): 795-809.

Bina, C. and B. Yaghmaian (1991): **Post-war Global Accumulation and the Transnationalization of Capital,** ***Capital and Class,*** 15: 107-130.

Blazy, R., B. Chopard and A. Fimayer (2008): **Bankruptcy law: a mechanism of governance for financially distressed firms,** ***European Journal of Law Economics,*** 25: 253-267.

Boardman, C. M., J.W. Bartley and R.B. Ratliff (1981): **Small business growth characteristics,** ***American Journal of Small Business,*** 5: 33-42.

Boschma, R. (2004): **Competitiveness of Regions from an Evolutionary Perspective,** ***Regional Studies,*** 38(9): 993-1006.

Bristow, G. (2005): **Everyone's a winner: problematizing the discourse of regional competitiveness,** ***Journal of Economic Geography,*** 5: 285-304.

Bristow, G. (2010): **Resilient regions: re-'place'ing regional competitiveness,** ***Cambridge Journal of Regions, Economy and Society 2010***, 3: 153-167.

Byrne, D. (2001): **Class, tax and spending: problems for the Left in postindustrial and postdemocratic politics - or why aren't we taxing the fat cats till the pips squeak?** ***Capital & Class,*** 25: 157-166.

Camagni, R. (2002): **On the concept of territorial competitiveness: sound or misleading?'** ***Urban Studies,*** 39(13): 2395–2411.

Camagni, R. and R. Capello (2005): **ICTs and territorial competitiveness in the era of internet,** ***The Annals of Regional Science,*** 39: 421-438.

Capello, R. (1999): **Spatial Transfer of Knowledge in High-Technology Milieux: Learning vs. Collective Learning Processes,** ***Regional Studies,*** 33(4): 353-365.

Capello, R. and U. Fratesi (2009): **Modeling European regional scenarios: aggressive versus defensive competitive strategies,** ***Environment and Planning A 2009,*** 41: 481-504.

Carchedi, G. (1997): **The EMU, Monetary Crises, and the Single European Currency,** ***Capital & Class,*** 21: 85-114.

Cellini, R. and A. Soci (2002): **Pop competitiveness,** ***Banca Nazionale del Lavoro Quarterly Review,*** 55: 71-101.

Cheshire, P. and R. Gordon (1996): **Territorial Competition and the predictability of collective (in)action,** ***International Journal of Urban and Regional Research,*** 20: 383-399.

Cheshire, P. and R. Gordon (1998): **Territorial Competition: some lessons for policy,** ***The Annals of Regional Science,*** 32: 321-346.

Cheshire, P. (1999): **Articulating the gains from integration,** ***Urban Studies,*** 36(5-6): 843-864.

Cipolla, F. (1992): **Profit Rate and Public Deficit in the U.S.A.,** ***Capital & Class,*** 24: 76-82.

Cleaver, H. (1989): **Close the IMF, abolish debt and end development: a class analysis of the international debt crisis,** ***Capital & Class,*** 13: 17-50.

CMA Datavision (2010) **Statistic Database Homepage**, http://www.cmavision.com (Accessed on 17 December 2010).

Commission of the European Communities (1999): **Sixth Periodic Report on the Social and Economic Situation and Development of Regions in the EU**, Commission, Brussels.

Courchene, T. (1999): **Ontario as a North American Region State,** ***Paper presented at the Global City-Regions Conference***, UCLA School of Public Policy and Social Research, Los Angeles, USA 21-23 October 1999.

Cox, K. R. (1995): **Globalization, competition and the politics of local economic development,** ***Urban Studies,*** 32: 213–224.

Dadkhah, K. (2009): **The evolution of Macroeconomic Theory and Policy,** Heidelberg: Springer.

Datastream (2010) **Statistics Database Homepage,** http://www.datastream.com (Accessed on 27 December 2010).

D'Arcy, E. and G. Keogh (1999): **The Property Market and Urban Competitiveness: A Review,** ***Urban Studies,*** 36(5-6): 917-928.

Derruau, M. (1976): **Geographie Humaine**, Paris: Armand Colin-Collection U.

Dubai statistical center (2010) **Statistical Yearbook 2009,** http://www.dsc.gov.ae (Accessed on 19 November 2010).

Economist (2009) **Standing still but still standing.** ***Economist online,*** http://www.economist.com/node/14977157 (Accessed on 20 December 2010).

Elstat (2011) **Statistics Database Homepage,** http://www.statistics.gr (Accessed on 24 March 2011).

Eurostat (2010) **Statistics Database Homepage,** http://epp.eurostat.ec.europa.eu (Accessed on 22 December 2010).

Fagerberg J. (1988): **International competitiveness,** ***The Economic Journal,*** 98: 355-374.

Fagerberg, J. (1996): **Technology and competitiveness,** ***Oxford Review of Economic Policy,*** 12(3): 39-51.

Florida, R. (2002): **The economic geography of talent,** ***Annals of Association of American Geographers,*** 92: 743-755.

Garafoli, G. (2002): **Local development in Europe: Theoretical models and international comparisons,** ***European Urban and Regional Studies,*** 9(3): 225-239.

Harman, C. (1969): **The Inconsistencies of Ernest Mandel,** ***International Socialism,*** 41: 36-41.

Harvey, D. (2001): **Spaces of Capital: Towards a Critical Geography,** New York: Routledge.

Harvey, D. (2005): **A brief history of neoliberalism,** New York: Oxford University Press.

Helwege, J. (2010): **Financial firm bankruptcy and systemic risk,** ***Journal of International Financial Markets, Institutions & Money,*** 20: 1-12.

Jessop, B. (2008) **The cultural political economy of the knowledge-based economy and its implications for higher education**. In B. Jessop, N. Fairclough and R. Wodak (eds.), ***Education and the Knowledge-Based Economy in Europe***, Rotterdam: Sense Publishers.

Kitson, M., R. Martin and P. Tyler (2004): **Regional competitiveness: an elusive yet key concept?** ***Regional Studies,*** 38: 991-999.

Krugman, P. (1994): **Competitiveness: a dangerous obsession,** ***Foreign Affairs,*** 74(2): 28-44.

Krugman, P. (1996): **Making sense of the competitiveness debate,** ***Oxford Review of Economic Policy,*** 12(3): 17-25.

Krugman, P. (1997): **Pop Internationalism,** Cambridge: MIT Press.

Krugman, P. (1998a): **What's new about the new economic geography?** ***Oxford Review of Economics and Policy,*** 14(2): 7-17.

Krugman, P. (1998b): **Space: the final frontier,** ***Journal of Economic Perspectives,*** 12(2): 161–174.

Lever, F.W. (1999): **Competitive Cities in Europe,** ***Urban Studies,*** 36(5-6): 1029-1044.

Lever, F. W. and I. Turok (1999): **Competitive Cities: Introduction to the review,** ***Urban Studies,*** 36(5-6): 791-793.

Lovering, J. (1999): **Theory lead by policy: the inadequacies of the New Regionalism,** ***International Journal of Urban and Regional Research,*** 23: 379-396.

Lovering, J. (2001): **The coming regional crisis (And how to avoid it),** ***Regional Studies,*** 35(4): 349-354.

Malecki, E. (2000): **Knowledge and regional competitiveness,** ***Erdkunde,*** 54: 334-351.

Malecki, E. (2002): **Hard and Soft Networks for Urban Competitiveness,** ***Urban Studies,*** 39(5-6): 929-945.

Malecki, E. (2004): **Jockeying for Position: What it means and Why It Matters to Regional Development Policy when Places Compete,** ***Regional Studies,*** 38(9): 1101-1120.

Malecki, E. (2007): **Cities and regions competing in the global economy: knowledge and local development policies*, Environment and Planning C: Government and Policy 2007,*** 25: 638 – 654.

Mandel, E. (1985): **The present crisis and the future of labor. *Socialist Register* 1985/1986**: 436-454.

Marx, K. (1844): **Economic and philosophical manuscripts of 1844**, New York: Prometheus Books,1988.

McFetridge, D. (1995) **Competitiveness: Concepts and measures**, Occasional paper 5, Industry Canada.

Metaxas, T. and D. Kallioras (2007): **Medium-Sized Cities' Development and Regional Competitiveness: The Case of the Larissa-Volos Dipole in the Region of Thessaly Greece*, Review of Economic Sciences***, 12: 15-136.

Ministry of finance of UAE (2009) **Statistics Database Homepage,** http://www.mof.gov.ae (Accessed on 18 February 2011).

Moran, J. (1998): **The Dynamics of Class Politics and National Economies in Globalization: The Marginalization of the Unacceptable*, Capital & Class,*** 22: 53-83

OECD (2010), **OECD Economic Outlook**, Vol. 87 2010/1, OECD Publications, Paris.

Olson, M. (1965): **The Logic of Collective Action, Public Goods and the Theory of Groups**, Cambridge: Harvard University Press.

Phelps, N.A., D. Mackinnon, I. Stone and P. Bradford (2003): **Embedding the multinationals institutions and the development of overseas manufacturing affiliates in Wales and North East England, *Regional Studies,*** 37: 27-40.

Poot, J. (2000) **Reflections on Local and Economy-Wide Effects of Territorial Competition**. In P. Batey and P. Friedrich (eds.), ***Regional Competition***, Berlin: Springer.

Porter, M.E. (1990): **The competitive advantage of Nations,** New York: The Free Press.

Porter, M.E. (1999): **Clusters and the New Economics of Competition, *Harvard Business Review,*** November-December: 77-90.

Porter, M.E. (2000): **Location, Competition, and Economic Development: Local Clusters in a Global Economy, *Economic Development Quarterly,*** 14(1): 15-34.

Porter, M.E. (2008) *On competition*. Harvard Business Review, Boston.

Potter, J. (2010): **Evaluating Regional Competitiveness Policies: Insights from the New Economic Geography, *Regional Studies,*** 43(9): 1225-1236.

Radice, H. (2011): **Cutting governments deficits: Economic science or class war? *Capital & Class***, 35: 125-137.

Ranciere, R. (2002), **Credit Derivatives in Emerging Markets**, IMF Policy Discussion Paper.

Reinert, E.S. (1995): **Competitiveness and its predecessors -a 500-year-cross-national perspective,** ***Structural Change and Economic Dynamics,*** 6: 25-47.

Ruccio, D., S. Resnick and R. Wolff (1991): **Class beyond the Nation-State,** ***Capital & Class,*** 15: 25-41.

Stigler, G. (1966): **The theory of price,** New York: McMillan, Fourth Edition.

Sternberg, R. and O. Arndt (2001): **The firm or the region: what determines the innovation behaviour of European firms?** ***Economic Geography,*** 77: 364-382.

Storper, M. (1997): **The regional world: territorial development in a global economy,** New York: Guilford Press.

Thorburn, K. (2000): **Bankruptcy auctions: costs, debt recovery, and firm survival,** ***Journal of Financial Economics,*** 58: 337-368.

Tracey, P. and G. Clark (2003): **Alliances, networks and competitive strategy: rethinking clusters of innovation,** ***Growth and Change,*** 34: 1-16.

Turok, I. (2004): **Cities, Regions and Competitiveness,** ***Regional Studies,*** 38(9): 1069-1083.

Van den berg, L. and E. Braun (1999): **Urban competitiveness, Marketing and the need for organizing capacity,** ***Urban Studies,*** 36(5-6): 987-999.

Vanolo, A. (2010): **European Spatial Planning Between Competitiveness and Territorial Cohesion: Shadows of Neo-Liberalism,** ***European Planning Studies,*** 18(8): 1301-1315.

Webb, D. and C. Collins (2000): **Regional Development agencies and the 'new regionalism' in England,** ***Regional Studies,*** 34: 857-873.

Xu, J. and A. Yeh (2005) **City Repositioning and Competitiveness Building in Regional Development: New Development Strategies in Guangzhou, China,** ***International Journal of Urban and Regional Research****,* 29(2): 283-308.

Yap, J. (2004), **A Note on the Competitiveness Debate**, Discussion Paper Studies Series No 2004-39, Philippine Institute for Development Studies.

COGNITIVE CAPITALISM AND THE GLOBAL CRISIS: NOTHING WILL EVER BE THE SAME

Aleksandar Kešeljević
University of Ljubljana, Faculty of Economics
Kardeljeva ploščad 17
Phone: ++38615892812; Fax: ++38615892698
E-mail: saso.keseljevic@ef.uni-lj.si

Vladimir Cvijanović
University of Zagreb, Faculty of Economics & Business
Trg J. F. Kennedy 6, HR-10000 Zagreb
Phone: ++38512383129; Fax: ++38512335633
E-mail: vladimir@daad-alumni.de

Key words: *Knowledge, Crisis, Cognitive Capitalism, Rent, Common*

ABSTRACT

Fundamental shift has been occurring today from the economy based on physical forms of wealth to the one based on knowledge. In identifying the structural causes of the current global socio-economic crisis the authors focus on knowledge-related factors. The conventional thinking regarding the capitalism is challenged by the switch from Fordism to cognitive capitalism, as the new historical phase of capitalism. In cognitive capitalism most valuable assets reside in the brains of the workers. Through socialisation process knowledge generates positive externalities at the organisational and societal level. Knowledge spills over to other users, and thus increasingly becomes more of a common good and less of a private one. The authors use this contrast (private/common) to explain the contradictions between social character of knowledge production and the private character of its appropriation in order to tackle the tendency of the finance dominated capitalism to take the rent from a system based on social cooperation. This requires a different understanding of the valorisation mechanism and a different regulation of the intellectual property rights. In the paper the authors seek to show (1) the structural causes of the current global socio-economic crisis through the new historical phase of capitalism, (2) why the key to understanding the crisis lies in understanding the nature of the knowledge, (3) how the spillover effects of knowledge to other users requires a different understanding of the valorisation mechanism, and finally, (4) why the contradiction between the social production of knowledge and the private appropriation of it requires rethinking of intellectual property rights.

1. INTRODUCTION

Fundamental shift has been occurring today from the economy based on physical resources to the one based on knowledge. Some have termed this new system cognitive capitalism, others knowledge-based economy. The advent of cognitive capitalism has meant that the immaterial (knowledge) becomes of central importance, not only as input, but also as output. Most

valuable assets reside in the brains of the workers. Through the processes of socialization required to generate and transfer it, knowledge becomes increasingly socially contingent, besides being materialized in machinery. The shift towards knowledge-cognitive dimension of labor also means that business competitivness increasingly depends on external variables (e.g. public research, mass education, the rising level of training). Therefore, knowledge ceases to become only a private commodity and becomes a common good as well. Furthermore, this new historical phase of capitalism has been marked by a pronounced financialisation coupled with technological innovations and supra-national institutional arrangements that have been key drivers of a flexible form of accumulation.

In the paper the authors seek to show (1) the structural causes of the current global socio-economic crisis through the new historical phase of capitalism, (2) why the key to understanding the crisis lies in understanding the nature of the knowledge, (3) how the spillover effects of knowledge to other users requires a different understanding of the valorisation mechanism, and finally, (4) why the contradiction between the social production of knowledge and the private appropriation of it requires rethinking of intellectual property rights.

In the second chapter the authors explain the current phase of capitalism (cognitive capitalism), in particular the global crisis. The third chapter provides arguments for understanding knowledge as private and/or common good. In the fourth chapter the authors seek to answer the question whether the current economic crisis is a crisis of the measurement of capitalistic valorisation. The fifth chapter deals with intellectual property rights and their role in the economic crisis. The sixth chapter concludes.

2. COGNITIVE CAPITALISM AND THE GLOBAL CRISIS

The structural causes of the current global socio-economic crisis cannot be understood without comprehending specificities of the new historical phase of capitalism. One therefore needs to tackle the current global crisis in the context of the switch from Fordism to post-Fordism or cognitive capitalism[1]. Vercellone (2007) asserts that this transition has entailed an increased role of knowledge in production as well as the process of financialisation.

Phases of the capitalist system can be distinguished according to the framework of the régulation theory, which considers three main factors in the definition of the accumulation regime: 1) the impact of technical change on production, 2) the connectedness of wage income to the aggregate demand and 3) internationalisation of the economy, especially its exports (Juillard, 2002: 158).

Fordism (or rather: manufacturing system in Fordism) was, according to Fumagalli (2009: 725-726) characterised by three traits: “1. the growth of productivity through the exploitation of static economies of scale or dimension; 2. the stability of the capital-labour relationship, through a regulation of wages which ties wage rises to increases in productivity, thereby guaranteeing a disciplined and ordered labour market; 3. a lesser degree of internationalisation of production, dominated by national policies and the existence of a regime of fixed exchange rates founded on the stability of dollar-gold parity, as laid down in the Bretton Woods

[1] The term *cognitive capitalism* has been coined in order to avoid the term *knowledge-based economy*. The former, as opposed to the latter, emhpasises the dialectic between capitalism as a system and cognitive as the main characteristic of productive processes (Lebert and Vercellone, 2007).

agreements, as a measure to minimise speculative activity in finance and currency markets." This accumulation regime fell into a crisis with a fall in productivity, slowdown of the rate of growth of aggregate demand and international monetary/financial instability of the 1970s (cf. Fumagalli, 2009: 727).

Cognitive capitalism superseded Fordism from 1970s on, due to major changes that have since occurred: an increased importance of knowledge and immaterial; knowledge ingrained in labour became more important than that ingrained in constant capital; innovation becomes permanent; fundamental and applied research becomes permeated (Lebert and Vercellone, 2007: 27). Furthermore, the dominance of finance has made the system of 'Western' economies rather unstable, with proneness to crises. Not only have financial markets more easily spread shocks, but household debt has also risen. The accumulation regime based on finance has changed the investment behaviour of firms due to higher uncertainty firms face and to the focus on shareholder value (Stockhammer, 2009).

The dynamic of the global capitalist system as well as its inherent contradictions have led to the current global economic crisis, which originated in the USA in 2007. The characteristics of the Fordist accumulation regime, according to the aforementioned framework of the régulation theory, have all changed. Fumagalli and Lucarelli (2010) assert a crucial role of conventions (self-referential trends) from the 1990s on, emphasising the financialisation process. During the last decade of the previous century 'internet convention' enabled high capital gains realised through the capital market. Since the goal of the capitalist system is to extract knowledge "the labour market becomes even more fragmented as a result of the shift from mechanical-repetitive to linguistic-communicative technologies (the so called high tech)... It allows the exploitation of individual knowledge and relational skills and generates technological unemployment and work precariousness" (Fumagalli and Lucarelli, 2010: 15). "[B]eyond having distributed new stock incomes unequally, the command bridge of the New Economy made them by destroying wages and employment stability, in line with a new common sense: the conditions over financial markets to create stock value encourage extreme organizational innovation, promoting the processes of downsizing, reengineering, outsourcing and *M&A*. Hence, finance translates and betrays the real innovative processes in act by devaluating living labour" (Fumagalli and Lucarelli, 2010: 18). After the stock market bubble burst (in March 2000) the Fed lowered the interest rates in order to stimulate spending, which was reinforced through "Chinese convention" and "real estate convention". The former reified as cheap Chinese imports into the USA which maintained this country's low inflation. The latter convention operated through the real estate markets, which saw rising prices on the basis of which American families could borrow more money from the banks (Fumagalli and Lucarelli, 2010). Fed by these processes the US economy grew until the crises of the real estate market and financial markets struck and spilled over to other countries.

Besides the behaviour of financial markets the key to understanding the economic crisis obviously lies in understanding knowledge. Hence, we first need to discover the nature of knowledge, in particular whether it is a private and/or a common good.

3. KNOWLEDGE: SOCIAL AND/OR PRIVATE?

Knowledge requires its carrier. Cognitive processes are basically related to the individual, since only subjective knowledge can provide the basis of decision-making. Acquiring knowledge is an individual process since individuals can acquire knowledge only through

individual education. The neoclassical human capital theory underlines that knowledge is basically a personalised process, an investment into an individual, who is giving up a part of his or her income during education, trading it for higher income in the future (Mincer, 1958; Becker, 1964; Schultz, 1960). Consequently, an organisation can only learn by learning of its members or by accepting new ones (Senge, 1990). Nonaka (1994) and Grant (1997) emphasise that individual knowledge is stored in physical skills and in the brain, and can therefore only be transferred with the person that possesses it. All these statements show us, that knowledge – in the neoclassical tradition – is primarily a private good**,** because it is embodied in individual and its acquisition pertains to individual who appropriates the majority of the benefits derived from the investment into knowledge.

However, knowledge is not a conventional commodity, as it is never lost upon sale or purchase. Each (non) market transaction only increases it, leading to increasing returns. Sawyer (1978) finds that falling returns of the neoclassical theory of human capital are a result of the separation of an individual from the productive environment as the individual is bounded in the capacity to employ his or her knowledge efficiently. The neoclassical human capital theory does not adequately account for relations, mostly because they are strongly subjective, and because the theory does not wish to threaten the position of the individual as the fundamental unit of analysis; hence, society is understood as a group of atomised individuals (Sawyer, 1978).

To achieve the increasing returns on knowledge, the broader social inclusion of an individual in the organization is needed. Through this socialisation process knowledge becomes materialised in machinery, teamwork, and in production-organisational process. It means that viewing individuals as the main carriers of knowledge is only partially appropriate. The process of acquiring knowledge which is fundamentally related to the individual apparently generates positive externalities that are manifested at the organisational level. Organisation should therefore be viewed as a lot more than a group of individuals. Numerous authors in business theory acknowledge the organisation's capacity to create, learn, and store knowledge. Nelson and Winter (1973, 1982) stress that organisation creates its own organisational knowledge through its operations, learning, and experience. Ule (1996) uses a metaphor of 'collective brains' which should point out that an organisation by itself can 'know', independently of the individuals. Holzner and Marx (1979) assert that organization as a 'collective agent of knowledge' has the capacity to learn. Organisational learning, organisational routines, and collective brains are notions that point to a conception of the organisation as an agent of knowledge. For instance, Senge (1990) speaks of a 'learning organization', Quinn (1992) of an 'intelligent organisation', and Nonaka and Takeuchi (1995) of a 'knowledge enterprise'. It means that an organisation can be an important agent of knowledge, besides the individual. Contemporary organisations realise today that knowledge is an important factor of business performance and competitiveness, and consequently devote more attention to its management.

The Austrian school furnished a deeper notion of knowledge. An important contribution by the Austrian school was its emphasis on the importance of entrepreneurial innovation and business cycles (Schumpeter,1960: xvi, xvii[2]) and its conception of the market as resulting from spontaneous action by subjects who possess partial knowledge (Hayek, 1945). The market mechanism of social learning leads to the transfer of knowledge between individual subjects in the market. Knowledge enters the market through the system of property rights

[2] Schumpeter's business cycle theory calls attention to the meaning of knowledge in entrepreneurship. Innovations implemented by the most daring entrepreneurs cause dynamic disequilibria and development.

held by individuals and organisations, where it can be exchanged for other entitlements. At the same time individual subjects (individuals, organisations) are, through the information function of the market prices, learning from each other. Hence, learning is not based merely on our own experience, but also takes place through the market (Hayek, 1945: 527). The Austrian school has contributed to understanding knowledge as a common good, since knowledge cannot be entirely understood through the prism of an individual subject, but only through a more profound insight into the market mechanism. Through these market relations knowledge increasingly becomes more of a common good and less of a private one.

Knowledge is obviously increasingly spilling over to other users, and thus it is becoming a common good. Social relations appear in the background of knowledge; therefore, knowledge is not only embodied in individuals, but also resides in the relations between them. In Marx's own terms, these are "social individuals" (Marx, 2000: 381). Also the business competitiveness increasingly depends today on so called external "knowledge suppliers" such as public research, mass education and the rising level of general training. As a result, the knowledge is becoming less private and even more a common good.

So in order to explain the character of knowledge we need to surpass methodological individualism and understand the processes of generation, diffusion and dispersion (availability) of knowledge. Whereas individuals/organisations capture some benefits from investment into knowledge it also spills over to other individuals/organisations. Due to the transmission of knowledge, from individuals/organisations to others and the importance of external knowledge, it can be characterised as a common good, on which businesses can tap strongly. This incongruity, between knowledge as a private or a common good, is crucial in explanation of the current economic crisis

4. IS THE CURRENT ECONOMIC CRISIS A CRISIS OF THE MEASUREMENT OF CAPITALISTIC VALORISATION?

One of the reasons of today's structural crisis lies in the tendency of the finance-dominated capitalism toward rent which does not belong to it (Vercellone, 2010). In order to be able to understand this argument we should understand the evolution of the economic system. To understand the evolution of capitalistic economic system it is necessary to pay more attention to production (and valorisation) processes, since the most of the existing social conflict emerge within production (Fumagalli and Lucarelli, 2010: 9, 28).

In an early stage of the society mainly labour was utilised in production of commodities, since land was free and capital did not exist (Smith, [1776], 2010: 61). In this situation relative prices were determined by relative labour costs (labour theory of value). In an advanced state of society commodity's value could not be determined anymore by taking into account only labour as factor of production. Due to the involvement of capital in production a simple labour theory of value cannot precisely predict changes in relative prices. Within the cost-production theory of value commodity's value can be calculated as the sum of the normal amounts payable to all the factors involved in its production (Blaug, 1996). "[L]and rentals were determined as a differential surplus over the marginal costs of cultivation, wages of labour were governed by the long-run costs of producing the means of subsistence and the rate of profit on capital was treated as a residual" (Blaug, 1996: 281). Nevertheless, in cases of both theories, the market commodity relations actually hide in the background the broader social relations and conflict.

Today's knowledge revolution fundamentally changes not only the economy, as it becomes less based on physical resources and more on knowledge, but also the understanding of the valorisation process. It seems that no production factor today is more important than knowledge, which is tightly connected with the other production factors. Marshall ([1890], 1961), for example, stresses that labour and land are the essential production factors; capital results from labour. We can observe machines as an embodied labour although that would not entirely explain the value of the machines (Blaug, 1996: 93). One can however argue that if knowledge appears as the backbone of labour, and if capital results from labour then capital is a result of knowledge as well. Knowledge also allows humans to cultivate land. It means that knowledge, albeit indirectly, stands in the background of all three important production factors. This implies that a dilemma between labour theory of value on one side and the cost production theory of value on the other is quite meaningless.

At the same time, as Fumagalli and Lucarelli (2010: 11) point out, the starting point in the evolution of the cognitive capitalistic system is the process of knowledge diffusion through mass schooling and the rise of average level of education. The main source of value in cognitive capitalism therefore stems from creativity and knowledge that are mobilized by the workers rather than physical capital (Vercellone, 2010: 105). The new employees are therefore radically different from previous generations of unskilled workers. Investment in their knowledge has also high potential returns. Between 1993 and 2000 the NYSE exploded mainly because of dot.com businesses which exploited the knowledge in the high tech sector. This represents the new way of valorisation of intangible capital or knowledge in their key employees in the firm (Fumagalli and Lucarelli, 2010: 17). Furthermore, cognitive capitalism has changed determinants of valorisation, in that it depends also on the factors outside the enterprise itself (e.g. public research). Cognitive capitalism has resulted in strong tendencies for compressing wages (e.g. flexible labour forms, precarization) and reducing employment security. All this, encouraged by a strong Asian industrial reserve army force, has lead to further systemic crisis and instability (cf. Fumagalli and Lucarelli, 2010).

In the previous chapter we could see that knowledge is spilling over to other users, and thus it is becoming a common good. This means that knowledge is generated and diffused through the society and as such it does not belong to a single owner. This contradiction between knowledge as a private or/and a common good brings out also the contradiction between the social production of knowledge and the private appropriation of it. Cognitive capitalism therefore requires a different understanding of the valorisation mechanism guided by financial markets in a way that a single (legal) person cannot take the rent from a system based on social cooperation.

Expropriation of knowledge as a common good is no longer confined within the factory (as in the Fordist regime) but extended to the whole of society (cf. Marazzi, 2008). Such an understanding undoubtedly opens dilemmas regarding the wage system (e.g. universal basic income) and intellectual property right regime. From perspective of knowledge the universal basic income should not be understood only as social security income, but primarily as a collective investment of society into knowledge which steam from individual's productive contribution and its spill over effects. It also means, that the existing property rights (IPR) institutional framework in which knowledge is neither freely produced, nor freely available, is in deep contrast with the nature of knowledge (as the common good) as the most important production factor in capitalism.

5. INTELLECTUAL PROPERTY RIGHTS AND ECONOMIC CRISIS

Logic of knowledge in cognitive capitalism is opposed to the logic of intellectual property rights (IPR) (Lebert and Vercellone, 2007). Through a variety of IPR (patents, geographical indications, trademarks, industrial designs as well as copyrights) their holders can restrict (re)production and diffusion of information and knowledge hence codified. Consequently IPR holders enjoy a monopoly for a number of years, which enables them to earn a rent on the IPR they possess. However, restricting or banning others from using the intellectual property means creative processes at the societal level will be hampered. The latter is explicitly the case when pre-emptive patenting is used[3]. Mouhoud (2007) emphasises global division of labour in the post-Fordist phase of capitalism is more and more based on knowledge with strong polarisation tendencies. "When knowledge-learning process is constrained by intellectual property rights (IPR), ... the consequence is that the greater is the degree of *appropriability* of knowledge, the smaller becomes its capacity of diffusion – affecting, *de facto,* its ability to positively influencing the associated productivity" (Fumagalli and Lucarelli, 2010: 13).

Although IPR have existed since the 15th century (May, 2002b as in Archibugi and Filippetti, 2010: 138) they have become almost universal since 1994, with the signing of the TRIPS agreement[4]. It went into force in 1995 and provides for minimum standards of protection of various property rights, which are then subject to national legislations. All possible disputes are to be settled through the World Trade Organisation (WTO), which can also impose trade sanctions for parties that do not abide by the rules (Allred and Park, 2007: 880). These institutional arrangements are therefore almost standardised at the global (supranational) level, which makes them difficult to change.

Literature on IPR offers inconclusive evidence on the impact of IPR on economic performance. Archibugi and Filippetti (2010) claim IPR are important only in a limited number of sectors of the economy and assert they are not crucial in determining a long-run competitive position of neither a country nor a firm. Baker (2005) studies drug patents and patents on medical equipment as well as copyrights. He finds that they impede efficiency in a society the similar way protectionism in international trade does so, by raising the price to levels beyond marginal costs. "Drug patents also distort the direction of research by pushing it in the direction of patentable results. Research directed at finding cures or treatments based on diet, exercise, or environmental factors will not be pursued in a health care system that relies exclusively on patent monopolies to finance research" (Baker, 2005). Macroeconomic effects of patents (on research and development and economic growth) vary in accordance with modality of patent protection[5]. IPR may also positively influence innovation (Chu, 2009: 15). However, while IPR may be seen as beneficial for a firm (since it protects its codified knowledge from competitors) societal effects are at best questionable.

IPR induce polarisations at least at three levels: at the level of individuals, firms and countries. Chu (2009: 10-11) asserts stronger IPR protection is positively correlated with a rise in income inequality. IPR protection seems to have more unambiguously positive effects on innovation in developed than in developing countries (Chu, 2009: 9; Allred and Park,

[3] In complex product industries pre-emptive patenting can be crucial, since a final product can comprise various patents, Defensive patents (those that only disclose information and do not grant full right to the patent holder) also prevent others from patenting/using an invention (Guellec, Martinez and Pluvia Zuniga, 2009: 8-9).
[4] TRIPs stands for trade-related aspects of intellectual property rights.
[5] Patentability requirement, length and breadth of patent protection (Chu, 2009).

2007). Innovation based on IPR builds on past innovation already protected by IPR, but countries not so much endowed with innovation and IPR cannot compete with the others (rich in IPR) (Belloc and Pagano, 2010: 7). The reasons may be due to their failure to imitate technologies, patenting of traditional knowledge and/or of biological material by the developed countries (Allred and Park, 2007: 881-882). Furthermore, the size of the firm matters as well, since only big firms can afford more IPR, small firms cannot do that, and new knowledge is accumulated (Pagano and Rossi, 2010: 5). So cumulative characteristic of knowledge as productive factor coupled with first-mover advantages of countries (or firms) endowed with IPR amplify existing differences between countries (firms). Unequal distribution of patents persists over time among both firms and countries, and is conditioned by possession of IPR in the past. So investment opportunities have been strongly determined by IPR, and therefore restricted at the global level (Belloc and Pagano, 2010). The reduction in global investment opportunities has contributed to the current global crisis (Pagano and Rossi, 2009 as in Belloc and Pagano, 2010: 26). Hence, knowledge enclosures in the form of IPR that artificially create scarcity of the non-rival good like knowledge cannot be justified (cf. Fumagalli, 2009).

Pagano and Rossi (2010) suggest strengthening of public research and buying out IPR from private firms in order to transfer them to the public sphere. However, these efforts should be coordinated at the supranational level so that free riding can be avoided. Hence we need to rethink ways in which knowledge is valorised in order to boost development.

"Rereading the economy entails excavating *subjugated* knowledges, both academic and popular, and drawing upon them as resources—to bring what is unsayable into language and what is hidden into visibility" (Bannon et al., 2001: 5). Different understanding of the economy needs to account for all those activities that do not get monetized. Among these are activities people do at home, which involve knowledge generation and transfer (e.g. teaching children how to read and write). Miller (2010) emphasises the importance of learning through various social groups (e.g. worker cooperatives and neighbourhood mutual-aid networks). Andersen and Rossi (2010: 3) mention various ways universities can exchange knowledge, among which are not only transactions involving patents but also "open science" channels, collaborative relationship and employment. These are but examples of the various ways in which knowledge is generated and shared, which go beyond monetary arrangements.

6. CONCLUSION

The emergence of wealth of nations will be in the future mainly derived from intangible resources. In its background arises the problem of knowledge which has become today one of the most important production factors. In the paper the conventional thinking regarding the capitalism is challenged by the switch from Fordism to post-Fordism (or cognitive capitalism). Cognitive capitalism represents a new generic variant of capitalism, based more on the accumulation of knowledge than ever before.

In identifying the structural causes of the current global socio-economic crisis the authors focus on the nature of the knowledge. It is becoming apparent that the most valuable assets reside in the brains of the workers. Through socialisation process knowledge generates positive externalities at the organisational level, since the knowledge becomes materialised in machinery, teamwork, and in production-organisational process. At the same time social learning leads to the transfer of knowledge between different subjects. This means that

knowledge is obviously increasingly spilling over to other users, and thus becomes more of a common good and less of a private one. Besides, competitiveness nowadays increasingly depends on external factors like mass education and rising level of training.

We identify a contradiction between social character of knowledge production and the private character of its appropriation. Hence there is the tendency of the finance dominated capitalism toward a rent. The authors call for a different understanding of the valorisation mechanism in a way that a single (legal) person cannot take the rent from a system based on social cooperation. Until then there will be a strong tendency for flexible labour forms, precarization and reduction of employment security. This contradiction requires rethinking of intellectual property rights, as the new mechanism of creating enclosures. However, by artificially making knowledge scarce IPR hampers development.

Rethinking solutions to come out of the current crisis asks for a different understanding of the nature of knowledge and its valorisation mechanism. This would require a thorough reconceptualisation of ways economic theory treats knowledge. It seems that among the various factors causing change in the economy none is more important today than the role of knowledge. Nevertheless, it seems at the moment that knowledge is paradoxically the least understood and the most undervalued.

BIBLIOGRAPHY

Andersen, B. and F. Rossi, (2010): **Universities Look Beyond the Patent Policy Discourse in their Intellectual Property Strategies**, LEI & BRICK - Laboratorio di economia dell'innovazione "Franco Momigliano" Bureau of Research in Innovation, Complexity and Knowledge, Collegio Carlo Alberto, Working Paper, No. 17, 2010.

Archibugi, D. and A. Filippetti, (2010): **The globalisation of intellectual property rights: four learned lessons and four theses**, ***Global Policy***, 1(2): 137-149.

Baker, D., (2005): **The Reform of Intellectual Property**, Post-Autistic Economics Review, 32.

Bannon, B., C. Biewener, J. Boulet, K. Byrne, J. Cameron, G. Delgadillo, R. Forest, K. Gibson, J. Graham, S. Healy, G. Horvath, B. Rennekamp, A. Russo, S. Stookey, and A. Weil, (2001): **Imagining and Enacting Noncapitalist Futures**, ***Socialist Review***, 28(3-4): 93-135.

Becker, S. G., (1964): **Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education**, New York: National Bureau of Economic Research.

Belloc, F. and U. Pagano, (2010): **Knowledge Enclosures, Forced Specializations and Investment Crisis**, Università degli studi di Siena, quaderni del dipartimento di economia politica, No. 601, October 2010.

Blaug, M., (1996): **Economic Theory in Retrospect**, Cambridge: Cambridge University Press.

Chesnais, F., (2007): **Odnosi vlasništva i oblici prisvajanja "kognitivnog" u korist financijskog kapitalizma** in C. Vercellone, ed.: ***Kognitivni kapitalizam: znanje i financije u postfordističkom razdoblju***, Zagreb: Politička kultura.

Chu, A. C., (2009): **Macroeconomic Effects of Intellectual Property Rights: A Survey**, Institute of Economics Academia Sinica, Working Paper, No. 09-A007, June 2009.

Fumagalli, A. and S. Lucarelli, (2010): **Cognitive Capitalism as a Financial Economy of Production**. in V. Cvijanović, A. Fumagalli and C. Vercellone, eds.: ***Cognitive Capitalism and its Reflections in South-Eastern Europe***, Frankfurt am Main: Peter Lang.

Fumagalli, A., (2009): **The Economic Crisis of Cognitive Capitalism v*is-à-vis* to the Economic Crisis of Fordist Capitalism in the Thirties: Is Nowadays a "Keynesian New Deal" Possible?** ***Ekonomski pregled***, 60(12): 719-737.

Grant, M. R., (1997): **The Knowledge Based View of the Firm: Implications for Management Practise**, ***Long Range Planning***, 30(3): 450-454.

Hayek, F. A., (1945): **The Use of Knowledge in Society**, ***The American Economic Review***, 35(4): 519-530.

Holzner, B. and J. Marx, (1979): **Knowledge Application: The Knowledge System in Society**, Boston: Allyn&Bacon.

Juillard, M., (2002): **Accumulation regimes** in R. Boyer and Y. Saillard, eds.: ***Régulation Theory: The State of the Art***, London and New York: Routledge.

Lebert, D. and C. Vercellone, (2007): **Uloga znanja u dinamici dugog razdoblja kapitalizma: hipoteza o kognitivnom kapitalizmu** in C. Vercellone, ed.: ***Kognitivni kapitalizam: znanje i financije u postfordističkom razdoblju***, Zagreb: Politička kultura.

Marazzi, C., (2008): **Capital and Language: From the New Economy to the War Economy**, Los Angeles: Semiotext(e).

Marshall, A., (1961): **Principles of Economics**, London: MacMillan&Co LTD.

Marx, K., (2000): **Grundrisse** in D. McLellan, ed.: ***Karl Marx: Selected Writings***, Oxford: Oxford University Press.

Miller, E., (2010): **Solidarity Economy: Key Concepts and Issues** in E. Kawano, T. Masterson and J. Teller-Ellsberg, eds.: ***Solidarity Economy I: Building Alternatives for People and Planet***, Amherst, MA: Center for Popular Economics.

Mincer, J., (1958): **Investment in Human Capital and Personal Income Distribution**, ***The Journal of Political Economy***, 66(4): 281-302.

Mouhoud, El M., (2007): **Međunarodna podjela rada i ekonomija znanja** in C. Vercellone, ed.: ***Kognitivni kapitalizam: znanje i financije u postfordističkom razdoblju***, Zagreb: Politička kultura.

Nelson, R. and S. Winter, (1973): **Toward Evolutionary Theory of Economic Capabilities**, ***The American Economic Review***, 63(2): 440-449.

Nelson, R. and S. Winter, (1982): **An Evolutionary Theory of Economic Change**, Cambridge: Belknap Press.

Nonaka, I. and H. Takeuchi, (1995): **The Knowledge Creating Company**, New York: Oxford University Press.

Nonaka, I., (1994): **A Dynamic Theory of Organizational Knowledge Creation**, ***Organization Science***, 5(1): 14-37.

Quinn, J., (1992): **Intelligent Enterprise**, New York: The Free Press.

Sawyer, D., (1978): **Social Roles and Economic Firms: The Sociology of Human Capital**, ***American Journal of Sociology***, 83(5): 1259-1270.

Schultz, W. T., (1960): **Capital Formation by Education**, ***The Journal of Political Economy***, 68(6): 571-583.

Schumpeter, J., (1960): **Kapitalizam, socijalizam i demokratija**, Beograd: Kultura

Senge, P., (1990): **The Fifth Discipline**, London: Century Business.

Smith, A., (2010): **Bogastvo narodov: Raziskava o naravi in vzrokih bogastva narodov**, Ljubljana: Studia Humanitatis.

Stockhammer, E., (2009): **The Finance-Dominated Accumulation Regime, Income Distribution and the Present Crisis.** ***Papeles de Europa***, 19: 58-81.

Swedberg, R. and N. J. Smelser, (1994): **The Handbook of Economic Sociology**, Princeton: Princeton University Press.

Ule, A., (1996): **Znanje, znanost in stvarnost**, Ljubljana: Znanstveno in publicistično središče.

Vercellone, C., (2007): **Uvod** in C. Vercellone, ed.: ***Kognitivni kapitalizam: znanje i financije u postfordističkom razdoblju***, Zagreb: Politička kultura.

Vercellone, C., (2010): **The Crisis of the Law of Value and the Becoming-Rent of Profit** in A. Fumagalli and S. Mezzadra, eds.: ***Crisis in the Global Economy: Financial Markets, Social Struggles, and New Political Scenarios***, Los Angeles: Semiotexte.

World Bank, (1999): **World Development Report. Knowledge for Development**, Washington: World Bank.

FLYING GEESE PATTERN AND THE WEST BAKANS

Yoji Koyama
Niigata University
Ikarashi 2-8050, Nishi-ku
Niigata, 950-2181
Japan
Phone: +81- 258-35-5466; Fax: +81-258-35-5464
E-mail: ZAC00343@nifty.com

Key words: *Flying Geese Pattern, East Asia, Western Balkans, Economic History*

ABSTRACT

This paper compares the economic development in East Asia and CEECs、especially the Western Balkans from perspective of economic history. Korea was colonized by Japan (1910-1945). Although Korea regained its independence after World War II, the country was separated by the Korean War (1950-53). The country was completely devastated by the Korean War. As of 1960 South Korea was less developed than North Korea. Later, however, South Korea experienced a high economic growth with about ten years lag behind Japan. South Korea has had a close economic connection with Japan and was able to introduce capital and technology from Japan. South Korea's high economic growth can be to a considerable extent explained by 'Flying Geese Pattern' (Akamatsu 1962; Ozawa 1992) as well as 'Advantage of Backwardness' (Gerschenkron 1966).

It seems that the relation between Japan and East Asia is similar to the relation between Germany (not only Germany but also some other core countries in the EU) and post-socialist East European countries. Central European and as well as Romania and Bulgaria (New EU Member States of CEECs) attracted capitals and technologies from developed countries including the EU countries and attained rapid economic development. A problem is whether the Western Balkan countries will be able to attain rapid economic development with capitals and technologies absorbed from developed countries as New EU Member States have experienced. In this paper not only common characteristics but also differences in the conditions between East Asian countries and the West Balkan countries will be examined.

1. INTRODUCTION

It seems that the relation between Japan and East Asia is similar to the relation between Germany (not only Germany but also some other core countries in the EU) and post-socialist East European countries. Central European as well as Romania and Bulgaria attracted capitals and technologies from developed countries including the EU countries and attained rapid economic development. A problem is whether the Western Balkan countries will be able to attain rapid economic development with capitals and technologies absorbed from developed countries as the above mentioned new EU Member States of Central and East European countries (CEECs) have experienced.

In this paper the flying geese pattern is briefly explained at first. Then experiences of South Korea and East Asia are explained, and secrets of South Korea's economic success are analyzed. Not only common characteristics but also differences in the conditions between East Asian countries and the West Balkan countries are examined. Finally the paper reaches some conclusion.

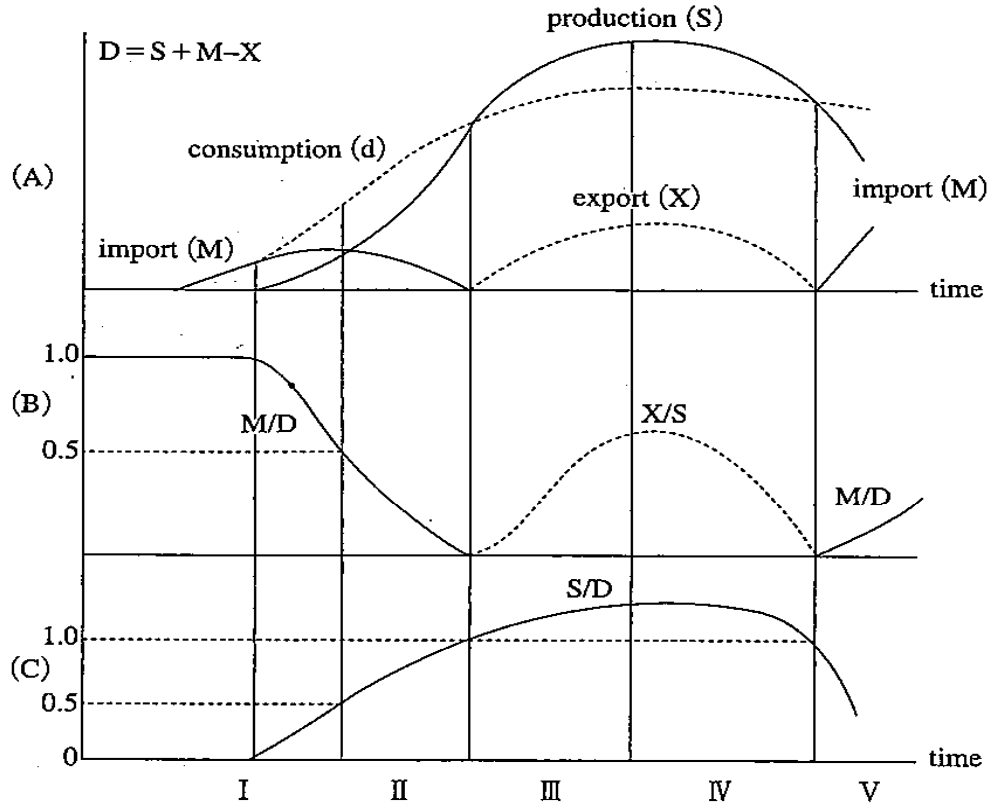
2. FLYING GEESE PATTERN

In the 1970s labor-intensive industries such as textile industry and assembly of radio, television and other home appliances were relocated from Japan to South Korea. Along with the economic development in NIES such as South Korea, Taiwan, etc., labor costs in these countries have increased to a considerable level. Labor-intensive industries in these countries relocated their production bases to ASEAN countries such as Thailand, Malaysia, etc. in pursuit for cheaper labor costs. These phenomena can be explained by the Flying Geese pattern, which was originally presented by Kaname Akamatsu before World War II and was later developed and modified by the younger generations (Inada, et al., 2000, pp.67-68).

According to Yamazawa (1993), it originally referred to the typical development pattern of modern industries in Japan, which, as a late-starting industrializing country in the late 19th century, introduced modern industries at first through import, then started domestic production to substitute import, and finally exported its product abroad as it became competitive internationally. It focuses on an efficient interaction between international trade and industrial growth and the sequence of inverse V-shaped growth curves of import, domestic production, and export resembles the flying formation of wild-geese returning to the south in late Autumn.

The flying geese pattern is called also the Catching-up Product Cycle (CPC) by younger generations. Yamazawa (1993) further explains Figure 1 as follows: In Figure 1 Panel A illustrates CPC by means of the schematic forms of four growth curves of import (M), domestic production (S), domestic consumption (D), and exports (X) of a modern industry products. Statistically domestic production is derived as apparent consumption, i.e. production plus import minus export (D=S+M-X) but theoretically its growth curve sets the pace of the CPC development of a particular industry, through its impact on domestic entrepreneurs. Panel B illustrates the change of the two key ratios in the process of the CPC development, import/consumption ratio (M/D) and export/production ratio (X/S) which are often used to measure the progress of import of substitution and export expansion respectively. Although export starts only after import finishes in this schematic diagram, in reality products are differentiated within the same products group and the export of lower quality product starts while the import of sophisticated one still continues. Panel C illustrates the CPC by a single growth curve of production/consumption ratio (S/D). Five development phases: introductory, import substitution, export, mature, and reverse import, are distinguished by the specific value of S/D, namely 0.5, 1.0, maximum, 1.0 again (Yamazawa, 1993, p.17).

Figure 1 The Catching-up Product Cycle Development of an Industry: A Schematic Diagram

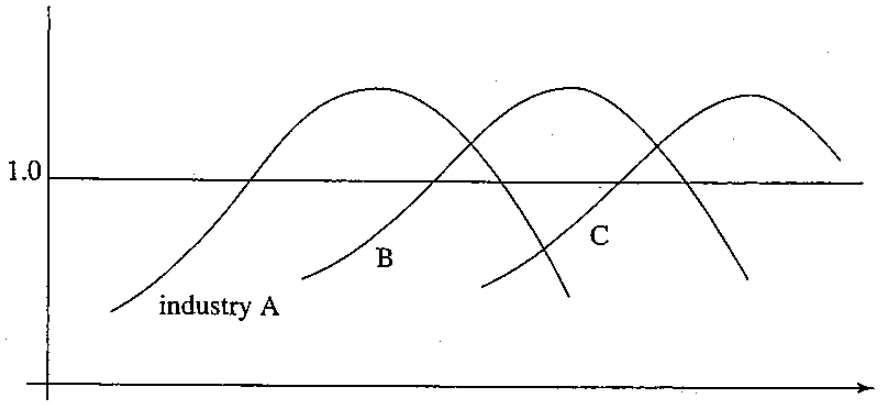


Five development stages
I introductory
II import substitution
III export
IV mature
V reverse import

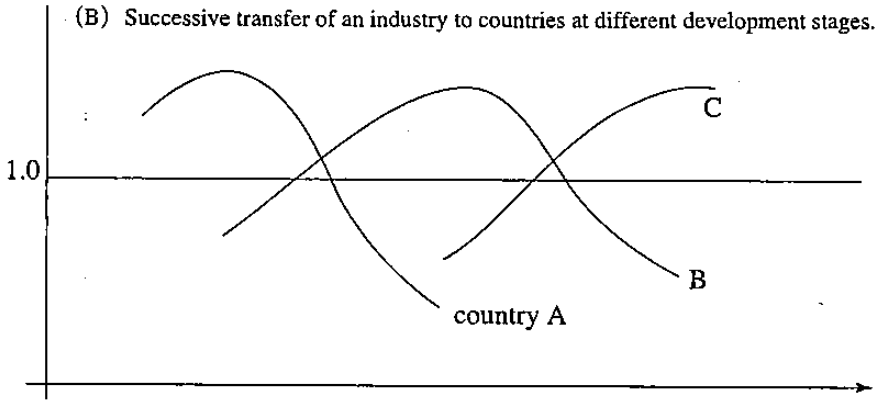
Source: Yamazawa, Ippei, et al. (1993), p.16.

Figure 2 Variations of the CPC Development

(A) Successive CPC development of Industries in late-starting countries.



(B) Successive transfer of an industry to countries at different development stages.



Source: Ibid, p.21.

This illustration was later extended to describe another sequence of inverse V-shaped growth curves of domestic production of individual modern industries with the same country, i.e. a diversification of industrial structure in the process of industrialization (Variation 1; see Figure 2 (A) Successive CPC development of industries in late-starting countries). The illustration was further extended to describe the transmission of the CPC development among trading countries (Variation 2; see Figure 2 (B) Successive transfer of an industry to countries at a different development stages) (Yamazawa, 1993, p.14).

3. ECONOMIC DEVELOPMENT IN SOUTH KOREA AND EAST ASIA

3.1. A Miracle of the Hang River

In 1996 per capita GDP in South Korea reached US$ 10,000. It is in 1996 that South Korea was admitted to the OECD, a group of advanced countries. As the country was hit by the Asian Economic Crisis and came under the control of the IMF in the following year (1997), the period 1996-1997 is considered to be an epoch-making. Let us take a general view of the economic history of South Korea until 1996.

Korea was under the rule of the Japanese Empire as its colony from 1910 to 1945. As expressed by words "Agriculture in South and Industry in North" (Lee, 1982, p.72), during Japan's rule industry was not developed in the southern part of Korean peninsula compared with the northern part where mineral resources were rather abundant.

Although Korean nation regained independence after World War II, soon the Korean War (1950-1953) has broken out. As a result of the war Korea was divided into North and South at the 38th parallel. It is said that US Army and Chinese volunteer Army have mobilized 3 million soldiers. In total nearly 6 million soldiers have fought in the Korean Peninsular. Both sides had heavy casualties. The magnitude of physical damages amounted to two years' GDP of South Korea at that time (Watanabe, 1996, p.38).

"Government led by Lee Sung Man spent all its time in ceaseless political strife and completely lacked ability to manage economic recovery. More than anything else the national land has been completely destroyed by the three-year war, and almost no resource was left for economic reconstruction" (Ibid, p.40). South Korea's last resort was aid from the USA. Its aid was mainly supply of goods, the majority of which being raw materials such as wheat, raw sugar, raw wool, raw cotton, etc. The aid goods were sold off by the government for the domestic production. A part of the proceeds was included in the general budget, and other part was utilized for financing companies through the Korean Industrial Bank. It was only flour milling, sugar refining and textile industry that was brisk. These big companies succeeded in obtaining these articles of disposal by the government not because of their entrepreneurial efforts but because they behaved as businessmen with political contacts. Government had no economic policy for overcoming poverty while a handful of big companies were enjoying privileges and prospering. People's disillusion and irritation about the government and such companies were increasing day after day.

There occurred a military coup d'etat led by General Park Chung Hee on May 16, 1961. General Park run the Presidential election in 1963 and he defeated an old and experienced politician. "Korean people chose President who came from the Army" (Ibid, p.48). Although the declaration of democratization was made in June 1987 and the Presidential election was held in December in the same year, the military regime practically continued until 1993 because General Noh Tae Woo was elected President. According to Watanabe, civil bureaucrats' way of thinking was conservative and abstract and their way of behavior was worship of the powerful and formalism, which was contrary to enterprising spirit. The military coup d'etat was an epoch-making event that broke down the civil bureaucracy which has been warmly fostered in the Confucian climate as well as thoughts and ethics which have supported the former. I would like to add that I was very critical toward the military regime in South 40 years ago. At present, however, I have to admit that the regime of development dictatorship has played a positive role in the modernization of South Korean society, although

it of course had negative aspects too. Not only did the military itself appear as a driving force of the modernization. But also the military regime appointed young able bureaucrats to high-ranking positions of ministries. The mainstay of economic related ministries was composed of fresh bureaucrats in thirties with young economists educated in the USA as a center.

According to Watanabe (1996), the new government aimed at 'export-oriented industrialization'. In order to pursue it, protective policies were abolished. Main goods of South Korea's exports were labor-intensive assembled and processed products. South Korean companies assembled and processed materials and interim products which were imported from advanced countries, by using machines and equipments which were imported also from advanced countries, and they exported the final products. In spite of rapid heavy and chemical industrialization, the country had still fragile production basis of interim goods such as parts as well as capital goods such as heavy machines. The country had to strive for expanding exports, relying on imports of interim goods and capital goods.

The government responded to enlarging deficit in trade balance not by new equilibrium through reduction of imports but active and bold introduction of foreign capital. Without expansionist economic management in that sense, South Korea's high economic growth would be impossible. Foreign capital came mainly in the form of loan. Until mid 1960s government-basis official loans have occupied a high share in the total foreign capital. Noteworthy was the problem of the Basic Treaty between Japan and South Korea. People's feeling toward the treaty was complicated in South Korea. Many people took it as 'humiliating'. The public opinion was split into two concerning the pros and cons of signing the treaty. Suppressing people's opposition even by proclamation of martial law, the government concluded the treaty in December 1965. "Park Administration perceived it a better choice in diplomatic strategy toward Japan to dare to introduce capital from Japan and accomplish self-supporting economy through this rather than to stick to 'bonds of life' in the past, being forced to fall into a slump" (Ibid, pp.74-75).

According to Watanabe (1996), by this treaty Japan decided to offer aid totaling US $ 800 million including aid gratis and private loans. With this as priming water, accelerated expansion of the introduction of foreign capital proceeded since 1965. In the second half of the 1960s commercial loans surged. In the 1970s foreign direct investment increased. Not only foreign capital but also foreign technology has been introduced on a massive scale. Until mid 1960s foreign technology was introduced mainly to spinning and weaving industries, however, as early as in the second half of 1960s the introduction of foreign technology to these industries has almost ceased. Since mid 1970s also the shipbuilding and the petrochemical industries have relatively decreased in the total introduction of foreign technology. In contrast, other heavy and chemical industries remained at high level for a while in the introduction of foreign technology. At the same time, the introduction of foreign capital to metal, electronic and machine industries increased. Watanabe points out similarity of the system of technology between Japan and South Korea. Due to Japan's colonial rule before the war, the number of engineers who were able to easily understand technological literature written in Japanese was overwhelmingly large in South Korea and Taiwan, compared with any other countries. Watanabe mentions a fact that out of 2293 case of technological introduction between 1962 and 1983, 1486 cases, i.e. 63 percent came from Japan (Ibid, pp.77-78).

At the beginning the price competitiveness was secured by low wages. In the second half of the 1970s, however, the level of real wage in the production area in South Korea rapidly

increased, showing aspects of a turning point. Thus South Korea's export strategy was pressed for a fundamental change (Taniura, 1989, p.42). Instead of low wages, the price competitiveness has been secured by 'economy of scale', as symbolized by a giant steal factory, a giant shipyard, etc. Taniura (1989) says that 'the economy of scale' has been respected just like a religious belief by many people including economists in the government and managers (p.82). As the domestic markets were rather small, the products from these giant facilities had to be exported.

In order to construct a real self-sustaining economy, President Park launched a policy for promotion of heavy and chemical industrialization in 1973. This was urged by a kind of crisis consciousness "South Korea being exposed to the menace of North Korea". The government attempted to get 'advantage of accumulation' through the regional collectivization by establishing industrial parks according to priority industries. Having prepared infrastructure such as roads, ports, water supply, electricity, etc. the government invited companies to these industrial parks. Companies located in these industrial parks enjoyed special measures of tax and finance and were given the privileges of exemption from custom duties and excise when they imported capital goods such as machines and equipments. It is a steel manufacturer POSCO that symbolizes the heavy and chemical industrialization in this period. This is the biggest ad the most up-to-date integrated comprehensive steelworks. For construction of this giant steelworks the government invested a huge amount of the budget funds and foreign capital. Its technology had nothing to do with conventional technology, but it was formed by the introduction of the most up-to-date foreign technology. Watanabe says, "The construction of this steelworks was, at least at the beginning, a state 'venture business' attempted at any risk rather than a project planned on the basis of a rational cost-benefit analysis (Ibid, p.86). Why were they in such a hurry? We should take into account that this country has always been confronted with North Korea. In the 1970s, the size of the US Army in South Korea was gradually scaled down. This fostered consciousness of urgent necessity for establishing self-reliance both economically and militarily among people and the military. People's national passions together with feelings of danger have supported the rapid heavy and chemical industrialization.

Rural areas have drastically changed. Rural areas in South Korea were extremely poor until early 1960s. As early as mid 1970s, however, peasants' income reached almost the same level as workers' household in urban areas. The industrialization in South Korea has been so strongly pulling employment that migration from the rural areas began. Since the second half of the 1960s the tendency of a decrease in the rural population and the number of peasant families was remarkable. Labor markets in the rural areas became tight. Accordingly, the average labor hours of peasants became longer, the percentage of incomplete employment in agriculture was decreasing and the participation of women in labor was increasing, and at the same time, real wages of agricultural labor were rapidly increasing. The 'Semaul movement', the plan for modernization of villages led by the government, also supported the improvement of living conditions of peasants. According to Watanabe, most of soldiers who participated in the military coup d'etat came from villages. One of the factors behind the military coup d'etat was poverty in rural areas. The military regime has kept a kind of 'Nohonshugi' (the belief that agriculture forms a basis of the nation's economic and social life) as it identity. The 'Semaul' movement had three major goals: The first goal was to remove peasants' conception to accept their fate with resignation and foster diligence, self-support and cooperation. For this purpose, peasants should cooperate on small projects for improvement of their environment of their environment such as repair of banks of small rivers in their villages, construction of public wells, etc. with the financial support from the government; The second

goal was improvement of the environment. This included government-supported projects such as electrification of rural areas, improvement of village structure and construction of water supply facility as well as the national land improvement plan such as improvement of big rivers, soil-erosion control, forestation, etc.; The third goal was an increase in peasants' income. In order to increase the production of rice and wheat, big projects such as improvement of irrigation facilities, utilization of ground water, improvement of agricultural machines and implements and breed improvement were carried out. In order to increase income, peasants were encouraged to do side business. Lucrative cash crops were cultivated, and peasants' group work as well as joint use of fertilizers and agricultural machines was actively encouraged. Thus enriched rural areas became markets for industries (Ibid, pp.89-93).

3.2. **Compressed Industrial Development**

South Korea has experienced its high economic growth with 10 years lag behind Japan. We are impressed by amazing speed of its growth. South Korea's postwar economic development has been often called a Miracle of Hang River. Let us pay attention to capital stock which supports production activity in a country. In South Korea the rate of capital formation was only 7 percent in 1953, but it increased to 33 percent in 1980. With the increase in capital stock, there emerged high economic growth and industrial development. Average annual rate of growth of the manufacturing was 12 percent during the period 1953-61 and 15 percent during the period 1962-1966 (the first planned period), and it further accelerated to 22 percent during the period 1967-1971 (the second planned period). Although there was the oil shock in 1973, the manufacturing kept developing with 18 percent of average annual rate of growth. In the course of the industrialization the dependence on import has gradually decreased in manufacturing industries such as textile, electric, electronic, shipbuilding, petrochemical, steel industries, etc. and at the same time the dependence on export has gradually increased in these industries. The speed of the decrease in the dependence on import as well as the speed of the increase in the dependence on export in these industries were higher than in the case of Japan (Watanabe, 2002, pp.136-138).

The GDP grew at more than 12 percent for consecutive 3 years from 1986 through 1988. While the Japanese economy was suffering from Yen appreciation after the Plaza Accord in 1985, South Korea improved its price competitiveness because of Won pegged to US Dollar and significantly increased its export to the US markets. South Korea's trade balance turned to positive in 1986, however, it turned to negative again in 1990. Because wages in South Korea continued to increase at around 20 percent every year from the second half of the 1980s to the early 1990s and the wage level became higher compared with not only ASEAN countries and China but also other NIES. Consequently the domestic demand expanded, but at the same time the export competitiveness of labor-intensive goods decreased remarkably (p. 150). Therefore, South Korean enterprises came to give high priority to high-tech industries. In the 1990s South Korean enterprises became more actively involved in outward FDI in foreign countries including Central and East European countries.

Watanabe calls such a miraculously high economic growth in South Korea 'compressed industrial development'[1]. According to him, it was enabled by 'advantages of backwardness'

[1] According to Matsumoto (2001), South Korea's real strategy has been 'making copies of Japan'. South Korea, the government and people in a body, has been copying the methodology of Japan's economic development itself. They have actually made only Japan as the object of their learning. Maintaining their attitude of refusing Japanese culture for a long time, the area of learning has been narrowed to the economy with the whole process being controlled by the government. Taking into consideration from the beginning a scenario that they should

which South Korea has enjoyed in terms of foreign capital, transfer of technology, invitation of private companies from developed countries, etc. Being situated in the least developed part of the capitalist developed world, NICs (Newly Industrializing Countries) including South Korea have benefited 'advantages of backwardness' deriving from the developed world and succeeded in 'internalize' them effectively (Ibid, pp.142-143).

3.3. East Asian Countries

Not only Japanese enterprises but also Korean enterprises have actively invested in China as well as ASEAN countries. However, we should not overlook these countries' efforts to attract foreign direct investment. Malaysia, for example, enacted Law on encouragement of investment in 1968, thereby the country sought overseas market for its industrial products, replacing the hitherto import substituting industrialization. The country became more positive to introduce foreign capitals. In 1986 the country enacted Law on Promotion of Investment, thereby aiming at more active introduction of foreign capitals to promote exports. The law also aimed at location of small and medium-sized enterprises in rural areas and making full use of private capitals (Maruyama and Narita, pp. 230-232). Similarly, Thailand launched measures for encouragement of investment for industrialization in the 1970s. A socialist country Vietnam also launched measures for encouragement of investment in the 1980s. All of them pursued the export-oriented industrialization. I would like to add that in the case of Malaysia in 1981 the government under Prime Minister Mahathir launched the Look East Policy – which encouraged learning of experiences of Japan and South Korea – and aimed at introduction of not only advanced technology but also Japanese style of managerial administration.

4. SECRETS OF THE MIRACLE OF THE HANG RIVER

4.1. 'Advantages of backwardness'

A term 'Advantages of backwardness' is a concept coined by Alexander Gerschenkron (1966). Watanabe explains as follows: A late-comer countries has advantages that it can make use of industrial technology, which advanced countries have elaborated in the long history of their technological development, as 'existing technology' at the starting time of its economic development. In addition, it is blessed with an advantage that it can shorten the period of capital accumulation through the import of capital. Moreover, a present late-comer can introduce not only technology and capital individually but also talents and ability of the enterprise management that effectively organize this technology and capital. The introduction of direct investment by private companies from advanced countries is the case (Watanabe, 1996, p.207).

In connection with this, another important factor is industrialism. Industrialism that was created in advanced countries was transmitted to less developed countries, which in turn internalized the transmitted industrialism and became able to begin the process of rapid development. The process of internalization of the industrialism which originated in

follow Japan and then oust her from the markets by the price competitiveness, South Korean business circles have copied the development process deliberately. Matsumoto expresses this strategy with the metaphor of 'kobanzame' (remora or shark sucker) saying, "it can swim if it wants but it relies mainly on the driving force of a bigger fish which it has been sucking, and after arriving the destination it neatly eats foods there and expels the bigger fish from the feeding area" (p.43).

developed countries is the process of the so-called 'modern economic growth' of Kuznetz (Watanabe, 2002, pp.22-23).

Not all developing countries were able to enjoy 'advantages of backwardness'. Watanabe mentions Bangladesh as an example of regression. According to him, in order to internalize industrialism countries must possess suitable 'social ability'. Namely, especially the three points are important (Ibid, p.25) :

- Technical ability of workers.
- Managerial ability of managers.
- Bureaucrats' administrative ability, i.e., ability to draft and implement policies.

At the moment when the high economic growth started in the early 1960s, although South Korea was among the poorest countries the educational level was not low in the world comparison. During the period of the Japanese colony, the literacy rate improved remarkably and at the same time many specialists with practical knowledge such as teachers of physics and mathematics, specialist of taxation business and bookkeeping, specialists of railways, etc. were trained. Accordingly, potential managerial ability of future managers also improved. As mentioned above, the military government which came to power by the coup d'etat in 1961 picked out young bureaucrats including economists educated in the USA. They had a rational way of thinking without adhering to the old custom. Thus bureaucrats' administrative ability improved remarkably compared with the previous period.

4.2. Big roles which entrepreneurs have played

In South Korean society which has inherited strong Confucian culture the entrepreneurial tradition has been weak. In addition, under the colonial rule it was strictly hindered to nurture Korean entrepreneurs. In South Korea immediately after its liberation enterprise organizations and entrepreneurial talents were short supply. However, there were some powerful entrepreneurs. Among them, Mr. Jeong Juyeong (1915-2001), the founder of the Hyundai concern, can be mentioned as a representative of newly-emerged entrepreneurs. He was born and grown at a poor peasant. Although he had no educational background other than elementary school, he began his career with railroad workman, and started a civil engineering and construction business with his savings. In 1950 he acquired a motor vehicle repairing factory and brought the two business into one, starting 'Hyundai' construction company. Making the best use of his entrepreneurial foresight, swift judgment and energetic acting power, in a single generation he has developed 'Hyundai' into one of the greatest concern in South Korea. I think that economic animal-like behavior of proprietors represented by Mr. Jeong Juyeong was very important in South Korea's postwar economic recovery and its high economic growth.

4.3. Government's Strong Leadership

Initially there was very little investment from foreign countries. Because the infrastructure was of very poor quality. Foreign companies were not willing to invest in South Korea which stood face to face with North Korea. There was very little, if any, investment in South Korea by Japanese companies. Foreign funds came mainly in the form of loans from Japan and West Germany with guarantee by the government of South Korea. Let us mention typical

government's strong leadership, for example, '8.3 emergency financial measures' announced on August 3, 1972, thereby loans were frozen and their repayment could be postponed for several years. There were state projects represented by POSCO. The government even intentionally created an oligopolistic condition of enterprises on the ground that it would be better to make enterprises have enough strength to compete on the world market rather than competition by a large number of enterprises on a small market leading their exhaustion. There was a 'Big Deal' in which the Lucky Gold handed over its semiconductor production to the Hyundai and the Hyundai handed over a branch which overlapped that of the Lucky Gold to the Lucky Gold. The 'Big Deal' was made under the government's guidance. These are typical cases which the government dared to intervene markets and materialized what could not be realized by market.

5. NEW EU MEMBER STATES OF CENTRAL AND EASTERN EUROPE AND THE WESTERN BALKANS

5.1. Analogies

It seems that the relation between Germany (not only Germany but also other core countries of the EU) and New EU Member States are similar to the relation between Japan and Asian NIES. Especially Central European countries have had close cultural and economic relations. In addition, there were bases of technology and skill which were represented by Skoda in the Czech Republic. In the 1990s these countries actively attracted foreign capitals. Also many companies of manufacturing industries from advanced countries paid attention to the fact that the wage levels in these countries were much lower than those in the EU core countries and took into consideration that these countries would be admitted to the EU soon, established assembly factories there to supply the whole market of enlarged EU with finished goods. By the early 2000 the share of foreign capital-owned enterprises in capital, employment, investment, sales and export sales in these countries except Slovenia[2] increased rapidly. It may be fairly said that New EU Member States of CEECs attained the economic growth led by foreign capitals. It seems that they reached the same position as South Korea and Taiwan occupied in the 1980s and that the former countries are stepping up to a more advanced stage. In this way, the Flying Geese Pattern occurred in New EU Member States of CEECs. This is the first wave. It seems that the Western Balkan countries are similar to ASEAN countries such as Thailand, Malaysia, Vietnam, etc. 20-30 years ago. A question is whether another Flying Geese Pattern will occur or not. If it occurs that would be the second wave.

5.2. The Western Balkans

After the regime change in the late 1980s to the early 1990s, in the process of the transition to a market economy all the countries of the Western Balkans experienced transformational depression. In addition, there were severe ethnic conflicts in 1991-1995 and the Kosovo war in 1999. These events caused turbulence, economic stagnation and a delay in EU accession. Compared with New EU Member States of CEECs, the amount of FDI inflow in the Western Balkan countries has been quite limited. Their economies except Albania were stagnating in the 1990s. The Stabilization and Association Process, which was initiated by the EU in 1999, created brighter prospects for their EU accession.

[2] Although Slovenia has not been so enthusiastic in attracting FDI, Slovenia enjoys its relatively high economic level. This country is becoming a capital-exporting country. See Koyama (2006).

All the countries of the Western Balkans have a common weak point, i.e. structural weakness: a) Low labor participation rates and employment rates. In the case of Croatia, for example, the labor participation rate is 50.2 percent (in 2003) while it is 65.9 percent in EU-27 (in 2008) (ILO and various sources). In 2004 the employment rate in Croatia is 54.7 percent while it is 64.7 percent in EU-15; b) High unemployment rates ranging from 8.4 percent in Croatia to 33.8 percent in Macedonia; c) Large sizes of the informal economies (they exceeded 30 percent of GDP in all countries of the Western Balkans). Revenues from the informal economies supplemented low wages or lack of jobs and enabled people to subsist; d) A high share of remittance from abroad. The amount of remittance as a percentage of GDP exceeds 10 percent in Serbia, Montenegro, Bosnia and Herzegovina, and Albania in 2006; e) Low saving rates. All of the countries have rather low saving rates (in 2005 gross domestic saving as a percentage of GDP ranged from -2.2 percent in Bosnia and Herzegovina to 23.3 percent in Croatia). In all the countries investment rates (in 2005 gross domestic investment rate ranged from 15.9 percent in Bosnia and Herzegovina to 29.9 percent in Croatia) exceeded the saving rates, consequently causing chronic trade deficit and current account deficit. Therefore, their economic development has been heavily relying on foreign savings, i.e. FDI inflow, borrowings from abroad[3].

The ratio of the populations of New EU Member States of CEECs (Central Europe + Bulgaria and Romania) and the Western Balkans is 4 to 1 (93.33 million vs. 23.48 million). In 1995, however, the amount of FDI inflow in New EU Member States was US$ 11,421 million while the amount of FDI inflow in the Western Balkans was only US$ 210 million, i.e. the ratio was 54 to 1. In 1999 the former received US$ 19,125 million while the latter received US$ 1,791 million, i.e. the ratio was 10.7 to 1. After 2000 FDI inflow in the Western Balkans from advanced countries (especially EU Member States) increased remarkably. In 2005 New EU Member States received US$ 30,394 million while the Western Balkans received US$ 4,409 million, and the gap further decreased to 6.9 to 1 (*Transition Report*, various years).

However, in contrast to New EU Member States of CEECs and contrary to expectations by governments and people in the Western Balkans, not so much inward FDI flowed into the manufacturing industry, but instead it flowed mostly into services, especially banking, telecommunication and real estate. Greenfield investment has been small because mostly inward FDI flowed into this region in connection with the privatization process. Since 2000 in parallel with increased FDI inflow the economies of the Western Balkans expanded at relatively high growth rate, but it was the economic growth led by consumption. Consequently, their external debt has increased. In the case of Croatia, its external debt amounts to 98.5 percent in 2009, which is unsustainable level. This country is required to do switchover to export-led economic development model. This requirement more or less applies to other countries of the Western Balkans. These are uneasy challenges.

The countries of the Western Balkans are placed on the periphery of Europe, and generally speaking they are poor. Among them, however, Croatia is comparatively rich. The GDP per capita in 2009 is € 10,100 the highest in the Western Balkans, far beyond the level in Bulgaria (€ 4,500) and Romania (€ 5,500) which joined the EU in 2007 (Gligorov, et al., 2010). Croatia failed to join the first wave. The gross labor cost in Croatia is the highest in the Western Balkans. Not only that, its labor cost is higher than that in Central European countries like Hungary and Poland (see Table 1). It would be impossible for Croatia to become a basis for production of labor-intensive industries with lower wage as a weapon.

[3] All data in this paragraph are quoted from Vidovic and Gligorov (2006), Kathuria (2008) and World Bank (2010)

Instead, the country should aim to become a basis for production of high value added goods, but unfortunately I do not tell what kind of goods that should be concretely. In Albania there is processing on commission for Italian enterprises. It seems that besides Albania, Serbia, Macedonia, and Bosnia and Herzegovina still have a possibility to become bases for production of labor-intensive industries.

Table 1. Gross Labor Cost in the Western Balkans
(All sectors, in Euro)

Countries	**2003**	**2004**	**2005**
Albania	134	148	161
Croatia	740	794	841
Bosnia and Herzegovina	395	402	420
Macedonia	322	335	343
Montenegro	271	303	326
Serbia	255	281	307
Reference			
Bulgaria	142	150	161
Hungary	541	578	638
Poland	497	501	586

Source: Kathuria, S.(ed.) (2008), pp. 52-53.

5.3. Differences between the Western Balkans and Asian (NIES and ASEAN) Countries

We should take into consideration several differences between the Western Balkans and Asian (NIES and ASEAN) countries:

- a difference in times.
- a difference in the development models.
- a difference in sizes of countries.

The world economy from the 1960s through the 1980s was not regulated so much by rules prescribed by the WTO (GATT), the IMF and the World Bank. In other words, governments' intervention policies, protection of primitive industries, etc. were tolerated. In contrast, during the period from the 1990s to the present strict conditionality based on the Washington Consensus has been imposed on developing and transition countries by the IMF, although it was a little bit modified in a more realistic way after the Asian Economic Crisis in 1997. During the period custom tariffs were considerably decreased. The applied tariff rate (simple average) on imports of the Western Balkans in 2005 is 5.3 percent for all goods, 11.2 percent for agricultural products and 4.7 percent for industrial products (Kathuria, 2008, p.38). If a country is not allowed to protect its domestic industries by higher custom tariffs, the exchange rate policy would be very important.

The Western Balkan countries have attained the economic development led by consumption. It is necessary for these countries to pursue export-oriented economic development as Asian (NIES and ASEAN) countries did. For this purpose it is necessary for these countries not only to attract foreign capitals and technologies but also to mobilize domestic savings.

Sizes of the Western Balkans countries are very small compared with those of Asian countries. The Western Balkans in total has the population of only 23 millions. However, CEFTA-2006 would be useful in overcoming the smallness of each domestic market and improving investment climates of the region.

Besides, as Watanabe (2001) says, in order to internalize industrialism countries must possess suitable 'social ability'. It seems questionable that Albania has suitable 'social ability' because of its very short history of the market economy. It seems questionable too that Bosnia and Herzegovina has suitable 'social ability' because human capitals and physical capitals in the country were severely damaged by the ethnic conflicts in the first half of the 1990s and because the country still lacks cohesion. It may be said that other countries of the Western Balkans have suitable 'social ability'.

6. CONCLUSION

After the transition to a market economy New EU Member States of CEECs have attained the export-oriented development with foreign capitals attracted from advanced countries and succeeded to a certain extent in catching-up with advanced countries. This shows a flying geese pattern.

In order for the Western Balkan countries to attain a rapid economic development and catch up advanced countries, it would be indispensable for them to do a switchover from the hitherto consumption-led economic development model to the export-led economic development model. For such a switchover, it would be advisable to make efforts to attract FDI to manufacturing industries and at the same time to effectively mobilize domestic savings.

In this paper we have seen experiences of South Korea and other East Asian countries. As the times and the background are quite different and the governments of the Western Balkans countries are facing various constraints, the experiences of the East Asian countries cannot be applied to the Western Balkans as they are. However, in the light of the experiences of the East Asian countries it can be surely said that governments should exhibit strong leadership in a switchover to the export-led economic development model.

BIBLIOGRAPHY

Gligorov, Vladimir, Peter Havlik, Michael Landesmann, Josef Poeschl, Sandor Richter et al. (2010): *Crisis Is Over, but Problems Loom Ahead, Current Analyses and Forecasts 5*, Vienna: wiiw.

Vidovic, Hermine and Vladimir Gligorov (2006): Croatia: Growth Slowdown and Policy Alternatives, *wiiw Research Reports*, No.324.

World Bank (2010), *Enhancing Regional Trade: Integration in Southeast Europe, World Bank Working Paper* No.185.

Akamatsu, Kaname (1962): A Historical Pattern of Economic Growth in Developing Countries, *Developing Economies* (Blackwell), Vol.1, Issue 1.

Ozawa, Terutomo (1992): Foreign Direct Investment and Economic Development, *Transitional Corporations*, Vol.1, No.1.

Koyama, Yoji (2006): Slovenia's Competitiveness and the Small Country's Development Strategy: Its Enigma and an Explanation, Paper presented at the International Conference "Future Competitiveness of EU and Its Eastern Neighbours", held on September 1-2, 2006 in Turku (Finland). This was included in a CD-ROM, and later included in Koyama (2008).

Hattori, Tamio (2001a): Kumitate Gata Kogyoka no Keisei to Sono Zasetsu [*Formation of Assembly-type Industrialization and Its Setback]*, in Matsumoto and Hattori (eds.) (2001), *Kankoku Keizai no Kaiboh: Senshinkoku Ikohron ha Tadashikattanoka [Anatomy of the South Korean Economy: Was the Argument of Its Transition to an Advanced Country Correct?]* . (in Japanese)

Amsden, Alice H. (1989): *Asia' Next Giant: South Korea and Late Industrialization*, New York: Oxford University Press.

Bartlett, Will and Vassilis Monastriotis (eds.) (2010): *South Eastern Europe after the Crisis: a new dawn or back to business as usual?*, LSEE at the London School of Economics and Political Science.

Gerschenkron, Alexander (1966): *Economic Backwardness in Historical Perspective: A Book of Essays*, Cambridge of Massachusetts: The Belknap Press of Harvard University Press: Its Japanese version (2005), published by Minerva Shobo.

Inada, Juichi et al. (2000): *Kokusaiteki Hatten no Chiikiteki Hikaku: Ajia, Afurika oyobi Raten Amerika niokeru Keiken [Regional Comparison of International Development: Experiences in Asia, Africa and Latin America]*, Tokyo: Chuo Keizaisha. (in J)

Kathuria, Sanjay (ed.) (2008): *Western Balkan Integration and the EU: An Agenda for Trade and Growth*, World Bank.

Koyama, Yoji (2008): *Transition, European Integration and Foreign Direct Investment in Central and Eastern European Countries*, Niigata University Scholar Series Vol. 9, Graduate School of Modern Society and Culture, Niigata University, Niigata.

Lee, Hae Joo (1980): *Kankoku Kogyoka no Rekishiteki Tenkai: Kogyoka Seisaku no Tenkai niokeru Kan Nichi Hikaku no Shiten [Historical Development of Industrialization in South Korea: A Viewpoint of Comparison between South Korea and Japan in Implementation of Industrialization Policies]*, Tokyo: Zeimu Keiri Kyokai. (in J)

Maruyama, Keita and Yukinori Narita (eds.) (1995): *Nihon Kigyo no Ajia Senryaku: Kokusaibungyo to Kyosei no Kadai [Japanese Enterprises' Strategies toward Asia: Challenges of International Division of Labor and Coexistence]*, Tokyo: Chuo Keizaisha. (in J)

Society for Contemporary Asian Studies (ed.) (1994): *Higashi Ajia Keizai no Kyokuchi teki Seicho [Local Areas' Development of East Asian Economy]*, Tokyo: Bunshindo.

Taniura, Takao (1989),:*Kankoku no Kogyoka to Sono Hatten Taisei [South Korea's Industrialization and Its Development Regime]*, Tokyo: Institute of Developing Economy. (in J).

Watanabe, Toshio (1996): *Introduction to Korean Economy*, Tokyo: Chikuma Shoboh. (in J)

Watanabe, Toshio (2001): *Introduction to Development Economics*, Tokyo: Toyo Keizai Shinposha. (in J)

Watanabe, Toshio (2002): *Growing Asia and Stagnating Asia*, Tokyo: Kodansha. (in J)

European Bank for Reconstruction and Development (EBRD): Transition Report, various issues.

A FRONTIER APPROACH FOR MEASURING BANK COMPETITION EFFICIENCY IN CROATIA

Evan Kraft
Croatian National Bank,
Faculty of Economics, Split
Matice Hrvatske 31
21000 Split, Croatia
Phone: ++ 385 1 4564 147; Fax: ++ 385 1 4564 784
E-mail: evan.kraft@hnb.hr

Ivan Huljak
Croatian National Bank,
Trg Hrvatskih Velikana 3
10000 Zagreb, Croatia
Phone: ++ 385 1 4590 395; Fax: ++ 385 1 4590 369
E-mail: ivan.huljak@hnb.hr

Key words: *Croatia, banks, competition efficiency, frontier approach*

ABSTRACT

This paper extends the empirical work done so far on competition in the banking industry in Croatia by employing the Competition Efficiency Frontier methodology. Competition efficiency frontier analysis is derived from the standard efficiency and competition literature where income (or cost) depends on competition, while the residual is the result of costs and productivity. Following Bolt and Humphrey (2010), we keep the basic idea that bank income should reflect productivity, cost and competition but posit that the unexplained part of bank revenue consists of random error and competition effects. While random error tends to average to close to zero, the other part of error will, over time, average to the effect of competition. The bank that lies on the competition efficiency frontier is the one which is most constrained by market competition, while the bank that lies further from the frontier has the most market power.

Using data on Croatian banks from 1994 to 2010 we show that, larger, mostly foreign banks have more (relative) market power on average, and their revenue is on average less restrained by market competition, as suggested by earlier research for Croatia. However, competition efficiency changed across bank groups during the period studied, with smaller banks serving mostly smaller companies representing the competition efficiency frontier for most of the period. However, a group of smaller banks, converted from savings banks, and serving mostly households, recorded high levels of competition efficiency when their number increased in 2002. Large, foreign and universal banks enjoyed a "comfort zone" of lower spread revenue competition until they experienced a significant change in environment from 2003 onwards. Stricter regulation, decrease of credit growth and finally the significant deterioration of macro environment leading to worsening loan quality, brought market leaders to the competition efficiency frontier.

1. INTRODUCTION

The issue of systemic risk and the importance of banking services as inputs to other economic activities, make it no surprise that bank competition, concentration and efficiency are subjects of widespread interest both from monetary policy and macro prudential points of view. Yet there are many approaches to these issues. Traditional industrial organization theory focuses on the Structure-Conduct-Performance (SCP) paradigm that argues that bank concentration and other impediments to competition create an environment that affects bank conduct and performance. Traditional industrial organization authors usually use concentration indexes or Herfindal Hirshmann Index as indicators of market structure and try to find the connection between them and market performance.

In contrast, New-Empirical industrial organization (NEIO) authors offered indicators like the Lerner index (based on mark ups in monopolistic competition) or Panzar Rosse H statistics (based on statistical relationships between revenue and input costs) to provide answers about the relationship between the degree of market competition and the degree of concentration. A third group of work uses non-parametric and parametric tools such as Data Envelopment analysis and Stochastic Frontier analysis to produce empirical estimates of bank efficiency. In an attempt to circumvent some of the assumptions used in other frontier methods, a Distribution-Free approach was developed. We employ this method in this paper.

However, this proliferation of approaches has often led to rather different results and divergent conclusions about the concentration-efficiency-competition relationship. Perhaps the most extensive review of the lack of this consistency was presented in Carbó et al., 2009, who showed the magnitude of these differences on sample of 1912 banks in 14 European countries from 1995 to 2001. The authors found that R-squared between the Lerner index and the H-statistic was only 0.06 while the R-squared between the HHI and these two measures were, respectively, 0.09 and 0.05. The lack of robustness of these results is a good motivation for authors worldwide to keep researching this area.

In the Croatian banking context, researchers have examined issues of market competition and efficiency (often in context of specific historic circumstances like privatization, foreign ownership and regulation changes) by either employing Stochastic Frontier and Data Envelopment analysis to study efficiency (Kraft and Tirtoroglu 1998, Jemrić and Vujčić 2002, Kraft, Payne and Hofler 2006), and the Lerner Index and Panzar-Rosse H statistic to study competition (Kraft 2006). This paper extends the work done so far by employing the Competition Efficiency (CE) Frontier for the first time (to our knowledge) to a cross-section of banks in one country. The use of a new methodology is motivated by the sensitivity of results and policy conclusions to methodology noted above. In addition, Croatia reached the trough of an economic and credit cycle in 2008, so this is a convenient moment to use over-the-cycle methods. Furthermore, there is good reason to expect that consolidation on the banking market in Croatia will continue in 2011, perhaps shifting long-term equilibrium conditions and making it difficult to employ such methods as the Panzar-Rosse for a number of years to come.

By using the CE Frontier, a relatively new approach, we study the competition in Croatian banking sector from another angle and try to compare the results with the results of earlier research. We analyze competition separately in the spread business and in the non-interest business since competition in those two business segments can be different and induced by

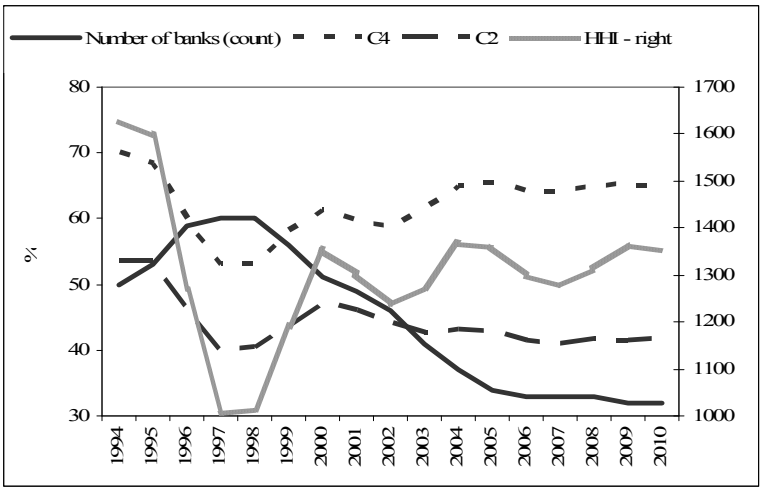
different factors. Besides, this way of calculating CE could help us to confirm or reject the idea that banks use one segment of revenue to compensate for another.

This paper is organized as follows. Sections 1.1 and 1.2 provide background material on the consolidation of the Croatian banking sector and the sector's performance. Section 2 introduces the data and the empirical methodology. Section 3 displays our results and compares them with previous research. Section 4 provides tentative conclusions.

1.1. The consolidation of Croatian banking sector

During the early 90s, the licensing of new banks was rather lenient in Croatia, in an attempt to increase competition in the banking market. As a result, some 60 banks were present on the market by 1997. Although some inefficient banks managed to survive most of the volatile 90s[1], during the 1998-99 banking crisis and its immediate aftermath, 16 banks left the market. Foreign entry occurred via greenfield investment and acquisition, and by 2000, the Croatian banking sector was mainly foreign-owned. This new structure of ownership persisted with relatively small changes thereafter, and formed the basis for a much more stable banking sector (Figure 1).

Figure 1: Concentration of the Croatian banking sector



Source: Authors' calculation based on CNB data

The process of consolidation continued in the first few years of the new century, but at a slower pace. Acquisitions were more common and outright failures less common. By 2005, the number of banks had already dropped to 34. In the 2006 - 2010 period, only two banks left the market as a result of mergers. High macroeconomic growth overall, along with strong credit growth and solid bank earnings slowed down the process of consolidation in most of this period, but consolidation will likely accelerate as a result of the prolonged unfavorable macroeconomic environment from 2009 onwards. We believe that "good times" mask the inefficiency of banks, while "bad times" reveal it.

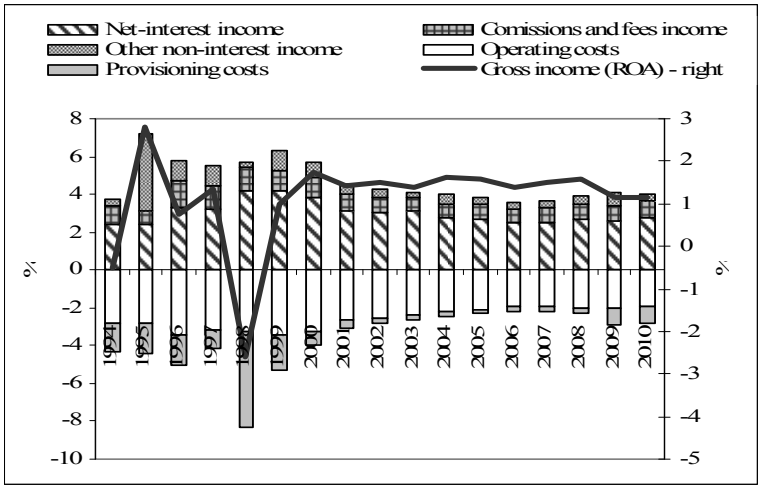
[1] Kraft and Tirtiroglu (1998) suggest that the higher interest rates on interbank lending in early nineties helped some banks to free-ride and temporarily make substantial profits despite high levels of inefficiency. But such banks did not survive long once market conditions normalized and the next recession occurred.

Although competition in the banking sector in Croatia as well as the number of banks has changed over time, concentration levels have not varied too much. The banks that left the market were generally very small, so that their exit had little impact on concentration indicators.

1.2. The performance of Croatian banking sector

Apart from the banking crisis years of 1998 and 1999, the Croatian banking sector recorded satisfactory business results and generated a solid return to their owners in 1994 - 2010 period. After 1999, only one bank distress was recorded (in 2002), and that incident had no systematic implications. The performance of banking sector was more than satisfactory after 2000 with long term average Return on assets (ROA) from 2000 to 2010 amounting 1.45%. This result was primarily based on the solid net interest income (around 2.9% to total assets) while commission and fees income contributed noticeably less (0.8% and 0.5% to total assets) (Figure 2). In the same time, banking sector was able to keep operating costs stable at around 2.3% to total assets while provision costs were low in the period between the banking crisis and the year 2009 when the economic crisis in Croatia started to spill over to banking sector.

Figure 2: Croatian banking sector Return on assets (ROA) decomposition



Source: Authors' calculation based on CNB data

Historical data shows that the Croatian banking sector was able, on aggregate, to grow revenue significantly faster than operating costs during the last 17 years. Aggregate data shows that from 1994 to 2010 total income (spread revenue and non-interest income) to operating costs increased on average by 7% annually. The spread business was the lead driver of this increase, while commissions and fees income increased only marginally (12% vs. 1%). At the same time, the banking sector productivity improved, with the labor deposit ratio decreasing by 2.9% and the physical assets[2] to deposits ratio decreasing by some 4.2%. Increased productivity was only partly based on reduced factor costs. The price of labor and the opportunity cost of investing in physical asset decreased by only around 2% and 1% per year in this period respectively. However, the unit cost of using the physical assets increased by 6% while the unit cost of processing bank transactions stayed unchanged.

[2] We use the expression "physical" to differentiate from other specific terms often used for banks balance sheet items like “material", "fixed" or “tangible”. Banks physical assets include real estates (business units) and ATMs but do not include assets taken from clients as a result of activated collateral.

Table 1: Average y-o-y change (%), aggregated data 1994-2010

total revenue to operating costs	spread revenue to operating costs	commissions and fees income to operating costs	labor deposit ratio	physical assets to deposits	price of labor	opportunity cost (investment in physical assets	physical assets unit cost	processing unit cost
7.3	11.9	1.1	-2.9	-4.2	-1.8	-1.1	6.2	-0.1

Source: Authors' calculation based on CNB data

2. DATA AND METHODOLOGY

2.1. Data

As in many CEE countries, in Croatia the quality, frequency, scope and collection methodology for bank data changed substantially over time. This forces researchers to trade-off between a more detailed set of data available only for a shorter period and less detailed data available for a longer period. Banking data in Croatia changed noticeably since the 90s, with more detailed data available today (broadly comparable with banking data in most EU countries). However, the CE approach favors longer time horizons (at least six years per bank) and besides we want to compare our results with the earlier work on bank competition in Croatia so the decision was made to sacrifice more detailed data and use a longer time horizon.[3] To avoid unreliable data, only banks that were present on the market for at least six years were chosen in our sample. If a bank left the market, data for its last year was removed.[4]

Our data decisions result in somewhat different indicators for calculating CE than those employed by Bolt and Humphrey (2010). This refers mostly to the indicators of unit costs. With the data on payment statistics available for Croatia only after 2005, it is impossible to measure long-run technological progress using the number of ATMs a la Bolt and Humphrey. Also, apart from shorter period of available data, some banks that did not engage in retail business did not have ATMs for some years after 2005. Using business units instead of ATMs would not help since some banks still have only one business unit. Since this form of technological progress of banks in Croatia started later than in EU member countries, the available data (from 2005 onwards) shows constant increase of ATMs in until 2010. Another difference with the Bolt and Humphrey (2010) paper is that all the indicators are calculated "per employee" in that paper. These indicators had to be modified for this paper since the number of bank employees per bank in Croatia is available only after 2004.

Because of all of this, our sample includes 49 banks over 17 years (1994 - 2010). We have 625 observations overall, with 32 banks present today on the market and with 28 banks present in the whole sample. All the data (except the data on GDP which comes from The Croatian Bureau of Statistics) comes from statistical and supervisory reports gathered by the

[3] Bank specific data in Croatia is available from 1994. However, only in 1999 were banks required to submit data electronically on a quarterly basis. The next big step was achieved in 2006 when the currency structure of banks balance sheet became available, making it possible to analyze FX indexed positions separately. Finally, in 2010, a new method of gathering the data started and a new detailed data base was created.

[4] In the year when a bank is leaving the market, its data is usually very volatile and unreliable because liquidation takes time and is usually made in a couple of steps. Therefore, it is often the case that its financial ratios are extreme in the year of wind-up.

Croatian National Bank. The number of banks in the sample decreases over time, with the biggest reduction the first half of the sample following the banking crisis of the 90s and the subsequent wave of bankruptcy and liquidation. In the second half of our sample, the decrease in the number of banks was far less pronounced and was mostly the result of mergers. After 2002, when 4 banks completed the legally-mandated conversion process from savings banks to banks, the structure of the banking sector remained relatively stable with concentration levels similar to today's levels and with 90% of sector assets already in foreign ownership.

2.2. Methodology

2.2.1. The DFA approach

In estimating the efficiency frontier, researchers must choose between parametric and non-parametric methods. Parametric methods assume an a priori functional form to the frontier, while non-parametric methods do not. Non-parametric methods use linear programming techniques and assume that random error equals zero, placing very little structure on the specification of the piecewise linear best practice frontier that results. The most often used linear programming method is Data Envelopment Analysis (DEA) introduced by Charnes, Cooper and Rhodes (1978) that analyses the relative efficiency and managerial performance of a number of entities called Decision Making Units (DMUs) employing the same inputs and outputs. It is a deterministic methodology for calculating the relatively efficient production frontier based on empirical data. This means that DEA actually identifies reference points (relatively efficient DMUs) that define the efficient frontier (as the best practice production technology) and evaluates the inefficiency of other DMUs that are below that frontier.

Because the non-parametric approach does not impose a functional form on the frontier, it appears very convenient. However, in this framework, only a subset of the available data defines the efficient frontier, while the rest of the observations have no impact on the shape of the envelopment line. This means that the researchers can easily end up making a decision based on very few observations. Also, since non-parametric methods estimate the efficient frontier without making any assumption about the distribution of the error term, the efficient frontier obtained can lack some important statistical characteristics and thus hinder consistent hypothesis testing. By contrast, parametric models allow for hypothesis testing, but they are rather sensitive to assumptions about the distribution of the error term and researchers risk confusing the inefficiency term with random error due to misspecification of the model. To minimize this problem these models usually estimate a transcendental log function.

Parametric methods relate total costs to the value of balance sheet components and input costs within a parametric cost function meaning that this approach relays inherently on assumptions about the distribution of inefficiencies. One method of resolving this issue is by assuming a half-normal distribution for the inefficiency distribution and using this assumption to separate inefficiencies from normally distributed error in a panel regression. This is called the composed error Stochastic Frontier Approach (SFA). Since the assumption of half-normal distribution sometimes seems too strong, and since the assumption that most banks are close to the efficient frontier so that inefficient firms are skewed away from the frontier (half-normally) does not appear to be confirmed in empirical work[5], the Distribution Free Approach

[5] Bauer and Hancock, 1993 and Berger, 1993 analyzed this issue and found that the distribution of inefficiency is rather symmetrical and normally distributed which makes it difficult to locally identify separately from normal distribution error.

(DFA), which makes no strong assumptions about the distribution of inefficiency and errors but assumes that core inefficiency of a firm is constant over time, is preferred.

Three methods of the DFA approach are usually used by researchers. The first one (DFA-P-WITHIN) is a fixed effect model relying strongly on the assumption that inefficiencies of firms are fixed over time. Efficiency is then estimated using the deviation from the most efficient firm's intercept term. Second DFA method (DFA-P-GLS) applies generalized least squares to panel data to obtain inefficiencies that are considered to be fixed over time and uncorrelated with regressors. The third DFA method (DFA-P TRUNCATED) estimates the cost function separately for each period and the efficiency estimates are based on the average residuals for each bank. To avoid noise authors usually truncate the residuals at both the upper and lower 1% of the distribution.

To operationalize our model using the DFA method, we use panel data and estimate a regression using cross section data and create statistical connections between costs and observed levels of bank data variables (balance sheet data, input prices, etc.) with the residuals being our subject of interest. The residuals of these cross-section regressions are assumed to contain random measurement error, temporary variations in costs, and persistent but unknown cost differences attributed to inefficiency. Averaging each bank residual across separate cross-section regressions reduces normally distributed error to minimal levels leaving only average inefficiency. When we average the residuals across a long enough period of time for each bank and then for groups of banks, the random part will average to zero and we will be able to observe the competition effect in groups of banks. Since this method requires larger samples and longer time periods, one has to be careful in choosing the periods as well as banks.[6] So we estimate the regression for whole sample (17 years) and we use the rolling regression (6 years) to put the results in time context.[7]

The Competition efficiency (CE) concept, recently developed by Bolt and Humprey (2010), does not differ significantly from standard efficiency measures from a technical perspective. However, in this approach, the story about competition is reversed. We are not searching for bank efficiency frontier; rather, we are searching for the bank or a group of banks that competition was most effective in restraining the revenue. Therefore, the bank or a group of banks on the CE frontier is actually a bank or a group whose revenue was the most restrained by the competition. The further a bank (or a group of banks) is from the frontier the greater its market power. This means that while we still maintain that bank revenue reflects productivity, cost and competition, we actually reverse the story and claim that revenues of banks are restrained by productivity, cost and competition.[8]

2.2.2. The model

We maintain that banks use spread revenue and non-interest income as their two main sources of revenue. However, there are several reasons why we look at the two revenue parts separately. Firstly, banks can use one source of revenue to compensate for the other which our

[6] De Young (1997) used U.S. bank data to test how many years of separate cross-section regressions may be needed for random error to approach zero. The result was six years. This is the reason why we excluded banks not present for at least six full years.

[7] Therefore, we employ a modified version of DFA TRUNCATED method. Our six year rule is sufficient enough to avoid extreme bank specific results so that windsorising or truncating the bank specific results does not influence the results.

[8] Since differences between banks in a single county can be substantial, competition research is inherently exposed to the issue of adequacy of using the same function for the group of different institutions.

results could confirm. Also, competition levels could be different between those two business areas. However, we are aware that during the banking crisis in Croatia, it was bad business decisions in the spread business that eventually resulted in a number of banks leaving the market.

For estimation of spread revenue and non-interest income, we use the standard transcendental function in logs with two inputs (labor and physical capital):

(1)

$$\ln(Y_i) = \theta_0 + \sum_{i=1}^{5} \theta_i \ln X_i + 1/2 \sum_{i=1}^{5} \sum_{i=1}^{5} \theta_{ij} \ln X_i \ln x_j + \sum_{i=1}^{5} \sum_{k=1}^{2} \lambda_k \ln X_i \ln P_k + \sum_{k=1}^{2} \pi_k P_k + 1/2 \sum_{k=1}^{2} \sum_{m=1}^{2} \pi_{km} \ln P_k \ln P_m$$

Where:

Y_i – dependent variables: spread revenue to operating costs and non interest income to operating costs,
P_k – productivity ratios: labor deposit ratio and physical assets to deposit ratio,
X_i – input costs: price of labor, price of physical capital,
X_i – unit costs: processing cost, physical assets unit cost and output gap.

The spread business is the traditional banking business and represents the core of bank revenue in Croatia (Figure 2), as in most European countries. We calculate spread revenue as the difference between implicit active and passive interest rate multiplied with deposit amount.[9] Non-interest income is calculated using net fees and commission income. We prefer this to using total non-interest income, since this includes trading and hedging earnings which are heavily affected by the structure of balance sheet and less with competition.

The labor-deposit ratio is our measure of labor productivity. We calculate it using the costs of labor to total deposits, since the number of employees is not available for most of our sample. The price of labor is calculated as the bank average personnel expenses to total assets. As mentioned earlier, we use physical assets (net of amortization) to deposits to explain banks' reliance on physical capital. Since finding the interest rate that would describe the opportunity cost of investing in physical assets (market rate) in our sample is very complicated, we use the aggregate implicit rate on loans as an index of this cost.[10]

Unit cost for processing transactions is calculated as the bank average ratio of commissions and fees costs to commission and fees income.[11] Physical assets unit cost is calculated as bank average amortization cost to physical assets. The output gap is calculated as the percentage point's difference between the GDP in a certain year and in the year in which it reached minimum level.[12]

[9] Implicit active interest rate is calculated as interest revenue/loans and implicit passive interest rate as interest cost/deposits. Implicit rates are used mainly because nominal interest rates are not available for this period.
[10] This rate is usually calculated for emerging markets by adding a reference spread (like EMBI) to a reference rate (like EURIBOR). However, it is not possible to find a reference spread for Croatia in the 1990s.
[11] While this is obviously not the ideal measure of processing cost, we believe that calculating a scale economy for those costs would not give us a better solution. This way we calculate a kind of a margin on processing a non-interest transaction since banks also have to pay for some commissions in order to charge them.
[12] Since we use function in logs, GAP is calculated by setting the lowest y-o-y GDP growth of -6.8% to 1% and adding 7.8 percentage points to all of the other years.

In a composed error framework, equation (1) can be expressed as:

$$\ln(rev/oc) = R(\ln X_i, \ln X_j, \ln P_k) + \ln e + \ln u \quad (2)$$

Under the DFA approach the total residual is composed of a random component and a competition component ($\ln e$ and $\ln u$ respectively). Over a long enough time period $\ln e$ will average to close to zero, while $\ln u$ will average to the competition effect.

Since banks form their strategy based on total income and not just on spread or non-interest business, we believe that those two income parts could be related statistically. Therefore, we use seemingly unrelated regression (SUR) for our two equations and derive a residuals series.[13] Afterwards, the series of residuals is averaged across banks and only then averaged bank residuals are averaged across bank groups (based on size, ownership, and strategy, survival). Finally, the CE frontier is calculated using the following formula:

$$CE_i = \exp(\ln \overline{u}_i - \ln \overline{u}_{\min}) - 1 = (\overline{u}_i / \overline{u}_{\min}) - 1 \quad (3)$$

Where:

CE - competition efficiency for a bank or a group of banks,
$\overline{u}_i$ - averaged residuals across time for a certain bank or a group of banks and
$\overline{u}_{\min}$ - the minimum $\overline{u}_i$ series

The term $\overline{u}_i$ is multiplicative to income/operating costs in the unlogged version of (2) equation:

$$(rev/oc) = R(X_i, X_j, P_k) + e + u \quad (4)$$

Thus the ratio $\overline{u}_i / \overline{u}_{\min}$ is an estimate of the ratio of rev/oc for the bank or a group of banks compared with the bank or bank group facing the greatest competition while having the same underlying cost and service productivity. Since the CE measures competition inefficiency, a value of 0 means perfect efficiency of competition and a frontier position. A CE value of 0.05 means that competition is 5% less efficient than on the frontier (5% weaker in restraining bank or bank group revenue).

3. RESULTS

3.1. The competition efficiency frontier in the Croatia banking sector

Following our CE approach, that considers the competition effect to be a part of the unexplained part of the equation, the results of our SUR regression of equation (1) for the whole sample show a reasonably high goodness of fit for the both spread revenue and non-interest income (over 60% on average for both revenues). However, the unexplained part of the equation is slightly higher in the case of non-interest income suggesting that the

[13] However, using the Seemingly Unrelated Regression did not change the residuals significantly meaning that the error terms are not strongly correlated across the equations of the system.

competition effect could be a bit higher with this revenue.[14] However, one should have in mind that the goodness of fit measure in translog functions depends heavily on the approach in applying the function itself.[15] Since our R-squares amount to 69% for spread revenue and 61% for non-interest income on average, this means that in our equations the unexplained portion amounts to 31% and 39% on average indicating that the CE effects could have a economically significant impact. The results for CE are shown for groups of banks following their: size, ownership, strategic orientation and whether they left the market at some point or managed to survive until the end of 2010.[16] In commenting on the results, we focus more on the spread business, since it has more influence on banks' total earnings and thus competition in general.

The results show that on average the CE in restraining the banks revenue was the greatest on corporate and personal banks, smaller banks, domestic banks and on banks that left the market. However, one should have in mind that our bank groups overlap to a considerable extent. Universal banks are mostly big and in foreign ownership, and they mainly survived the banking crisis. Personal and corporate banks are mostly small and in domestic ownership and left the market noticeably more often. The results indicate that the group of universal (big and foreign) banks was farthest from the CE frontier on average, suggesting that this group enjoys a "comfort zone" position in both the spread business and non-interest business (Tables 2 and 3) . This result is not surprising, since we know that the banking crisis in the late 90s affected smaller and domestic banks the most. Also, big universal banks used the period of high economic growth the most and prepared for the slowdown of economic activity. When the financial crisis started taking its toll on banks in Croatia it was smaller and domestic banks (personal and corporate) that were the first to experience an increase in non-performing loans and to suffer earnings deterioration.[17]

[14] One should have in mind however, that spread revenue is around three and a half times more significant for banks income then commissions and fees income, meaning that for the aggregate competition spread business competition has the prevailing influence.

[15] Bolt and Humprey 2010 show the R-squared results in the range from 0.78 to 0.95. Higher R-squares are result of doing separate regressions on countries. In our cases, estimating regressions on bank groups would also lead to higher R-squared. However, since we have a significantly smaller number of banks in a single group that could lead to spurious results. Also, our effort to avoid multi co-linearity (a standard problem with translog functions) resulted in discharging some variables that would lead to higher R squared.

[16] Bank is considered big if it has a market share above 1% while small banks have a market share bellow 1%. This way we removed the separate group of middle sized banks (usually with market share between 1% and 5%) that are very few and therefore are not eligible for this calculation (only three of them at the End 2010). Bank in foreign ownership is the bank which majority of shares (50% plus one) is held by non-residents. Strategic group division of banks is based on the work prepared for the purposes of stress testing the banks in Croatia (Croatian national Bank, Financial Stability 3, 2009) but expanded for the earlier periods additionally for the purposes of this work. Strategic group concept is applied following the idea that the size can not explain the differences between the banks precisely enough, and that the business orientation explains the risks and performance better. A bank is considered a corporate bank if the largest part of its business is with corporate sector (usually smaller companies). Personal bank is oriented on doing business with the households in form of mostly general purpose loans (thus not granting the residential loans). Universal bank provides its services to households (including residential purchase loans), corporate sector (small and big) and government. The final division is based on the survival. Banks that left the market are all of the banks that were present in on the market in 1994 - 1999 period but left the market in some point prior to 2010. This division is used only for the first six years of our sample since this is the only period that represents the group of leaving banks fairly. However, banks that are not considered surviving banks still had to meet our six year criteria. We are aware that some banks left the market following a merger with another bank based only on synergy expectations and not necessarily the inefficiency of merged bank. However, those banks were still acquired and merged by bigger and more efficient bank which justifies this discrimination characteristic.

[17] Some small and domestic banks not only recorded the negative net earnings in 2009 and 2010 but also recorded operating loss, meaning that they find it hard to cope with operating costs as well as provisioning costs.

Our results suggest that competition was around 8% less efficient in restraining big banks' spread revenue compared with smaller banks' spread revenue and around 9% less efficient in restraining big banks' non-interest income, compared with smaller banks. Also, the competition was 8% less efficient in restraining foreign banks' spread revenue compared with domestic banks. The differences are even higher if compared on the level of strategic groups. In the spread business, competition was most efficient on corporate banks and 18% less efficient with universal banks and 21% less efficient with personal banks.

Regarding non-interest income, smaller banks experienced stronger restraint from competition compared with big banks on which the competition was around 9% less efficient. However, the CE was about the same on domestic and foreign banks. Also, it was the personal banks that were on the CE frontier while competition was 14% less efficient with corporate banks and 6% smaller with universal banks.

Table 2: Competition efficiency results (1994-2010)

	Spread revenue	Non-interest income
Corporate	f	0.14
Personal	0.21	f
Universal	0.18	0.06
Small	f	f
Big	0.08	0.09
Domestic	f	f
Foreign	0.08	f
Survived*	0.20	0.08
Disappeared*	f	f

Note: "f" denotes the CE frontier (a value of 0.00)
** CE results based on survival rate were calculated only for the 1994 - 1999 period*
Source: Authors' calculation based on CNB data

Regarding the survival rate, banks that survived experienced competition 20% less efficient in 1994 - 1999 period on average in spread business compared with banks that left the market and competition around 8% less efficient in the same period in non-interest business. The reason of competition being relatively less inefficient in disappearing banks non-interest income compared with spread revenue, could be the fact that disappeared banks had a mark up regarding their non-interest services significantly higher then surviving banks. That was probably their attempt to make up for their spread business difficulties.

These results are largely as expected. Large banks usually have a foreign owner that provides funding in the forms of equity, loans and deposits, thus stimulating long-term strategic planning. This result in large banks having a considerable competitive advantage, giving them the role of market leaders with know-how transferred from parent institutions, good capital strength and stable contingency plans. Also, those banks have a significant advantage in business diversification since they can extend their services to big companies and government and offer residential mortgage loans. This allows them to choose which markets they want to engage in more than smaller banks, and thus to decrease their exposure to competitive pressure to a certain extent.

Smaller banks, no matter whether they are oriented to the corporate sector or to households face tough competition from other small banks but above all from big banks whose number of branches has generally increased as they invest in building new branches or simply buy smaller banks. The smaller banks, facing tough competition, usually try to be more flexible toward their clients to compensate for the higher price of their services that reflect higher cost of capital and more risky and asymmetrical loan portfolio. However, with the big banks' ever-increasing number of branches and ATMs and with the big banks entering the business of working with smaller clients, small banks are experiencing sharp competition restraint as their market niche is being eroded.

Since our sample includes 17 years, it provides us the opportunity to study CE in specific periods. We do this by using rolling regressions.[18] Regarding CE in the spread business, it was small and domestic banks that represented the CE frontier most of the time, with big and foreign banks taking up that role near the end of the sample. To explain this in more detail, we will use the strategic groups division. In strategic group terms, it was mostly the group of corporate banks that were most strongly affected by competition most of the time (7 out of the 12 periods). Corporate banks are relatively sensitive to the macroeconomic environment, since they focus their business activity on small companies and usually generate significantly higher mark up on non-interest income compared with spread revenue.[19] This is probably the result of these banks trying to serve their clients with various products, with loans being only one of them. The ability of these banks to serve their clients faster and more flexibly compared with big banks opens the niche for these banks. More precisely, in terms of implicit interest rates, personal banks have highest margin by charging highest interest rates on loans but not following with the interest rates on deposits. In the middle are corporate banks while universal banks have the smallest margin which is the result of lowest active and passive rates. However, the ability of universal banks to operate at a lower margin is the result of more diversified loan portfolio encompassing big corporations and government.

Although rarely on the spread revenue CE frontier the group of personal banks was very competitive and in four of 12 periods recorded the competition inefficiency within 3 percentage points of the frontier. Since those periods are usually centered around the year 2002, we believe that the entrance of new banks in the group of personal banks led to the increased competition.[20] New banks, now operating in the somewhat more demanding and competitive environment with higher regulatory costs, fought for initial positioning on the market. This resulted in high spread revenue CE in that group. After that period, the spread revenue CE was again highest in the corporate banks group, and then in the last five periods, the universal banks group spread revenue was most restrained by competition. However in these five periods the differences in spread revenue CE between banking groups were much smaller compared with previous period. These five periods start after the euro conversion that marked the beginning of the high economic growth accompanied with significant increase in earning and constant increase of banks loan quality. After 2003 and the regulation restrictions, universal banks experienced an increased impact of competition on their revenue. In the last two periods, characterized by financial crisis and the materialization of credit risk across the

[18] We role the regressions 12 times for six year periods starting with 1994 to 1999 and ending up with 2005-2010. This respects the "six year" rule.

[19] On aggregate, the portfolio of loans to corporate sector is the most volatile and most sensitive to the macroeconomic environment. Compared with the pre-crisis level of June 2008, the aggregate non-performing loans ratio increased from 4.8% to 11.2% with corporate sector NPLR increasing from 7.3% to 17.9% and household NPLR increasing from 3.8% to 7.8%.

[20] The former savings banks (serving households) were required by new regulation to collect additional capital and obtain full banking licenses as commercial banks by 2002.

whole banking sector, universal banks, used to ever growing spread revenue, ended up fighting for a relatively smaller market with interest rate hike. The transfer of customers from the smaller banks softened but did not fully offset this effect. However, one has to have in mind that while the universal banks may be on the spread revenue CE frontier in the recent period, they are still in a better position than other groups of banks overall. Also, having in mind that CE can only give an answer on relative competition between banking groups, it is somewhat encouraging to see that competition plays its part with universal banks during the crisis. Personal and corporate banks may be at a greater distance from the CE frontier in the last couple of periods, however, just because their spread revenue is not restrained by competition anymore. The recent data shows that it is restrained by some factor in absolute terms with those banks facing loan quality deterioration and high provisioning cost while trying to compensate that with more aggressive passive interest rates policy.

Regarding CE in non-interest income, it appears that the group of personal banks represented the CE frontier most of the time (Tables 2 and 3). The domination of spread revenue in total revenue is the most pronounced in those banks (which is logical since they are oriented on the short and medium term loans to natural persons) and therefore they face tougher competition in non-interest income whose share in total revenue they try to increase. Corporate banks usually try to offer complete services to their clients but the commission and fees competition is tough because of the pressure from universal banks attempt to attract SMEs. In the periods around 2001 the universal banks non-interest income was close to the CE frontier. That period includes the years of high economic growth in Croatia when there was a lot of non-interest income to fight for since companies transferred their payments processes to banks in 2001. That probably resulted in universal banks taking the opportunity to capture a good starting position for payment services revenue. However, in the last six periods, universal banks moved further away from non-interest income CE frontier which corresponds with the time they moved on spread revenue CE frontier.

The correlation between spread revenue CE and non-interest income CE suggests that there is a negative connection between them. We find correlations of -0.75, -0.65, -0.40 and -0.40 for foreign banks, big banks, domestic banks and small banks respectively. This suggests that banks try to compensate (to some extent) for decrease of one type of revenue by increasing other type of revenue which then leads to divergence in CE of those two revenues.

Table 3: Competition efficiency results in three sub-samples using rolling regressions (six years window)

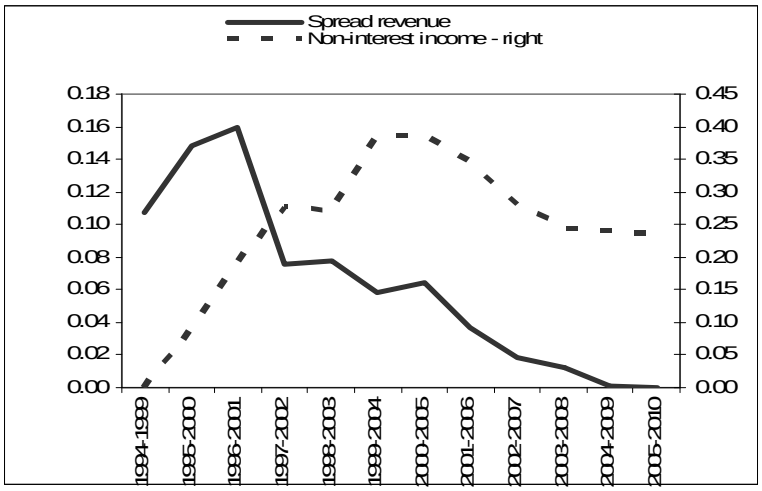
	Strategy			Size		Ownership	
	Corporate	Personal	Universal	Small	Big	Domestic	Foreign
Spread revenue							
1994-1999	f	0.17	0.27	f	0.17	f	0.21
1995-2000	f	0.09	0.17	f	0.16	f	0.24
1996-2001	f	0.08	0.22	f	0.19	f	0.23
1997-2002	f	0.01	0.04	f	0.08	f	0.08
1998-2003	0.01	f	0.10	f	0.09	f	0.07
1999-2004	f	0.01	0.07	f	0.10	0.00	f
2000-2005	f	0.15	0.06	f	0.07	f	0.02
2001-2006	0.00	0.09	f	0.00	f	0.07	f
2002-2007	0.05	0.08	f	0.02	f	0.08	f
2003-2008	0.07	0.02	f	0.07	f	0.06	f
2004-2009	0.10	0.02	f	0.08	f	0.08	f
2005-2010	0.11	0.07	f	0.09	f	0.06	f
average	**0.03**	**0.07**	**0.08**	**0.02**	**0.07**	**0.03**	**0.07**
Non-interest income							
1994-1999	0.47	0.28	f	0.19	f	0.37	f
1995-2000	0.31	0.25	f	0.25	f	0.29	f
1996-2001	0.03	f	0.09	0.08	f	0.03	f
1997-2002	0.03	f	0.18	f	0.01	0.00	f
1998-2003	f	0.04	0.12	0.02	f	0.03	f
1999-2004	f	0.00	0.01	0.09	f	f	0.12
2000-2005	0.02	f	0.12	f	0.05	f	0.09
2001-2006	0.55	f	0.60	f	0.32	f	0.29
2002-2007	0.47	f	0.45	f	0.26	f	0.15
2003-2008	0.39	f	0.24	f	0.08	f	0.26
2004-2009	0.23	f	0.11	f	0.06	f	0.16
2005-2010	0.17	f	0.13	f	0.06	f	0.12
average	**0.22**	**0.05**	**0.17**	**0.05**	**0.07**	**0.06**	**0.10**

Note: "f" denotes the CE frontier (the value 0.00)
Source: Authors' calculation based on CNB data

The CE frontier approach also enables us to comment on the results by periods.[21] This could help us in determining approximately the years in which CE was highest or lowest in the banking sector as a whole. However, to interpret the results more precisely, one has to have in mind that large banks account for 90% of banking sector assets. Weighted averaged residuals suggest that the CE in spread business was relatively stable in approximately 2000 - 2003 period, but generally, it was increasing continuously after the banking crisis.[22] On the other hand, the CE in non interest income was decreasing until approximately 2003. After a certain saturation of the market, non-interest income CE started to increase (Figure 3).

[21] However, as Bolt and Humphrey (2010) indicate, caution is required in this process. Since only averaged bank residuals are eligible for analysis, the time dimension of CE can be obtained only after the bank individual residuals have been averaged for at least 6 years.
[22] We calculate market share weighted residuals by strategic groups.

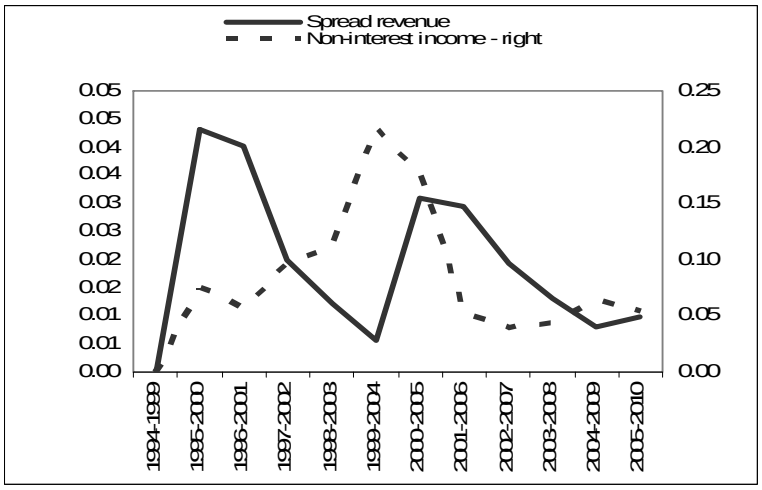
Figure 3: Weighted CE by periods



Note: Weighted by market share
Source: Authors' calculation based on CNB data

Unweighted data shows less information about the CE in general. However, it does tell us something about the relationship between this effect on various groups of banks. Unweighted data shows highest CE in the years 2000 and 2008, the years that mark the beginning and ending of a cycle. In 2000, a new cycle started after the recession and banking crisis ended. It was the year in which the foreign owners took over around 44% of banking assets, reaching a share of 84%, and started the fight for position as they prepared their long term strategy. The year 2008, by contrast, represented the beginning of the period of unfavorable macro environment with GDP growth and credit growth slowing down, big banks' owners experiencing significant problems as the global financial crisis started and some big banks in Croatia experiencing a shortly lived bank run. It was a year during which expectations of a soft landing were replaced with somewhat more realistic expectations, followed by a rapid GDP fall of around 6% in the next year. It was a year of rapid increases in domestic and foreign interest rates and the beginning of the calculation of losses on the loan portfolios. All together, that kind of environment stimulated inter-group competition (Figure 4).

Figure 4: Unweighted CE by periods



Source: Authors' calculation based on CNB data

3.2 Comparison with other research on bank competition in Croatia

In comparing our results to other efficiency studies on Croatian banks, we have to be careful to distinguish cost from competition efficiency. Jemrić and Vujčić (2002) found that foreign banks are the more cost efficient on average compared with domestic banks. Our findings are that domestic banks on average face the biggest restraint of earnings in the form of competition. It could be that the lower cost efficiency of domestic banks results in more a restraint from competition, as larger banks are able to dictate market prices that leave rents for them and constrain the profits of smaller, higher-cost competitors.

Also, Vujčić and Jemrić find that somewhere in 2000, bigger banks overtook the smaller banks in terms of cost efficiency. In terms of our CE smaller banks, although perhaps relatively more cost-efficient than bigger banks until 2000, still faced bigger restraint in form of competition regarding the spread business in that period. This could be explained by the nature of smaller banks' business. Smaller banks always outnumbered bigger banks in Croatia and until 2000 they managed to find their niche. However, by 2000, the 1998 - 99 recession was over, and a period of rapid economic growth started. Larger banks were in a good starting position following the transfer of know-how from parent institutions. In that sense, the period around the year 2000 seems very important to our research (as well as others) as it shows the year when CE increased following the entrance of foreign players on the Croatian market.

Regarding non-interest income, smaller banks did face a bigger constraint from competition in our results on general, but size does not appear to be a good discriminatory factor for this revenue. In some periods - particularly during the Euro cash conversion process and the period of rapid credit growth non-interest income CE was stronger with larger banks.

A couple of years later, Kraft, Payne and Hofler (2006) showed that foreign banks are significantly more cost efficient than domestic banks. Our findings are somewhat in line with that idea as the CE in the spread business, the core business of Croatian banks, was usually higher for domestic banks. This could mean that, until the regulatory changes after 2003[23] and then especially in the onset of the crisis in late 2008, larger banks managed to expand their business and generate good value added without being on the CE frontier. Put differently, by increasing their efficiency while maintaining their market share, larger banks enjoyed their life in their "comfort zone". Only when their business environment changed regardless as a result of regulatory changes or crisis the competition restraint on those banks increased.

Kraft, Payne and Hofler (2006) also found that new and privatized banks were not necessarily the most efficient, and that privatization does not necessary leads to higher efficiency. However, they did suggest that higher cost efficiency could be connected with lower default rate amongst banks. We believe that foreign banks except higher cost efficiency were also in a position to pick their clients more precisely and create a solid client base that will help them to bridge the crisis more easily.

Kraft (2006) used various measures to measure competition in the Croatian banking market. Since the Panzar - Rosse test does not give a clear indication about changes in competition,

[23] In 2004, a Marginal reserve requirement on foreign borrowing was introduced. It was increased in 2005. In 2006 the calculation of banks exposures for the CAR calculation was changed to include currency induced credit risk. In 2007 the credit growth was restrained by monetary measure. In 2008, the calculation of banks exposure was changed again to stimulate new recapitalization of banks. In 2009, the crisis started and manifested itself in a slowdown of credit growth and an increase in non-performing loans.

the author used the Lerner index to show that banking market as a whole did experience increased price competition from 2000 to 2002. The margin, measured as a Lerner index, reached its lowest level in 2000. This year corresponds with our spread revenue CE increase and we believe that those two indicators could be measured one against another since both are calculated for interest business. The decrease in price competition in 2003 could be imputed to the increase of restrictions in monetary policy which is in line with our findings that prior to the crisis it was the stricter regulation that could have increased CE in big banks as it dissimulated credit growth. Kraft concludes that increased efficiency after 1999 should be connected with the exit of less efficient banks from the market and that the increase of efficiency is probably the result of the higher competition. We derived similar results, with the differences between bank groups' spread revenue CE decreasing over time (Appendix Figure A2).

3.3. Elasticity test

Finally, we run an OLS regression to determine the elasticity of revenue to the production function using the whole sample.

$$\ln(Y_i) = \alpha + \sum_{i=1}^{2} \theta_i \ln P_i + \sum_{i=1}^{5} \theta_i \ln X_i + \varepsilon \tag{5}$$

Where:

Y_i – dependent variables: spread revenue to assets and non interest income to assets,
P_i – productivity ratios: labor deposit ratio and physical assets to deposit ratio,
X_i – input costs: average price of labor, average price of physical capital,
X_i – unit costs: average processing cost, physical assets unit cost and output gap.

Regarding the productivity ratios, as expected the sign is negative for both the labor/deposit and physical assets/deposit ratios, indicating that higher productivity leads to higher revenue. However, labor productivity has a significantly larger coefficient and the result is statistically significant which can be explained through labor being more important input for banks than physical assets in general. The labor deposit ratio has a positive sign for non-interest income that is generally more labor intensive (Table 4).

Regarding scale economy indicators, the payment cost index is significant for both revenues. However, the sign is negative as expected only for non-interest income since increased transaction cost reduces the payment revenue of banks. For spread revenue the sign is positive but the coefficient is rather small. This is in line with Kraft and Tirtiroglu (1998) who did not find significant economies of scale in Croatian banking sector. The physical assets (relatively small input in banking services) unit cost is significant and negative for both revenues.

Regarding factor input costs, the change of the price of labor is positively connected with the change of spread revenue and negatively with non-interest income. We offer the anecdotal explanation that banks usually spend more on their employees in good times, when they can afford it, because this is the input banks can most easily influence should the environment change unfavorably. The latest data for Croatia show that employee costs have been falling during 2010, reflecting the decreased number of employees.

Table 4: Elasticity of the cost effect on revenues

	Spread revenue		Non-interest income	
Productivity				
Labor/deposit ratio	-0.255	***	0.307	***
Phy. assets/dep. ratio	-0.041		-0.123	***
Scale economy				
Payment costs index	0.276	***	-0.658	***
Phy. assets cost index	-0.337	***	-0.371	***
Factor input costs				
Price of labor	0.595	***	-0.101	
Phy. assets opportunity cost	-0.279	*	1.196	***
Macro-economic risk				
Output gap	-0.003		0.132	***

**** significantly different from zero at p-value = 0.01*
*** significantly different from zero at p-value = 0.05*
** significantly different from zero at p-value = 0.10*
Source: Authors' calculation based on CNB data

Capital opportunity cost has a small and negative sign for spread revenue and rather big positive sign for non-interest income. For spread revenue this is expected since this cost is calculated by using the market interest rates and higher rates lead to smaller spread revenue. Regarding the non-interest income the capital opportunity cost sign is positive which could be explained with the fact that banks do try to compensate for the spread revenue with non-interest income. The coefficient for output gap is small and insignificant for spread business indicating that banks balance with the interest rates in order to reduce the cyclicality of their income. However, the spread revenue does not include the value adjustment costs (highly cyclical costs) and it is those costs that lead to the final result of spread business decisions. A positive coefficient on non-interest income is the result of higher turnover in processing services in the period of higher economic growth.

4. CONCLUSION

This paper offers a new look at competition in the Croatian banking sector. We used a frontier approach for determining the competition in banking sector in Croatia by implementing the CE framework used by Bolt and Humphrey (2010). This method utilizes the standard frontier approach but reverses the story and determines CE which restrains bank revenue. We implemented the Distribution Free Approach (DFA) since we believe that the half normal assumption on errors is too strong, as indicated by the error distribution graphs in the Appendix (Figure A1).

Using this method allows us to observe the competition effect on banks revenue through time and across banking groups. However, one has to keep in mind that the results show only relative CE and not absolute. Therefore, we cannot judge the competition level generally, we can only compare its effect on certain groups of banks across time. Also, the competition effect is only one of the effects influencing bank revenue. The fact that competition was the

most efficient in restraining some bank groups' revenue still does not mean that some other factors did not pull in the other direction.

We find that on average, smaller, domestic and personal and corporate banks faced more efficient competition that could to an extent explain their lower profitability. We also find some evidence of CE being negatively correlated in spread revenue and in non-interest income, confirming the idea of banks compensating for spread revenue with non-interest income. This makes sense, since spread revenue represents the main source of banks revenue and makes the difference between bank failure and survival, while non-interest income serves mainly as a supplement. Also, since the inefficient banks that were unable to continue competing on the market left the market in the first half of our sample, the differences between CE of groups of banks decreased noticeably from the mid 90s to 2010.

We also find that, depending on the time period, the relative position of groups of banks in CE changed. We found that large universal banks that were on average most distant from the spread revenue CE frontier, moved onto that frontier when certain restrictions came into place on their business - regulatory changes (2004-2007), credit growth slow-down (2008) and financial crisis (2009 -2010). By weighting the bank results with their market share, we find that CE was increasing from around 2003 onwards when restrictions on bank business increased, which primarily reflects the situation of large banks. Spending some time on the CE frontier (and out of their "comfort zone") could result in large banks increasing their cost efficiency, which would definitely increase the efficiency of the entire banking sector.

BIBLIOGRAPHY

Bauer, P., and D. Hancock (1993): **The Efficiency of the Federal Reserve in Providing Check Processing Services**, ***Journal of Banking and Finance***, 17: 287-311

Berger, A. (1993): **Distribution-free estimates of banking efficiency in the US Banking Industry and Tests of the Statistical Distribution Assumptions**, ***Journal of Productivity Analysis,*** 4: 261-292

Bolt, W. and Humphrey D. (2010): **Bank competition efficiency in Europe: A frontier approach *Journal of Banking & Finance,*** 34: 1808–1817

Carbo, S., Humphrey D., Maudos J. and Molyneux P. (2009): **Cross-country comparison of competition and pricing power in European banking, *Journal of International Money and Finance,*** 28: 115-134

Carbo, S., Humphrey, D. and Del Paso, R. (2004), **Opening The Black Box: Finding the Source of Cost Inefficiency**, University of Granada, Working paper, July http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.167.8386&rep=rep1&type=pdf [Accessed 02.04.2010]

Croatian National Bank (2009), **Financial stability 3, Box 6: Revision of the Stress-Testing Methodology**, http://www.hnb.hr/publikac/financijska%20stabilnost/e-fs-3-2009.pdf [Accessed 02.04.2010]

DeYoung, R. (1997): **A Diagnostic Test for the Distribution-Free Efficiency Estimator: An Example Using U.S. Commercial Bank Data**, ***European Journal of Operational Research***, 98: 243-249

Jemrić, I. and Vujčić B. (2002): **The Efficiency of Banks in Croatia: A Data-Envelopment Approach,** ***Comparative Economic Studies,*** vol. 44, iss. 2-3: 169-193

Kraft, E. and Tirtiroglu, D. (1998): **Bank Efficiency in Croatia: A Stochastic-Frontier Analysis,** ***Journal of Comparative Economics,*** vol. 26, iss. 2: 286-300

Kraft, E. (2006), **How Competitive is Croatia's Banking System?** Croatian National Bank Working Paper, W-14, March.

Kraft, E., Payne, J. and Hofler, R. (2006): **Privatization, Foreign Bank Entry, and Bank Efficiency in Croatia: A Fourier-Flexible Stochastic Frontier Analysis**, ***Applied Economics,*** 38: 2075-2088

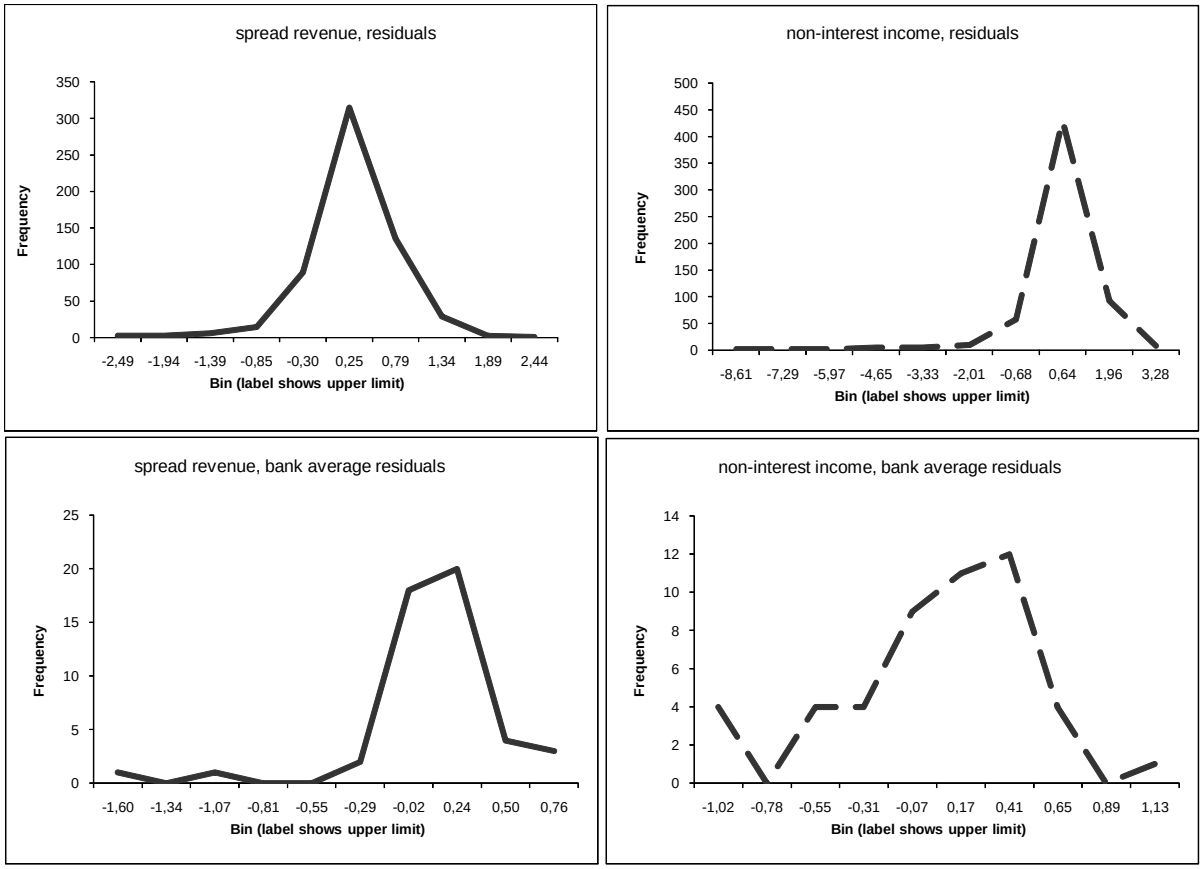
APPENDIX

Table A1: Estimation results of equation (1994-2010)

	LN_SPREAD_OC		LN_NII_OC	
C	12.25		29.27	
LN_LAB_DEP	0.57		-6.65	**
LN_PHYA_DEP	-0.92		-1.05	
LN_GAP	-8.29	***	-1.94	
LN_PC	1.00		-10.85	***
LN_PHYAC	-0.57		-0.03	
LN_LAB_DEP*LN_PHYA_DEP	0.01		0.34	*
LN_LAB_DEP*LN_GAP	0.45	***	0.43	
LN_LAB_DEP*LN_PC	-0.20		0.11	
LN_LAB_DEP*LN_PHYAC	0.13		0.12	
LN_PHYA_DEP*LN_GAP	-0.16	**	-0.23	
LN_PHYA_DEP*LN_PC	0.09		-0.09	
LN_PHYA_DEP*LN_PHYAC	0.04		-0.01	
LN_GAP*LN_PC	0.02		-0.36	*
LN_GAP*LN_PHYAC	-0.30	***	-0.37	*
LN_PC*LN_PHYAC	-0.08		-0.08	
LN_LAB_DEP*LN_PL	0.72	***	-1.38	***
LN_LAB_DEP*LN_PK	0.89	**	-0.67	
LN_PHYA_DEP*LN_PL	-0.01		-0.14	
LN_PHYA_DEP*LN_PK	-0.56	***	-0.68	*
LN_GAP*LN_PL	-0.21		0.25	
LN_GAP*LN_PK	-2.86	***	-0.89	
LN_PC*LN_PL	0.16		-0.56	
LN_PC*LN_PK	0.38		-1.92	***
LN_PHYAC*LN_PL	0.26		0.20	
LN_PHYAC*LN_PK	-0.83	***	-0.38	
LN_PL	2.55		16.47	***
LN_PK	-1.16		10.63	
LN_PL*LN_PK	0.07		3.25	***
0.5*(LN_LAB_DEP*LN_LAB_DEP)	-0.92	***	0.27	
0.5*(LN_PHYA_DEP*LN_PHYA_DEP)	0.06		0.06	
0.5*(LN_GAP*LN_GAP)	-0.28	**	0.09	
0.5*(LN_PC*LN_PC)	-0.31	*	-2.03	***
0.5*(LN_PHYAC*LN_PHYAC)	0.01		-0.28	
0.5*(LN_PL*LN_PL)	-0.40		3.18	***
0.5*(LN_PK*LN_PK)	-2.81	*	0.61	
Average R-square (6 year)	**0.69**		**0.61**	

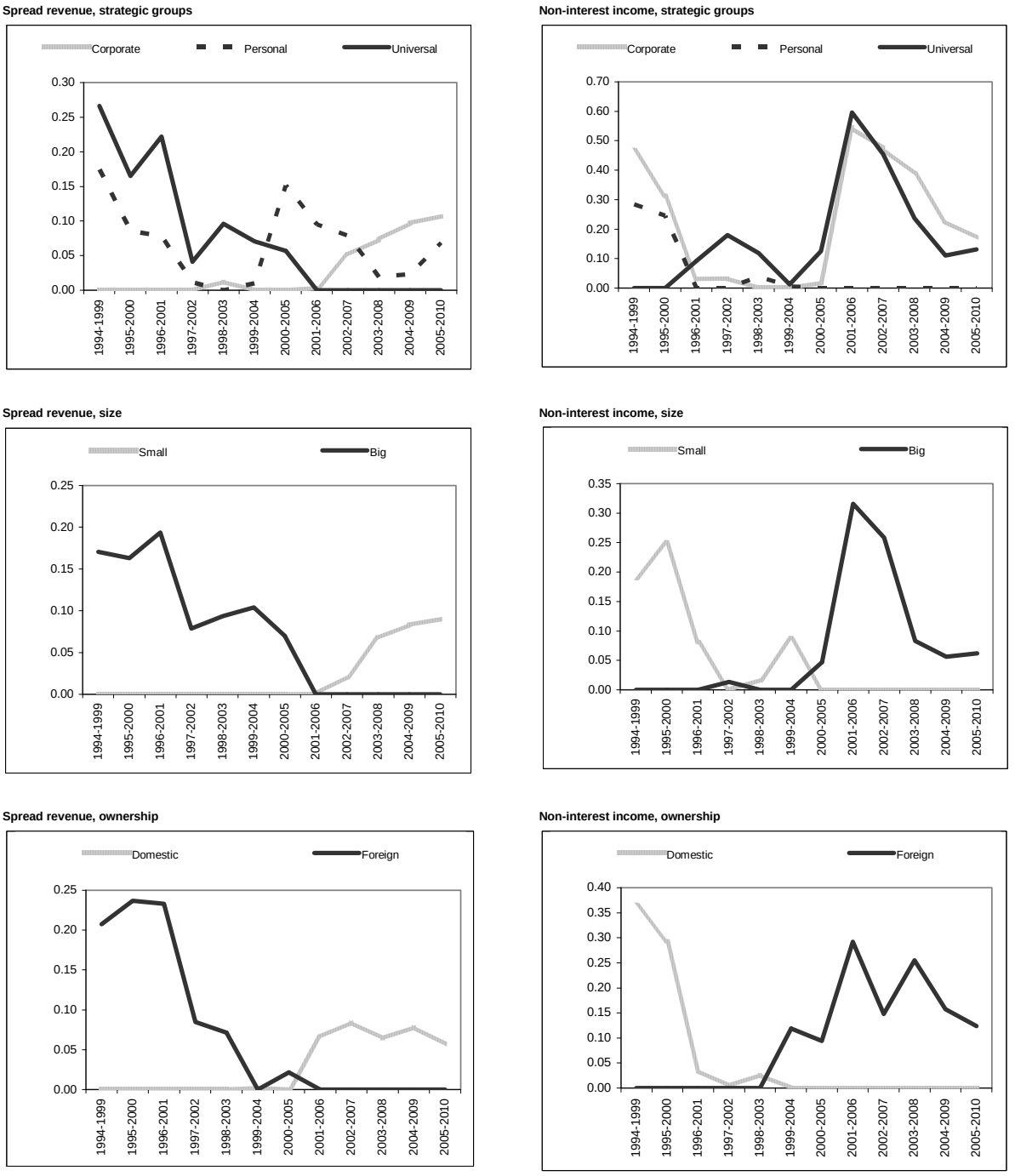
**** significantly different from zero at p-value = 0.01*
*** significantly different from zero at p-value = 0.05*
** significantly different from zero at p-value = 0.10*
Source: Authors' calculation based on CNB data

Figure A1: The distribution of residuals and averaged residuals (1994-2010)



Source: Authors' calculation based on CNB data

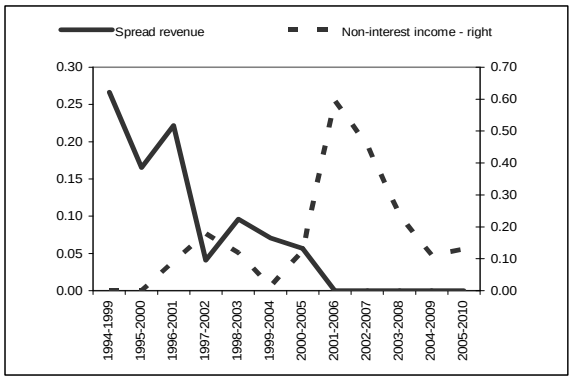
Figure A2: CE Rolling regression results by revenue



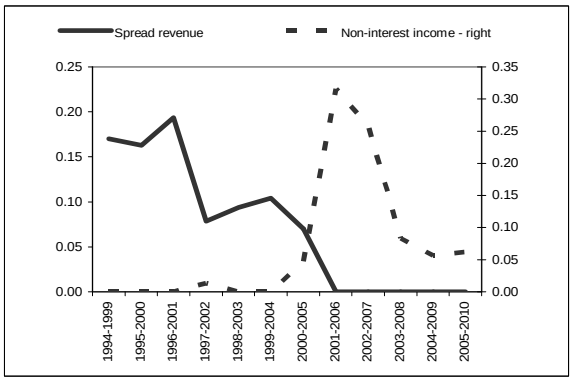
Source: Authors' calculation based on CNB data

Figure A3: CE Rolling regression results by bank group

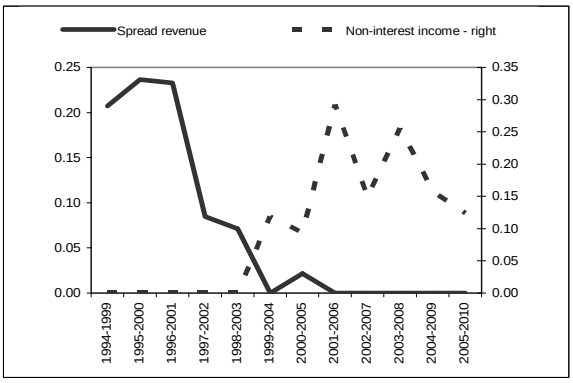
Universal banks



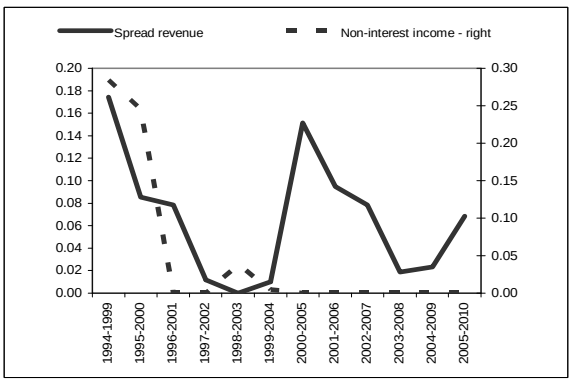
Big banks



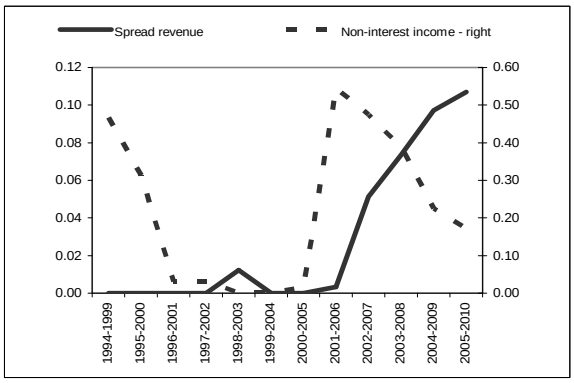
Foreign banks



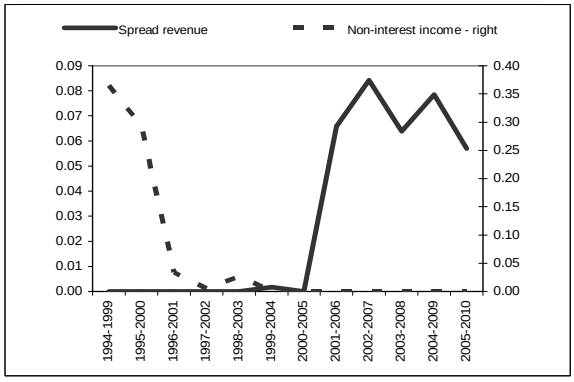
Personal banks



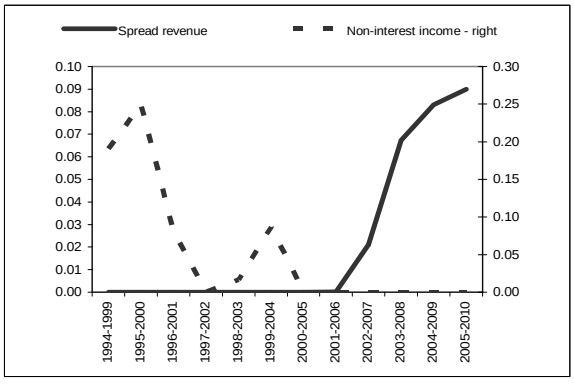
Corporate banks



Domestic banks



Small banks



Source: Authors' calculation based on CNB data

UNOFFICIAL ECONOMY IN CROATIA AND THE IMPACT OF THE ECONOMIC RECESSION ON THE UNOFFICIAL ECONOMY

Željko Lovrinčević, Ph. D.
Institute of Economics, Zagreb
Trg J. F. Kennedy 7, HR-10000 Zagreb
Phone: ++ 385 1 2362 200; Fax: ++ 385 1 2335 165
E-mail: zlovrincevic@eizg.hr

Davor Mikulić, Ph. D.
Institute of Economics, Zagreb
Trg J. F. Kennedy 7, HR-10000 Zagreb
Phone: ++ 385 1 2362 200;; Fax: ++ 385 1 2335 165
E-mail: dmikulic@eizg.hr

Andrea Galić Nagyszombaty, M. A.
Central Bureau of Statistics of the Republic of Croatia
Ilica 3, HR-10000 Zagreb
E-mail: galica@dzs.hr
Phone: ++ 385 1 4893 494; Fax: ++ 385 1 4893 595

Key words: *Unofficial economy, Eurostat approach, Exhaustiveness of national accounts, ESA 1995, Croatia*

ABSTRACT

According to the Eurostat's recommendations, GDP of each country must be as exhaustive as possible. Hence, all EU member states and candidate countries have a strict obligation to include the estimate of the unofficial economy (UE) in official GDP data. Over the past few years, the Central Bureau of Statistics of the Republic of Croatia (CBS) has been working on a project of improvement the exhaustiveness of national accounts. Recently, official national accounts data have been revised; thus expanding coverage to include the estimated unofficial economy.

This paper deals with the estimation of the UE in Croatia and its size over the observed period. The estimations are in line with Eurostat's methodology. Results are presented by types of non-exhaustiveness and are comparable with other EU member states and candidate countries. The basic methodology used to estimate the size of UE is the Eurostat's Tabular Approach to Exhaustiveness. This approach provides a framework for the estimate of the UE that is particularly well suited for transition countries. According to this approach, different types of non-exhaustiveness have to be precisely defined and separated. All types of non-exhaustiveness are systematically covered and are mutually excluded. Main advantage of this method comes from the possibility of a comparison of different types of non-exhaustiveness adjustments by countries. This method is the most conservative, because the results are lower in comparison with other methods used to estimate the unofficial economy.

The aim of the paper is to test the hypothesis that official and unofficial economy are substitutes – in period of economic growth, a share of unofficial economy is decreasing while

in downturn phase of economic cycle unofficial economy helps to reduce overall negative economic effects. Additionally, paper analyses trends in types of unofficial economy. While share of unreported labour is decreasing in upward phases of economic cycles, share of inaccurate reporting (under-reporting of income by firms and individuals) is increasing. On the other hand, in the recession period, there is evidence of rising impact of unreported labour. The paper points to the main factors behind unofficial economy growth during recessions.

INTRODUCTION

In every economy, a certain proportion of production, income and employment falls outside the official monitoring systems established for tax collection purposes and compilation of macroeconomic statistics. Factors behind lack of exhaustiveness of national accounts could be classified as:

a) economic factors - intentional non-registration or underreporting of economic activities and income by producers and individuals; and
b) statistical factors - statistical system is not adequate to capture total economic activities, e.g. non nonexistent or obsolete registers.

The existence of an unofficial economy has a significant influence on the official economy, especially in terms of public finance and labour market developments. According to theory, unofficial economy has direct and indirect effects. Direct effect is revealed in the decreased ability of the government to collect taxes from economic agents. On the other hand, indirect effect is predominantly concealed in the inability of official statistics to accurately measure economic activity. Lack of exhaustiveness in national accounts estimates results in distortions in international comparisons of macroeconomic indicators. Additionally, in circumstances where unofficial economy developments are substantially different from that of registered GDP, official figures on economic growth could provide misleading information for analysts and policy makers alike. From the national accounts compilers viewpoint, lack of exhaustiveness of national accounts could introduce inconsistencies in the accounts resulting in rising proportion of errors and omissions.

According to production boundary, defined in the national accounts system[1], the unofficial economy should be covered in the national accounts. The 1993 SNA use the term hidden economic activities, defined as legal production deliberately concealed from public authorities to avoid payment of taxes and social contributions or compliance with administrative procedures and standards. Illegal activities are defined as productive activities forbidden by law or productive activities which are usually legal but carried out by unauthorized producers. Both hidden and illegal activities should be included in national accounts. As national accounts data for European countries are used for determining contributions to the EU budget, European commission introduced regulation to harmonise GNI of the member states (regulation 1287/2003). Regulation states that national accounts data must be exhaustive. This means that they should account for the activities that are not reported in statistical surveys or to fiscal, social and other administrative authorities. Improved GNI coverage presupposes developing suitable statistical bases and assessment procedures and making adequate adjustments.

[1] See SNA 1993, pp. 6.30-6.36.

The terms and the definition of unofficial economy are very broadly defined in the economic literature. Apart from unofficial economy, various authors in the most cases use terms such as: hidden economy, informal economy, underground economy, black economy, unreported economy. Generally, most definition agree that unofficial economy comprises of all currently unregistered productive economic activities: "market-based production of goods and services, whether legal or illegal, that escapes detection in the official estimates of GDP" (Smith 1994). This definition is used, e.g., by Feige (1989, 1994), Schneider (1994, 2003, 2005) and Frey and Pommerehne (1984). A broader definition, taken from Del'Anno (2003), Del'Anno and Schneider (2003) and Feige (1989), is: "…those economic activities and the income derived from them that circumvent or otherwise avoid government regulation, taxation or observation". For other definition see also Thomas (1999) or Feld and Larsen (2005).

According to its definition, the informal or unofficial economy contains that part of the economic activity that is difficult to measure. Thus far, different methods of unofficial economy estimation resulting in significantly different estimates have been proposed by the literature. The results in most cases indicate that the size of the shadow economy is larger in the transition countries in comparison with market economies[2].

The structure of this paper is as follows. After introductory remarks, the first section of the paper brings a short literature review on the relation between official and unofficial economy. In the second section of the paper, an estimate of the unofficial economy is presented for the Croatian economy in the period 2000-2009. The third section discusses the empirical relation between official and unofficial economy in Croatia and tries to identify a main factors influencing informal economy dynamics. The last section concludes.

1. RELATION BETWEEN OFFICIAL AND UNOFFICIAL ECONOMY – LITERATURE REVIEW

Houston (1990) developed a simple macroeconomic model to incorporate the unofficial economy. The model suggests how traditional macroeconomic models may be limited by their failure to consider the underground economy. Given that the underground economy represents a portion of total output, its size and impact should be of importance to macroeconomists. He demonstrated that total aggregate supply varies less than formal supply in response to shifts in marginal tax rates. This was shown to partially offset the position that higher taxation leads to dramatic supply reductions, which negatively affect prices and interest rates. The same author pointed to implications for the conduct of monetary policy because of high currency-intensive nature of unofficial activities.

Gershuni (1979) presented a relationship between official and unofficial economy with a circle flow of economy diagram. Left side of picture 1 presents the flows in the economy without informal production. Formal producers employ labour and deliver goods and services to households. Household sector receive wages for labour input and use it to buy goods and services from formal producers.

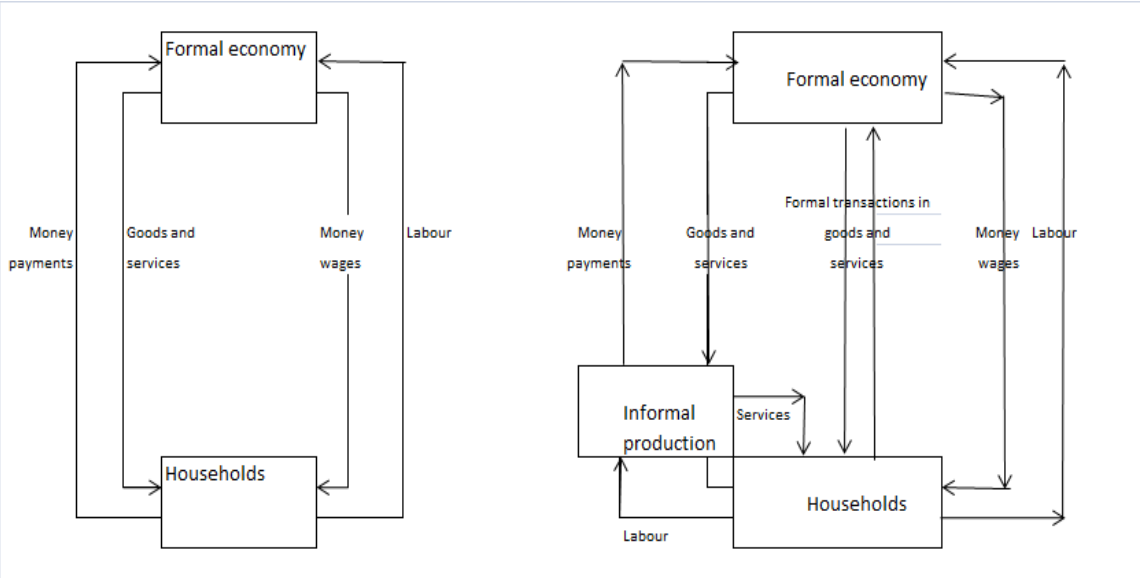
Right side of the picture presents flows in the situation when part of the production is unofficial or informal. The household sector buys good and services and chooses between

[2] Recent estimates of the size of the shadow economy for 22 transition countries and 21 OECD countries could be found in Schneider (2003). For the estimates for a larger sample of countries see Friedman, Johnson, Kaufmann and Zoido-Lobaton (2000).

formal and informal producers. On the labour supply side, individuals decide to work in official or unofficial economy. Those are factors in favour of conclusion that official and unofficial sectors are substitutes.

On the other hand, households spend a significant part of the income generated in informal production on goods and services produced by formal producers. Additionally in the production process informal producers use inputs (intermediate goods and services) from the formal producers. Those are factors supporting opinion that official and unofficial economy are complements, i.e. rise of unofficial economy could induce rise of official sectors and vice versa.

Picture 1. Economic transactions in formal and informal economy



Source: Gershuni (1979)

The literature dealing with the correlation between the formal and informal economy, so far has not produced the final answer whether this relation is positive or negative. According to Chen (2007) there are at least three schools of thought on links between shadow and formal economy. The dualists argue that informal units and activities have few (if any) linkages to the formal economy but, rather, operate as a distinct separate sector of the economy; and that informal workers comprise the less-advantaged sector of a dualistic labour market. Hypothesis is that growth of the shadow economy leads to a decrease in tax revenues and therefore lower quality and quantity of public goods and services, which ultimately has negative impact on economic growth of formal economy (Nikopour, Shah Habibullah and Schneider, 2010). According to structuralism approach, unofficial and official sectors are intrinsically linked. To increase competitiveness, firms in the formal economy are seen to reduce their input costs, including labour costs, by promoting informal production. The economic explanation is that the value- added created in the shadow economy is spent in the official sector, while more official production increases the demand of unofficial goods and service. The legalists focus on the relationship between informal entrepreneurs/enterprises and the formal regulatory environment, not formal firms. They acknowledge that capitalist interests collude with government to set the bureaucratic ‘rules of the game’.

In the neoclassical view, the shadow economy is positive in the sense that it responds to the economic environment's demand for services and small-scale manufacturing (Asea, 1996). Adam and Ginsberg (1985) proposed the theoretical model in which, under the assumption of low entering cost to the informal sector, a positive relationship could be established. Empirical analysis conducted on data for Belgium confirmed these results. Recent models also indicate a positive relationship. For example, Bhattcharyya (1999) argues that is necessary for the shadow economy growth to positively influence the growth of the official sector, the main channel being personal consumption. Specifically, Bhattcharyya (1999) claims that significant share of funds which the agents acquire in the shadow market create additional demand, which can positively influence the growth of the official sector. Similarly, Schneider (1998) show that over 66% of the earnings in the shadow economy are almost immediately spent in the official sector.

Specifically, Eilat and Zinnes (2000) argue that the growth of the shadow economy share up to the levels registered in transition countries is actually a way of structural adjustment to new market conditions. They assume that the slow development of market institutions in the transition economies forced the part of the agents to conduct their activities in the unofficial sector. However, once the market institutions are adequately developed, those agents would find it more profitable to organize their activities in the regulated sector. In that context, it could be expected that as the transition economies recover from the transition crises, the shadow economy size will decrease significantly.

On the opposite side, Loayza (1996) and Johnson, Kaufmann, and Zoido-Lobaton (1998) study the effect of the shadow economy size on the rate of economic growth within the public good framework and find significant negative relation. Enste and Schneider (2002) point out that the presence of a large shadow economy, where free-riding on public services paid for by few is common, could lead to a sense of unfairness and deepen the distrust toward the ability of the political system to govern. It is not clear to what extent the shadow economy is the cause of bad morals rather than just an indicator of a legitimacy of the social and economic order. According to Eilat (2002) another potential concern of an expanding shadow economy is the possible reduced eligibility of social services for workers in the shadow firms. Knack and Keefer (1997) find a strong and significantly positive relationship between social capital variable (measured as willingness to pay taxes) and economic growth. Therefore one may conclude that there is a negative relationship between the unofficial economy (higher tax avoidance) and formal economy.

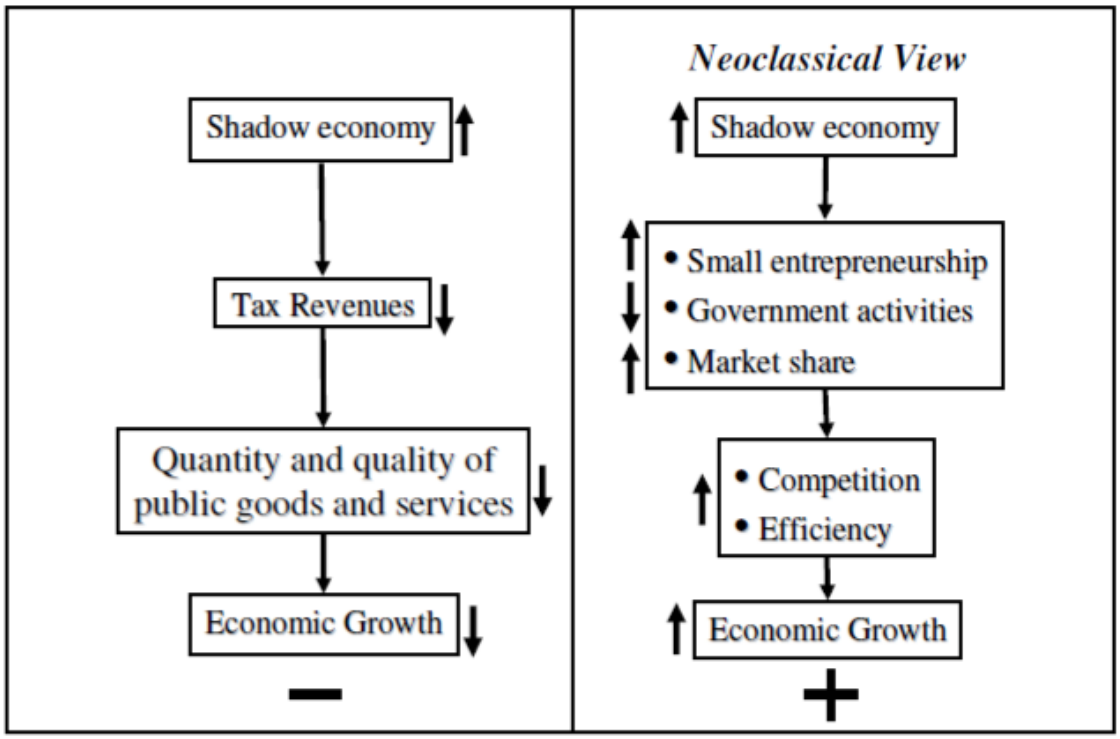
For the group of transition economies, Feige (2001) worked on the correlation between the shadow economy and the official economy growth applying the regression for each country in the sample. The method applied clearly point out the negative correlation between the official and the unofficial sector in most analyzed countries. Kaufmann and Kaliberda (1996) have analyzed the interdependence between the shadow economy growth rate and the officially registered growth rate for larger number of countries, but their research has focused on the early phase of transition. They have found that the shadow economy was used as the buffer during the early phases of transition, when the officially registered output has dropped severely. By applying the OLS method, they have found out the cumulative drop of the officially registered GDP by 10 percent will result in the growth of the shadow economy of nearly 4 percent.

Botrić, Marić and Mikulić (2004) focused on the informal sector and formal sector relationship by panel data analysis. The regressions are conducted separately for transition

and developed countries. Results indicated that there are differences between the transition and developed economies regarding unofficial/official economy relation. The decrease of the unofficial economy has positive impact on the rate of growth in the transition economies. In the developed economies, the link is vaguely positive, as indicated in previous studies.

Theoretical reasoning about the interaction between the unofficial economy and economic growth could be summarised by Picture 2.

Picture 2 Interaction between the unofficial economy and economic growth



Source. Nikopour, Shah Habibullah and Schneider, 2010.

Obviously, there is not a universal answer for the question whether the relationship between the official and the unofficial economy is positive or negative. This relationship depends on specific features of the individual economy and numerous socio-economic and legal factors. According to Nikopour, Shah Habibullah and Schneider (2010) the shadow activity is a "second best" alternative that contributes to the production of consumer and producer goods and, consequently, to economic growth. They conclude that compared to a Pareto optimal economy, shadow economy activity would appear to reduce the rate of growth, but in the real world the economy is not at an optimum. Given the real world with poorly defined and enforced property rights, poorly designed and often excessive regulation, corruption, and poor tax administration, the shadow economy may contribute to economic growth. Inclusion of underground economy may have important consequences for meeting Maastricht criteria especially for countries applying for euro adoption (Lovrinčević, Marić, Mikulić 2006).

2. UNOFFICIAL ECONOMY IN CROATIA – THE EUROSTAT APPROACH

2.1. Methodology for estimate of non-exhaustiveness of national accounts in Croatia based on Eurostat approach

The classification of non-exhaustiveness types in the national accounts is based on various characteristics of the producer, i.e. the way in which data is obtained from producers. The classification of non-exhaustiveness types in the national accounts is presented in Table 1. Regardless of the mutual exclusivity of individual forms, in practice there can also be cases in which individual types of non-exhaustiveness in the national accounts overlap. For example, there can be some overlapping between types N1 and N2, as well as between types N1 and N6. For more on the application of the Eurostat approach in Croatia see in Lovrinčević, Nikšić-Paulić, and Mikulić (2002).

The analysis of individual non-exhaustiveness types aims at insuring a completely exhaustive non-overlapping reporting, which leads towards the ultimate goal of accuracy and exhaustiveness of GDP figures. The analysis of non-exhaustiveness types is not a final aim, and neither is the allocation of individual sources of underground economy of crucial importance. What is important is for countries to follow a consistent set of procedures in order for the obtained data to be directly comparable.

Table 1. Description of Non-Exhaustiveness Types in the National Accounts (N1 – N7) – Sources of Unofficial Economy

N1	**Producer should have registered (underground producer)**	❖ Producer fails to register in order to avoid tax & social security obligations. These are often small producers with turnovers which exceed the thresholds above which they should register their income. ❖ Producers that fail to register because they are involved in illegal activities that fall under N2, rather than N1. ❖ Type N1 does not include all underground activities, some of which are associated with type N6.
N2	**Illegal producer that fails to register**	❖ N2 covers activities of producers that avoid registration entirely. ❖ N2 excludes illegal activities by registered legal entities or entrepreneurs that report (or misreport) their activities under legal activity codes.
N3	**Producer is not obliged to register**	❖ Producer is not required to register because it has no market output. Typically, these are non-market household producers involved in: (a) production of goods for own consumption or for own fixed capital formation and (b) construction of and repairs to dwellings. ❖ Producer has some market output but it is below the level at which the producer is expected to register as an entrepreneur
N4	**Registered legal person is not included in statistics**	❖ The legal person may not be included in the statistics for a variety of reasons. E.g., the business register is out of date or updating procedures are inadequate; the classification data (activity, size or geographic codes) are incorrect; the legal person is excluded from the survey frame because its size is below a certain threshold; etc.
N5	**Registered entrepreneur is not included in statistics**	❖ A registered entrepreneur may not be included in the statistics for many reasons. E.g., the administrative source with lists of registered entrepreneurs may not always pass on complete or up to date lists to the statistical office. ❖ Even if there is a regular flow of accurate and comprehensive information from the administrative source to the statistical office, the registered entrepreneur may not be included in the business register for several reasons (see those given under N4).

N6	**Mis-reporting by the producer**	❖ Mis-reporting invariably means that gross output is underreported and intermediate consumption is over-reported in order to evade (or reduce) income tax, value added tax or social security contributions. ❖ Mis-reporting often involves: the maintenance of two sets of books; payments of envelope salaries which are recorded as intermediate consumption; payments in cash without receipts; and VAT fraud.
N7	**Statistical deficiencies in the data**	❖ Type N7 is sub-divided between N7a - data that is incomplete, not collected or not directly collectable, and N7b - data that is incorrectly handled, processed or compiled by statisticians. This distinction is useful because it helps one to better understand the huge variety of possible statistical deficiencies. However, in practice, N7a and N7b cannot always be easily separated. ❖ Statistical deficiencies: the following list is not comprehensive but these topics should be investigated for non-exhaustiveness:- • Handling of non-response; • Production for own final use by market producers; • Tips; • Wages & salaries in kind; • Secondary activities. ❖ Clearly, not all statistical deficiencies result in the underestimation of GDP. (The focus here has been to identify and target those areas which are likely to lead to non exhaustiveness in NA.)

Source: Eurostat.

Deliberately non-registering underground - N1

The Eurostat methodology applies the labour market method in order to establish the value of incomplete exhaustiveness or coverage, classed as N1 form (underground producers). The results of the labour force survey (total employment) have been used, in addition to the employment data from the annual statistic reports by FINA (Financial agency), used in the GDP calculations (registered employment).

Prior to employment comparisons from the Labour Force Survey (LFS) and the official sources, certain methodological corrections need to be made in the LFS, referring to the following:

- residents employed abroad need to be excluded (counted as employed in the LFS),
- non-residents employed in Croatia need to be included (not covered by LFS), and
- employees active in institutional households need to be included, primarily this refers to religious establishments (institutional households are not covered by LFS).

The number of non-residents employed in Croatia should be added to the number of residents employed in Croatia. Data on working permits by the Croatian Employment Service was used in the calculation of the total employment numbers in Croatia. According to the structure of the issued working permits, the activities of the foreign workers have primarily focused on ship-building, construction and tourism.

In order to establish the total income (gross value added) of this form of the non-observed economy on the basis of the workforce method, the added assumption of the comparative productivity of employees and working hours is required as well.

The data concerning the employment structure has been used, whilst the employees were separated according to full-time employment and part time employment. In the case of part-time employment, an employment estimate has been obtained based on the full-time equivalent (FTE).

Additionally, the employment numbers according to activities from the labour force survey have been compared to employment data from annual statistical reports used in GDP calculations, and this data was also based on full-time employees. The difference can be assumed to be the unregistered employees (FTE). Since the survey data are reliable only on the sector level of NACE classification, a quality comparison is possible on this level only.

The value of gross output, intermediate consumption and value added per employee, generated by small enterprises in the same sector with 2-9 employees, has been applied to the number of unregistered employees.

This method has been applied to all sectors, apart from agriculture and public administration. Due to the incomplete scope of the official employee data (annual statistics reports by FINA) in the public sector (military employment not included, although the compensation of employees are included in the GDP) the assumption is that there are no differences in number of persons employed in this sector.

Illegal producers – N2

Despite the practical difficulties in obtaining the data on illegal production, it should be included within the production boundary defined by the National accounts system in 1993 (SNA 93). The paragraph 6.32. of the SNA 93 states that the examples of illegal, but economically productive activities include production and distribution of narcotics, prostitution and similar activities.

In the estimation of the values of these activities, official data on criminal activities has been used, such as the data from the Ministry of the Interior, the Croatian national institute of public health, the findings and reports of the State Inspectorate of the Republic of Croatia, and expert's opinions.

At this moment Croatia still does not include illegal activities adjustments in official GDP data.

Producer is not obliged to register– N3

This form includes the omissions in the exhaustiveness of the national accounts, resulting from the fact that some producers are not obliged to register in statistics offices since they have no market output. This category includes the individual agricultural producers of goods for personal consumption, and households involved in own construction work and maintenance of dwellings (own account construction work in household sector).

N3 type of non-exhaustiveness in Croatia classifies the own account construction works of residential objects by households. According to the SNA 1993 methodology, if a physical person from the household sector (excluding craftsmen and small companies) is conducting own construction works, the production accounts should include the estimated total value of construction works and subtract the intermediate consumption (construction costs). The difference is classified as value added for the household sector from own account construction works.

The calculation of the own construction value uses the results of annual statistical report in the construction sector, for real estate constructed by private owners. On the basis of the value of construction works by physical persons, the estimate is that 10%[3] of the investments are for personal use. This allows for the estimate of the value of gross output by the producers not obliged to register. The estimation of the intermediate consumption is calculated on the basis of the proportion of intermediate consumption in the gross output, as with small entrepreneurs and crafts.

Since the data concerning the income by the agricultural households in Croatia is obtained on the basis of manufactured quantities (resulting from a number of decades of research) it can be concluded that the total manufactured quantities have been well recorded. However, in the calculation of the agriculture household incomes wholesale purchasing prices are used, which are significantly lower than the potential market price. For each of the agriculture items (grain, vegetables, fruits and cattle) the production structure according to the end use has been estimated (wholesale, personal consumption, sales to other households). The wholesale purchasing prices have been used only in the valuation of the quantities purchased, while in the case of sales to other households and own consumption the average difference between the market and purchase price has been used.

Registered legal person is not included in statistics – N4

The Croatian statistical system contains a difference between standard statistical data sources within the system of structural business statistics (SBS) and annual statistical reports collected by the financial agency (FINA) and used in annual GDP calculations. There are certain problems within the standard basic statistics system (SBS), relating to the non-inclusion of certain registered legal persons into statistical reports (in terms of size, activity, etc.). On the other hand, the annual statistical reports by FINA (used in the GDP calculations) do achieve full coverage. Legal persons according to activities are covered: entrepreneurs, banks and other financial intermediaries, insurance funds, government units and non- profit organisations. This register of final accounts by FINA is used to control the exhaustiveness of coverage for various statistic research and other institutions. It can be assumed that the actual number of legal persons that have not submitted their annual report is negligible indicated by the comparison results of the employee numbers with other administrative data sources.

Additional data sources are the Tax office statistics relating to the crafts sector (unincorporated enterprises) income, and the estimates of the imputed dwelling rents and production in family agriculture households. In principle, this is also the complete scope of coverage. Since these data sources and not the branch statistics are used in GDP calculations, we consider that these data deficiencies in the Croatian case are not significant.[4]

Registered entrepreneur is not included in statistics– N5

A registered unincorporated enterprise can be excluded from statistical coverage due to several reasons. For instance, the administrative register is not always completely and

[3] According to expert opinion.

[4] According to FINA analysis for the period during which payments were exclusively in its jurisdiction, the issue is mainly the failure to report by a section of smaller entrepreneurs with less than 1.000 HRK annual turnover in their account. As labour input method is used in estimating N1 type of non-exhaustiveness, even if there are registered legal person not included in statistics, their value added is included in N1 (misclassification).

expediently submitted to the statistical office. In the Croatian case, this category would include the income from rent of apartments, rooms and commercial spaces which is reported to relevant bodies (tax authorities), and is not included in the statistical coverage during the calculation of official GDP data. The data source for this category is the register of the tax office relating to the total generated income from this activity.

Considering that the data relating to the income from registered craft and freelance activities (unincorporated enterprises) during GDP calculations are taken from the Tax office on the basis of complete coverage, and financial penalties are possible for craftsmen not submitting their annual tax income statement, it can therefore be assumed that this form of deficient information in the exhaustiveness of national accounts in the case of registered entrepreneurs in Croatia is not significant.

Mis-reporting by the producer - N6

In the process of establishing the mis-reporting by the producers, indicators on gross output and intermediate consumption per employee have been used, according to the size of the entrepreneur, and the tax audit results. The most common form of mis-reporting by the producers is reporting a lower gross output value rather than the real one, i.e. overestimation of incurred costs with the aim of reducing the tax obligation. The starting basis for the estimation of the value of such mis-reporting is the differences in reported income and costs per employee, according to entrepreneur's size. It has been noticed that in all sectors, small entrepreneurs report a clearly lower amount of gross output per employee and at the same time, higher generated costs per employee. Thus, the tax burden on both sides is reduced. Following the correction of the value of mis-reporting by the small producers, using the results of the large and medium companies, the size of the mis-reported income has been additionally verified, since tax audits of companies of all sizes have been taken. The results confirm the starting hypothesis that small entrepreneurs in particular mis-report the size of gross output (undervalued), and overvalue the costs per employee.

Reported lower than real income by legal persons

The starting basis for the evaluation of the reported lower gross output than real used the separation of the gross output value, intermediate consumption and value added according to entrepreneur size and activity.

Within each activity, in the case of entrepreneurs with less than 10 employees, gross output per employee (based on full working hours) has been compared with gross output per employee in units with more than 10 employees. In the cases when the gross output per employee in the units is lower than the gross output per employee in larger units, it has been assumed that the real gross output value per employee is equal to the average reported gross output value and gross output per employee in larger units (10 and more employees).

This allowed for new estimates of gross output. This model has been applied to all activities apart from those where there is a justified reason for significant productivity differences (oil extraction, telecommunication and electricity) due to the technology applied.

The next step in the estimation of the total underestimated value added was the analysis of the share of intermediate consumption according to the above stated groups. The share of intermediate consumption in the corrected gross output according to activity and size has been

calculated. In activities where the proportion of intermediate consumption was higher than in smaller units, the additional assumption is that the proportion of intermediate consumption is equal to the average reported share of intermediate consumption and the share of intermediate consumption in larger units.

In addition, with the aim of improving the estimation of this category of the non-observed economy, the tax audit data has been used. These results are very useful in identifying the activities where there is a higher probability of income underestimation for tax evasion purposes, on the basis of which the application of the above mentioned model can be evaluated.

Reported lower than real income in the crafts and freelance sector

In order to determine the inaccurate income reporting by craftsmen and freelancers, at the NACE classification level, the value added per employee for the crafts and freelance sector has been compared with the equivalent indicator for small entrepreneurs (up to 10 employees).

In those activities where value added per craftsmen (including the employees) is lower than value added per employee in the case of smaller entrepreneurs, the assumption is that the real value added per employee is equal to the weighted average of reported value added per employee and value added per employee with small entrepreneurs.5

Unreported income from rent of rooms and apartments

This type includes the unreported income from rent of rooms and apartments by physical persons on the market. The N5 instance includes the rent beneficiaries in the Tax Office register. The income estimation from apartment rentals to residents is based on Household Budget Survey results (real rent payments according to COICOP classification). The share of intermediate consumption has been applied onto the amount of total revenues in the small units dealing with accommodation services in order to achieve the remaining income, i.e. value added. The estimated unregistered income is placed into activity K (resident rentals). Table 7 shows the data concerning the value of unregistered rent income (N6).

Statistical deficiencies in the data – N7

This group of the informal sector (N7) included: Tips and Wages in goods.

Paragraph 7.33 of the SNA 93 states that commission, rewards and tips given to the employees by a third party should be treated as payments for services by the worker on behalf of the company and should be included in gross output and gross value added figures. Therefore tip estimates are conducted for the hotels and restaurants sector. The estimate is based on the tourist office information on the recommended tips for certain types of catering services. In the estimation of the tips value, the total turnover in restaurants and bars, the turnover in certain types of restaurants and bars, the amount of average expenditure and

[5] In the case of crafts, only the income statement, through the tax office and other data, is available, comparable to the mixed income term from the national accounts.

recommended tips have been used. On the basis of the entrepreneurs and craftsmen income from NACE division hairdressing and other beauty treatments tips estimate for this sector has been done. The data source for the wages in kind is the Household Budget Survey. Since the data from this source is not available on the level of activity, the total amount of the wages in kind has been allocated according to the structure of activity value added.

2.2. Results - unofficial economy in Croatia for period 2000-2008.

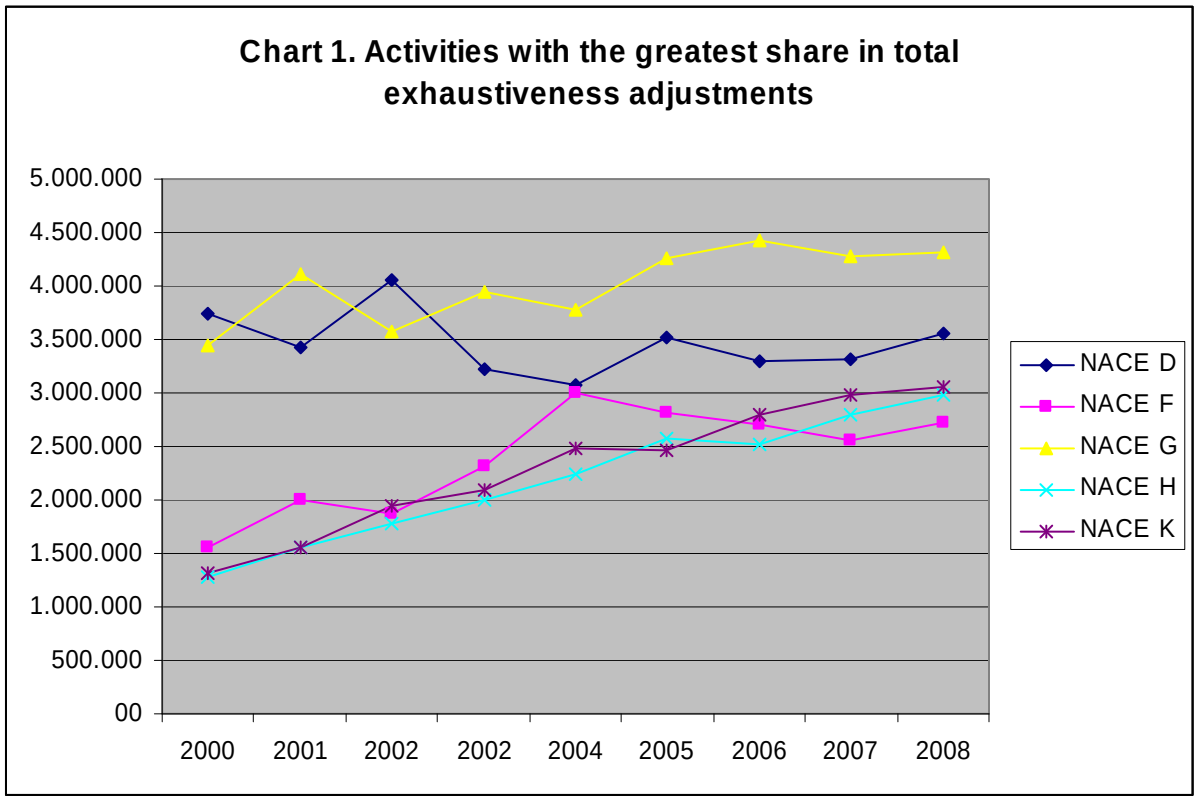
Tables 2. to 4. show the results of the total estimated value of unofficial economy in Croatia (total statistical data deficiencies in the exhaustiveness of the national accounts) in the period 2000 - 2008.

The total non-exhaustiveness adjustments in Croatia in 2000 amounted to 16.6 billion HRK (Table 2.) with the inclusion of illegal activities, or 15.1 billion HRK where illegal activities are not included (Table 2). In the last estimated year (2008) total unofficial economy amounted to 23.3 billion HRK or 20.4 billion HRK without illegal activities. Apart from 2003, absolute values of unofficial economy estimates have increased throughout the observed period. On the other hand, share of unofficial economy was continuously decreasing from 8.46% in 2000 to 5.90% of GDP in 2008.

Table 2. Estimation of Size of Unofficial Economy in Croatia by Activities, in thousand HRK

	Activities according to NACE 2002	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
A	Agriculture, hunting and forestry	1.281.074	1.146.476	1.274.731	1.172.007	1.198.918	1.086.393	1.133.426	1.152.241	1.180.958
B	Fishing	45.710	81.399	106.451	102.931	116.749	112.799	102.059	97.746	103.901
C	Mining and quarrying	24.394	29.196	34.038	44.501	37.588	45.895	39.795	42.507	51.630
D	Manufacturing	3.735.635	3.428.528	4.055.872	3.222.565	3.081.120	3.523.241	3.297.716	3.306.945	3.548.060
E	Electricity, gas and water supply	57.056	57.353	82.009	56.739	55.562	59.384	51.110	50.918	59.286
F	Construction	1.551.603	2.000.085	1.866.189	2.314.084	3.008.246	2.818.858	2.705.859	2.548.046	2.717.342
G	Wholesale and retail trade	3.438.710	4.102.869	3.570.025	3.951.777	3.776.502	4.265.939	4.417.229	4.275.460	4.312.988
H	Hotels and restaurants	1.284.661	1.558.393	1.785.936	1.997.269	2.241.845	2.574.354	2.524.759	2.804.683	2.988.154
I	Transport, storage and communication	1.011.822	1.039.466	1.038.688	924.919	1.238.288	1.427.664	1.432.422	1.332.911	1.354.836
J	Financial intermediation	261.316	136.190	324.845	325.198	117.143	202.001	189.185	182.222	192.067
K	Real estate, renting and business activities	1.307.849	1.563.674	1.936.470	2.084.982	2.475.453	2.468.593	2.800.379	2.972.417	3.054.830
L	Public administration	38.573	35.991	34.980	32.420	30.512	28.482	29.607	29.290	28.775
M	Education	128.064	39.647	116.246	59.788	57.060	60.125	66.391	57.294	62.538
N	Health and social work	324.062	338.799	333.802	199.291	197.961	207.337	185.414	183.531	195.864
O	Other community, social and personal service activities	573.692	317.050	572.839	504.224	433.217	504.432	478.944	504.187	510.297
	Illegal activities	1.514.001	1.634.453	1.774.766	1.945.918	2.103.136	2.266.538	2.473.874	2.705.617	2.932.625
	TOTAL, N2 included	16.578.223	17.509.571	18.907.885	18.938.613	20.169.300	21.652.035	21.928.167	22.246.014	23.294.149
	TOTAL, N2 excluded	15.064.222	15.875.118	17.133.119	16.992.695	18.066.164	19.385.497	19.454.293	19.540.397	20.361.524
	TOTAL, N2 excluded (% in GDP)	**8.46**	**8.26**	**8.21**	**7.42**	**7.30**	**7.27**	**6.68**	**6.14**	**5.90**

Source: CBS, author's calculation.



Source: CBS, author's calculation.

Wholesale and retail trade (NACE G) has the most significant share in total unofficial economy in period 2000 - 2008 (from 3.4 billion in 2000 to 4.3 billion HRK in 2008). This figure is followed by manufacturing (NACE D) which has been fluctuated over the periods. The value of total adjustment in this activity ranges from 3 billion HRK (15% of total exhaustiveness adjustments of the national account) in 2004 to 4 billion HRK in 2002, i.e. 21% of total adjustments. NACE F (Construction) recorded the increase of non-exhaustiveness adjustments in period 2000 to 2004. After that year construction has decreasing trend (except in 2008). In NACE H (Hotels and restaurants) and NACE K (Real estate, renting and business activities) were recorded the increase of the non-exhaustiveness adjustments in almost all observed period.

Table 3. Unofficial economy in Croatia by type (N1-N7), in thousand HRK

Type of unofficial economy		**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
N1	Non-registered (underground producers)	1.186.705	1.133.514	1.044.911	686.040	707.371	766.236	624.921	549.323	571.693
N2	Non-registered illegal producers	1.514.001	1.634.453	1.774.766	1.945.918	2.103.136	2.266.538	2.473.874	2.705.617	2.932.625
N3	Producer is not obliged to register	1.101.578	1.252.156	1.342.083	1.301.274	1.338.381	1.234.308	1.341.198	1.320.398	1.338.775
N4	Registered legal person is not included in statistics									
N5	Registered entrepreneur is not included in statistics	476.714	523.548	631.730	755.895	844.043	930.528	1.022.268	1.132.622	1.248.564
N6	Misreporting by the producer	11.840.772	12.461.792	13.567.439	13.709.554	14.641.177	15.928.268	15.908.740	15.939.720	16.568.219
N7	Statistical deficiencies in the data	458.453	504.108	546.956	539.931	535.192	526.156	557.167	598.334	634.273
	TOTAL	16.578.223	17.509.571	18.907.885	18.938.613	20.169.300	21.652.035	21.928.167	22.246.014	23.294.149
	TOTAL (N2 excluded)	15.064.222	15.875.118	17.133.119	16.992.695	18.066.164	19.385.497	19.454.293	19.540.397	20.361.524

Source: CBS, author's calculation.

Table 3 shows the results according to the specific types of the total exhaustiveness adjustments according to Eurostat's approach. Type N6 (inaccurate reporting by producers) is the most significant in all period. N6 is estimated between 11.8 billion HRK in 2000 and 16.6 billion HRK in 2008.

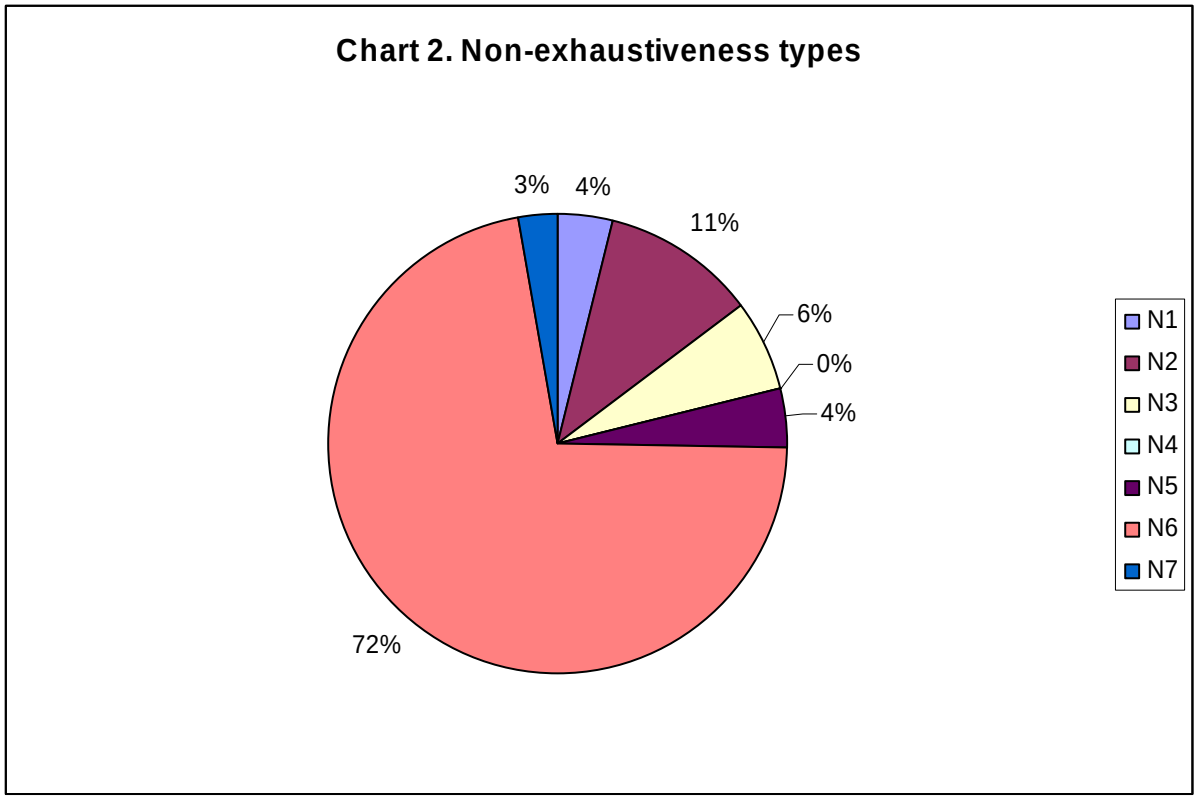


Chart 2. presents the shares of different types of non-exhaustiveness adjustments. In the chart is given average shares according to types in period 2000 – 2008. It is obvious that type N6 (inaccurate reporting by producers) is the most significant in all observed period. Average share of type N6 is 72% of total non-exhaustiveness adjustments. Then follow illegal activities with share of 11%. Type N2 are not included in official GDP at the moment because further investigates in this area will be done. Types N1, N3, N5 and N7 are estimated between 3 and 6% of total exhaustiveness adjustments.

Table 4. Exhaustiveness adjustments by activity; as a percentage of Gross Value Added (GVA) of activity

Activities, NACE 2002	% in Gross Value Added								
	2000	2001	2002	2003	2004	2005	2006	2007	2008
A + B	13,87	11,89	12,47	12,74	11,27	10,52	9,67	9,46	8,38
C + D + E	11,00	9,66	10,91	8,12	6,96	7,66	6,75	6,35	6,32
F	20,65	22,55	18,73	17,88	19,64	16,43	14,18	12,16	10,99
G	20,96	20,80	15,56	14,70	14,20	14,57	13,48	12,25	11,78
H	23,60	25,03	24,74	24,10	25,42	26,43	24,38	24,20	23,79
I	7,62	7,12	6,60	5,47	6,32	6,93	6,77	6,11	5,98
J + K	5,47	5,36	6,49	5,99	5,89	5,31	5,20	4,63	4,35
L to O	3,29	2,30	3,12	2,26	1,92	1,99	1,77	1,65	1,54

Source: CBS, calculation of the authors.

Table 4 presents exhaustiveness adjustments by activities as a percentage of Gross Value Added of activity. NACE H (Hotels and restaurants) has the greatest share in total non-exhaustiveness adjustments in whole period. Average share of activity H is 24.6% in GVA of specific activity. This is followed by NACE F (Construction) with average 17% of GVA and NACE G (Wholesale and retail trade) with 15.4% of GVA. As evident, in the period of dynamic economic growth, although stagnant in nominal terms (current price value), the unofficial economy was constantly reducing its share in official GDP. The most significant reduction in share of unofficial economy in GVA was recorded in construction and trade. On the other hand, unofficial economy in activity hotels and restaurants recorded stable share in GVA.

2.3. Unofficial economy in Croatia in period 2009-2010

Official data for hidden economy measured by Eurostat methodology for last two years are not available yet. Impact of recession on unofficial economy in this paper is estimated on labour force survey data. In this paper, post-stratification of labour force survey data is used to improve the precision of estimation of labour force data. The post-strata are constructed by sex (2 classes), and age group (5 groups). The weights are based on independently derived population figures. Official CBS data on population are used but in this paper persons not present in Croatia for period longer than 1 year[6] are not included.

Total employment according to post-stratified LFS data (in table marked as LFS) is calculated using the following formula:

$$\mathrm{LFS} = \sum \mathrm{eij} * \mathrm{Pij}$$

where aij is employment rate for population in group i[7] and gender j[8] and Pij marks population in the same group.

Total difference in employment between labour force survey and official CBS figures (OF), besides unregistered employees engaged in market activities, comprise a group of self-employed persons in agriculture which are primarily producers of agricultural products for their own consumption (OAA). In OAA group there is a significant share of population older than 65 which are classified as employed in LFS because they work occasionally for compensation in cash or kind. Because of limited impact of own account agricultural workers on rest of the economy and probably low value of production, estimate of employment in unofficial economy (UE presented in the last row of the table) do not comprise the OAA group.

[6] According to census data 226.151 persons were abroad during census period, but because of occasional visits to their families in Croatia, those persons were included in total population. In 2011 census only persons that visits Croatia on weekly basis will be included in total population of Republic of Croatia.
[7] i=1, for population aged 0-14, i=2 for population aged 15-24, i = 3 for population aged 25-49, i = 4 for population aged 50-64 and i = 5 for population older than 65.
[8] j=1 for males and j=2 for females.

Table 5. Estimate of unregistered employment by labour force survey

	2004	**2005**	**2006**	**2007**	**2008**	**2009**	**2010[e]**
	Employment rates - men (official LFS data)						
15-24	31,9	30	29,1	31,6	33,2	31	29,1
25-49	79,1	79,04	79,7	82,5	83,5	80,4	76,1
50-64	53,6	54,9	55,4	58,4	58	57,6	56,7
65+	9,7	9,1	8,3	6,2	6,3	7,4	6,8
	Employment rates - women (official LFS data)						
15-24	21,7	21,3	21,8	21,1	20,6	19,4	18,4
25-49	67,3	69,6	69,5	71,3	72,6	72,3	69,8
50-64	32,1	33,6	35,8	35,8	37,4	39,8	39,15
65+	6,2	5,6	5,8	4,5	5	4,8	4,3
	Employment (post-stratified LFS) – men						
15-24	92,1	85,4	81,9	87,5	90,2	82,8	76,0
25-49	580,4	578,5	584,8	601,1	607,7	584,3	550,7
50-64	190,7	199,2	205,3	219,9	221,1	223,6	224,9
65+	27,8	26,5	23,9	18,5	19,0	22,4	20,5
	891,0	889,7	895,8	927,0	938,0	913,1	872,1
	Employment (post-stratified LFS) - women						
15-24	59,9	58,1	58,8	55,9	53,4	49,4	46,0
25-49	494,9	510,9	511,0	519,3	527,2	523,6	502,6
50-64	128,0	135,6	146,9	148,8	157,1	169,7	170,2
65+	28,2	25,8	26,5	21,1	23,6	22,7	20,2
	711,0	730,4	743,3	745,2	761,3	765,4	739,0
	Estimate of total employment - post-stratified LFS						
Total LFS	**1.602,0**	**1.620,1**	**1.639,1**	**1.672,2**	**1.699,3**	**1.678,5**	**1.611,1**
	Official employment						
Total OF	1409	1420	1468	1517	1555	1499	1427
	Difference post-stratified LFS data and official employment						
LFS - OF	193,0	200,1	171,1	155,2	144,3	179,5	184,1
	Self-employment in agriculture - low scale primarily own-account production						
OAA	136,9	147,1	121,9	108,9	117,7	122,5	124,5
	Estimate of employment in unofficial economy						
UE = LFS-OF-OAA	**56,1**	**53,0**	**49,2**	**46,3**	**26,6**	**57,0**	**59,6**
(UE as % of OF)	**4,0**	**3,7**	**3,4**	**3,1**	**1,7**	**3,8**	**4,2**

[e]Data for 2010 are estimated, official data are not available for 4th quarter of 2010.

Source: CBS, calculation of the authors.

As can be seen from the table, a downward trend in unofficial employment has been recorded in the period 2004-2008. Official economy growth and improved labour market conditions resulted in the decrease of unofficial employment from 56.1 thousands in 2004 to 26.6 thousands in 2008. As a percentage of official employment, hidden employees had a share of 4.0% in 2004 and only 1.7% in 2008. The trend reversed in 2009 and the share of hidden employees increased to 3,8% in 2009 and 4,2% in 2010. It points to the conclusion that during recession the share of underground economy returned to the levels recorded during 2004,

when it stood at 7,3% of GDP. It means the overall impact of recession is reflected in the rising share of underground economy from 5,9% of GDP in pre-recessionary 2008 to around 7,3% of GDP in 2010 according to unemployment estimates in the unofficial economy. This is a significant increase. Furthermore, it seems that the elasticity of the underground economy in relation to the economic activity is higher during recession (period 2009-2010) than during periods of growth.

Official figures point to a decrease of more than 50 thousands employees in 2009. On the other hand, according to post-stratified LFS data reduction in employment was only 20 thousands and the difference is attributed to the unofficial economy growth. In 2010 both official employment and LFS figures indicate significant reductions in employment. Obviously, in an attempt to compensate for the revenue drop (as a consequence of reduced demand), economic agents tried to reduce labour costs through tax evasion. Factors determining growth of unofficial economy in recession period will be discussed in the next chapter.

3. IMPACT OF THE ECONOMIC RECESSION ON THE UNOFFICIAL ECONOMY IN CROATIA

The period from 2000 to 2008 can be characterized as a successful one for the Croatian economy. The development gap in comparison to the EU has narrowed and overall macroeconomic environment could be defined as more or less stable. Croatian economy in the prerecession period recorded average economic growth above 4%, low inflation, decreasing unemployment rate and decreasing public deficit. On the other hand, lack of overall competitiveness resulted in rising current account deficit and foreign debt.

All macroeconomic indicators, apart from the current account deficit worsened in 2009 compared to previous periods (Table 6).

Table 6. Fundamental macroeconomic indicators for Croatia

	2005	2006	2007	2008	Average 2005-2008	2009	2010e
GDP growth	4,3	4,9	5,1	2,4	4,2	-5,8	-1,3
GDP p.c., EU 27 =100	57	58	61	64	60	63	62
Inflation, CPI	3,3	3,2	2,9	6,1	3,9	2,4	1,1
Public deficit, as a % of GDP	-2,4	-1,6	-1,0	-0,8	-1,5	-3,2	-4,6
Public debt, as a % of GDP	38,2	35,4	33,0	29,3	34,0	35,3	38
Current account balance, as % of GDP	-5,5	-6,9	-7,5	-9,2	-7,3	-5,5	-2,5
Foreign debt, as % of GDP	71,5	73,7	75,9	82,6	75,9	95,0	99
Unemployment, ILO definition	12,7	11,2	9,6	8,4	10,5	9,1	12
Growth of personal consumption	4,4	3,5	6,2	0,8	3,7	-8,5	-0,9

Source: CBS, CNB, Eurostat, Ministry of finance.

The recent global economic crisis had a strong negative impact on the Croatian economy. Due to persistent external imbalances and risk aversion of global investors, Croatia was not in a position to implement expansionary fiscal policies to compensate for the drop in external demand. Due to a lower tax base and non-elastic government expenditures, Croatia recorded a deteriorating fiscal position. Despite lower current account deficits, the share of foreign debt in GDP rose in 2009 and 2010.

The recession, acting through the demand channel had a direct negative impact not only on the official but also on the unofficial economy. On the other hand, the increases in the unofficial economy can be explained by other determinants. There are various factors determining relative significance of unofficial economy and relation to the official economy. Theoretical causes of the shadow economy are following (Frey and Pommerehne, 1984; Feld, 2010, Schneider and Enste, 2000):

a) Burdens on the official economy;
b) Public sector services;
c) Tax morality and government controls;
d) Labour market conditions;
e) Structural factors.

All of above factors have an impact on relation between informal and informal economy. If tax burden is rising, we can expect rising share of unofficial economy. The higher the difference between the total cost of labour in the official economy and after-tax earnings from work, the greater is the incentive to work in the unofficial economy. Additionally, taxes affect labour-leisure choices and increase labour supply in the unofficial economy. Empirical evidence on the influence of the tax burden on the shadow economy is provided by Schneider (1994, 2005), Johnson, Kaufmann and Zoido-Lobatón (1998), Feld (2010).

An increase of the unofficial economy can lead to reduced public revenues from taxes which in turn reduce the quality and quantity of publicly goods and services. Ultimately, this can lead to an increase in the tax rates for firms and individuals in the official sector, quite often combined with deterioration in the quality of the public goods and of the administration, leading to an even stronger incentive to participate in the shadow economy (Feld and Schneider, 2010).

A lower tax morality leads to an increased readiness to become active in the hidden economy. A growing intensity of public controls and a rise in expected punishment ceteris paribus reduces the return on hidden activities and therefore has the opposite effect according to Frey and Pommerehne (1984). Johnson, Kaufmann, and Shleifer (1997) predict that ceteris paribus countries with higher general regulation of their economies tend to have a higher share of the unofficial economy in total GDP. Quality of public institutions is another key factor of the development of the informal sector. Johnson et al. (1998), Friedman et al. (2000), Dreher and Schneider (2009), Dreher, Kotsogiannis and Macorriston (2007, 2009) argue that the efficient and discretionary application of tax systems and regulations by government may play a crucial role in the decision of conducting undeclared work, even more so than the actual burden of taxes and regulations. Underground economy is also very often closely linked to corruption (Lovrinčević, Mikulić, Budak 2006).

If labour market conditions are improving in terms of higher labour demand in official sectors, individuals have a stronger negotiation position and ask to be included in social security schemes. If labour demand is weak, individuals are more concentrated on short-term perspective (current income) and neglect loss of potential social benefits in the future. Additionally, the longer official working time, the higher are the opportunity costs of taking up additional work in the hidden economy. Unemployment benefits also influence readiness of workers to participate in official economy.

The determinants listed so far do not apply to all sectors in the same way. Rather, there are certain industries (particularly those with low capital intensity) in which a higher probability of working in the hidden economy can be assumed. If shift in demand increase a relative share of those industries, an overall increase in the share of unofficial economy is expected. Table 7 presents influence on the unofficial economy and relative importance of various determinants. Empirical researches in most cases find tax burden as the most important determinant of unofficial economy, followed by tax morale and quality of state institutions.

Table 7 Factors which influence on the shadow economy according to results of various empirical studies

Factors influencing the shadow economy	**Influence on the shadow economy (in %)**	
	a	b
Increase of the tax burden	35-38	45-52
Quality of state institutions	10-12	12-17
Transfers	5-7	7-9
Specific labour market regulation	7-9	7-9
Public sector services	5-7	7-9
Tax morale	22-25	

a) Average values of 12 studies
b) Average values of empirical results of 22 studies.

Source: (Feld and Schneider, 2010).

3.1.Reduction of demand and structural factors

Global economic recession initially influenced Croatian economy through reduced demand for Croatian exports. Drop in external demand was followed by decreasing income of Croatian enterprises and households which resulted in lower personal consumption and gross fixed capital formation. Domestic demand was also affected by reduced external capital inflow due to growing risk aversion of international investors.

Reduced demand has a negative impact not only on the official but on the unofficial economy as well, but demand structure changes support the hypothesis that official economy was more affected. Unofficial sector is primarily oriented towards domestic demand and export of services which recorded a less significant reduction then external demand. Export of goods was reduced 27.5 % in 2009, while personal consumption recorded decrease of 8.5%. Additionally, structure of personal consumption changed in a more favourable direction for unofficial producers. Most significant reduction has been noted in the demand for consumer durables which are supplied by large domestic or foreign enterprises[9]. On the other hand demand for various personal services, hotel and restaurant services and non-durable goods (with higher share of unofficial producers) have been less affected by recession. Additionally, some households may decide to compensate a decrease in income by buying goods and services from unofficial producers at lower prices. Detailed data on commodity flow for 2009 and 2010 are not available at the moment, but data on higher level of aggregation support the conclusion that official economy was more affected by reduction of demand.

3.2. Increased tax burden

As can be seen from table 8 total revenues of general government sector has a stable share in GDP in period 2002-2008. On the other hand total expenses including net acquisition of non-financial assets continuously recorded downward trend in terms of share in GDP.

[9] Role of unofficial producers in production of consumer durables is marginal.

Consequently, process of fiscal consolidation was evident, and deficit of general government sector was reduced to -0.8% of GDP in 2008.

Table 8 Croatian fiscal position in period 2002-2010

	Total revenues of general government		**Taxes on goods and services**		**Total expenses including net acquisition of non-financial assets**		**Balance of general government sector**		**Public debt**
	Mil. Kn.	% GDP	Mil. Kn.	% GDP	Mil. Kn.	% GDP	Mil. Kn.	% GDP	% GDP
2002	82.896	39,8	36.564	17,6	88.584	42,5	-5.688	-2,7	34,8
2003	89.315	39,3	39.547	17,4	96.960	42,7	-7.646	-3,4	35,4
2004	96.427	39,3	41.588	16,9	104.781	42,7	-8.354	-3,4	37,6
2005	103.101	39,0	44.415	16,8	109.570	41,4	-6.470	-2,4	38,2
2006	112.294	39,2	47.894	16,7	116.805	40,8	-4.511	-1,6	35,4
2007	126.716	40,3	51.491	16,4	129.785	41,3	-3.069	-1,0	33,0
2008	134.738	39,4	54.895	16,0	137.603	40,2	-2.865	-0,8	29,3
2009	128.087	38,5	49.645	14,9	138.807	41,7	-10.720	-3,2	35,3
2010[a]	124.500	37,5	51.500	15,5	139.666	42,0	-15.443	-4,6	41,6

a) Budget plan.

Source: Ministry of finance.

Reduction of domestic demand in 2009 negatively influenced the fiscal position of the Croatian government. A significant proportion of fiscal revenues are based on consumption (value added tax and excises) and as a result of decrease in domestic demand, public revenues recorded reduction not only in nominal terms, but also in terms GDP share. Despite of budget revision in 2009, government expenses increased in 2009, and deficit expanded to 3.2% of GDP (4.6% in 2010).

Throughout the period of global financial crisis, credit terms deteriorated and the Croatian government tried to improve its fiscal position by introducing a new special tax on income above certain amounts. Income above 3.000 HRK was taxed at rate of 3% while rate of 6% was applied on income above 6.000 HRK. Additionally, general rate of VAT was increased from 22% to 23%.

Table 9 Taxes and contributions on labour in Croatia in period 2002-2010

	Net earning per person	**Gross earning per person**	**Gross earnings (social contribution on wages included)**	**Total taxes and contribution as % of net earning**	**Income taxes + VAT, as % of net earning[b]**
2002	3.720	5.366	6.282	68,9	106,0
2003	3.940	5.623	6.590	67,3	104,1
2004	4.173	5.985	7.014	68,1	105,1
2005	4.376	6.248	7.323	67,3	104,2
2006	4.603	6.634	7.775	68,9	106,1
2007	4.841	7.047	8.259	70,6	108,1
2008	5.178	7.544	8.842	70,8	108,3
2009	5.237[a]	7.711	9.037	72,6	112,3
2010	5.119 [a]	7.679	9.000	75,8	116,3

[a]Special tax on net income is deducted.

[b]Standard rate of VAT is added to total gross earnings (assumption that value of services consists only of labour)

Source: Central Bureau of Statistics (for net and gross earnings).

Higher tax burden on wages and salaries as well as higher VAT rate additionally increase costs of official producers. In industries with high labour intensity, avoidance of income taxes and VAT, allow an unofficial entrepreneur to deliver the same service at half of price in comparison to the official enterprise. Tax burden in 2009 increased by additional 4 percentage points and the same trend is noticed in 2010. In the period of wage reduction (in real terms), additional burden of cumulatively around 8 percentage points makes tax evasion more attractive. On the other hand, individuals may choose to buy goods and services at lower prices produced in unofficial sector in an attempt to preserve living standard of prerecession level.

3.3.Tax morale and public sector services

Tax morale could be defined as the intrinsic motivation to pay taxes. It measures an individual's willingness to pay taxes, in other words, the moral obligation to pay taxes or the belief that paying taxes contributes to society (Torgler, Shneider, 2007). According to Feld and Frey (2007) tax compliance is driven by a psychological tax contract that entails rights and obligations from taxpayers and citizens on the one hand, but also from the state and its tax authorities on the other hand. Taxpayers are more heavily inclined to pay their taxes honestly if they get valuable public services in exchange. In the recession period, household optimism declines which certainly influence the perception of tax system fairness, especially when the scope and the quality of public sector services is diminishing due to financial constraints.

Unfortunately, there is no special survey which could be used to estimate change in tax morale of Croatian citizens. Table 10 presents trends in amount of overdue claims on taxes and contributions as an obligation of legal entities to fiscal authorities in Croatia. An increase in overdue claims are driven by various factors like lack of profitability, tighter monetary policy, legal obstacles, but certainly tax morale is one of the most important determinants.

Table 10 Overdue payments of taxes and cotribution

	Overdue claims, in mil. HRK			**Increase in overdue claims in mil. HRK**			**Overdue claims as % of government revenues**	
	Taxes	Contribution	Total	Taxes	Contribution	Total	Total overdue claims	Increase in overdue claims
XII/2002	2.223	950	3.173	-1.061	-42	-1.103	3,8	-1,3
XII/2003	2.639	496	3.135	416	-454	-38	3,5	0,0
XII/2004	2.884	431	3.314	244	-65	179	3,4	0,2
XII/2005	3.338	582	3.920	454	152	606	3,8	0,6
XII/2006	4.143	683	4.826	805	101	906	4,3	0,8
XII/2007	5.392	710	6.102	1.249	27	1.276	4,8	1,0
XII/2008	6.394	936	7.330	1.003	225	1.228	5,4	0,9
XII/2009	9.660	1.255	10.915	3.266	320	3.585	8,5	2,8
XII/2010	12.289	1.728	14.018	2.629	473	3.103	11,2	2,5

Surce: FINA.

Increase in overdue claims for taxes and contributions in the period 2002-2008 were constantly under 1% of total government revenues. In 2009 overdue claims for taxes and contributions increased for more than 3 billions of kunas, or nearly 3% of total revenues of general government sector. Although it is impossible to isolate the impact of tax morale

deterioration from other determinants, rising proportion of overdue government claims has an additional demonstrative impact and creates an environment in which non-compliance to tax rules is treated as normal.

3.4. Labour market conditions

Total labour force presents the potential pool of individuals who could be engaged either in the official or the unofficial sector. Persons employed in the official economy have less leisure time at their disposal, and therefore official working-time presented an affective restriction to being active in the unofficial economy. On the other hand unemployed people have an incentive not to report income as otherwise they would lose their financial support. If the wage of illicit work and the financial aid together yield more income than regular and overtime work, taking also into account the costs of detection and punishment and assuming risk neutrality, full-time illicit work as an unemployed person yields ceteris paribus a higher utility (Enste and Schneider 2002).

Relatively high economic growth in prerecession period was coupled with constant improvements of labour market conditions in Croatia. Higher labour demand of official sector reduced unemployment rates, average wages was increasing and as a result of favourable conditions participation rates recorded an upward trend. In those circumstances, negotiating position of employees improved and readiness to accept an employment outside the social security schemes diminished. In the recession period, employers tried to compensate declining revenues by reducing costs of labour. Avoiding of taxes and contributions on labour by transferring individuals from formal to hidden employment was an option acceptable both for employers and employees. Additionally, revised labour legislation in Croatia in 2008 secured higher unemployment benefits[10] which increased benefit/cost ratio for unemployed individuals.

Table 11 Labour market developments

	Employment rate	Unemployment rate	Net earnings growth, in %	Average monthly unemployment benefit	Unemployment benefit recipients
2003	43,3	14,3	5,9	939	67.977
2004	44,2	13,8	5,9	1026	70.467
2005	43,4	12,7	4,9	1018	72.801
2006	43,7	11,2	5,2	1028	66.407
2007	44,2	9,6	5,2	1049	59.603
2008	44,4	8,4	7,0	1186	57.258
2009	43,3	9,1	1,1 [a]	1506	68.967
2010	41,3	12	-2,3 [a]	1599	78.439

[a]Special tax on net income is deducted.
Source: CBS, Ministry of finance, calculation of the authors.

[10] Law on intermediation in employment and rights during unemployment, NN80/08. Unemployment benefits due to financial constraints have been reduced in 2010 (NN121/10).

4. CONCLUSION

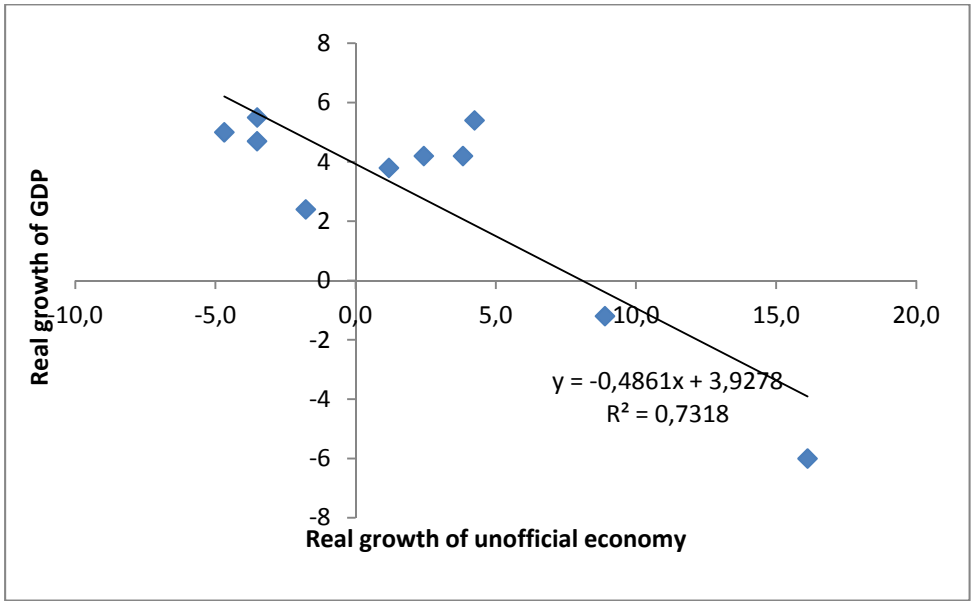
The share of the underground economy in Croatia recorded a downward trend, dropping from 8,46% of GDP in 2000 to 5,9% of GDP in 2008. This share bounced back during the recession reaching 7,4% of GDP in 2010, according to the Labour force survey.

Wholesale and retail trade (NACE G) represents the most significant share of the total unofficial economy in the period 2000 - 2008 (from 3.4 billion in 2000 to 4.3 billion HRK in 2008). This figure is followed by manufacturing (NACE D) which has fluctuated over the period. The value of total adjustment in this activity ranges from 3 billion HRK (15% of total exhaustiveness adjustments of the national account) in 2004 to 4 billion HRK in 2002, i.e. 21% of total adjustments. NACE F (Construction) recorded the increase of non-exhaustiveness adjustments in period 2000 to 2004. After that year construction has decreased (except in 2008). In NACE H (Hotels and restaurants) and NACE K (Real estate, renting and business activities) were recorded the increase of the non-exhaustiveness adjustments in almost all observed period.

According to type of non-exhaustiveness, N6 type (inaccurate reporting by producers) is the most significant in all observed period. Average share of type N6 is 72% of total non-exhaustiveness adjustments. Then follow illegal activities with share of 11%. Type N2 are not included in official GDP at the moment because further investigates in this area will be done. Types N1, N3, N5 and N7 are estimated between 3 and 6% of total exhaustiveness adjustments.

It is evident that the trend of decreasing share of underground economy in GDP has stopped in 2008 and reversed in 2009. This finding supports the conclusion that the official and the underground economy in Croatia are substitutes, working in opposite direction (Picture 3). It is evident that when the underground economy is reduced by 1%, official GDP figure will be artificially increased by 0,48% and vice versa. It means that the official GDP growth figures used to be overestimated by an average 0,3% in the period 2001-2008, and underestimated by 0,7 in the period 2009-2010, when the underground economy increased as a result of the recession. All most important factors influencing the underground economy in Croatia (tax moral, tax burden and labour market conditions) worked in the same direction, increasing the share of underground economy in period 2008-2010, while they were stable during 2002-2008 period. Furthermore, it seems that the elasticity of the underground economy in relation to the economic activity is higher during recessions (period 2009-2010) in comparison to periods of growth.

Picture 3. Relationship of real gdp growth (official economy) and real growth of unofficial economy in period 2001-2010



This conclusion is in line with most results for other transition and NMS economies. It means that official statistical data significantly overestimate economic activity during periods of growth, while underestimating activity during recessions, making macroeconomic data more volatile and pro-cyclical then they really are. Such volatility usually give rise to the overestimations and biased fiscal projections in good times and vice versa. Additional contribution to fiscal biasness is the constantly diminishing share of underground economy in retail trade which give rise to the overestimation of fiscal revenues in VAT based systems. Coupled with so called "sudden stops" in capital inflow and rigid public sector employment contracts, such fiscal biasness may put public finance under huge pressure during times of recession as we witness these days.

Further research should take into account other factors such as social safety net restructuring and other structural factors (market structure, regulations, liberalization, and institutional framework) which influence the underground economy.

BIBLIOGRAPHY

Adam, M. C., Ginsburgh, V. (1985), '**The Effects of Irregular Markets on Macroeconomic Policy: Some Estimates for Belgium**' European Economic Review, 29(1), pp. 15-33.

Alexeev, M., Pyle, W. (2003), '**A note on measuring the unofficial economy in the former Soviet Republics**', Economics of Transition, 11(1), pp. 1-23.

Asea, P.K., 1996, **The informal sector: baby or bath water?** Carnegie-Rochester Conference Series on Public Policy, 45: 163 – 171.

Enste D. and Schneider, F (2002), **The Shadow Economy: Theoretical Approaches, Empirical Studies, and Political Implications**, Cambridge (UK): Cambridge University Press.

Bhattacharyya, D. K. (1999), '**On the Economic Rationale of Estimating the Hidden Economy**', The Economic Journal, 109(456), pp. 348-359.

Botrić, V., Marić, Z. and Mikulić (2004), **The Correlation Between Formal and Informal Sector in Transition Economies** // An Enterprise Odyssey: Building Competitive Advantage / Galetić, Lovorka (ur.),Zagreb : Mikrorad, 2004.

Dell'Anno R., (2003). **Estimating the Shadow Economy in Italy: a Structural Equation Approach,** Working Paper 2003-7, Department of Economics, University of Aarhus.

Dreher, A. and F. Schneider (2009), **Corruption and the Shadow Economy: An Empirical Analysis**, Public Choice, volume 144, numbers 1-2, pp. 215-238.

Dreher, A., C. Kotsogiannis and S. McCorriston (2007), **Corruption around the World: Evidence from Structural Model**, Journal of Comparative Economics 35, 443-466.

Dreher, A., C. Kotsogiannis and S. McCorriston (2009), **How Do Institutions Affect Corruption andthe Shadow Economy?** International Tax and Public Finance, Volume 16, Number 6, pp. 773-796.

EBRD, **Transition Report**, various issues.

Eilat, Y., Zinnes, C. (2000), '**The Shadow Economy in Transition Countries: Consequences for Economic Growth and donor Assistance'**, CAERII Discussion Paper, No. 83.

Feige, E.L. (ed.) (1989), **The Underground Economies. Tax Evasion and Information Distortion,** Cambridge University Press, Cambridge.

Feige, E.L. (1994), **The Underground Economy and the Currency Enigma**, Supplement to Public Finance/ Finances Publiques 49, 119-136.

Feige, E. L. (2001), '**Dollarization and the Dynamics of the Unobserved Economy: What have we learned from a decade of transition**?', Paper presented at the Institute of Public Finance Conference, Zagreb, October 2001.

Feld, L.P. and C. Larsen (2005), **Black Activities in Germany in 2001 and 2004: A Comparison Based on Survey Data**, Study No. 12, The Rockwool Foundation Research Unit, Copenhagen.

Feld, L.P. and F. Schneider (2010), **Survey on the Shadow Economy and Undeclared Earnings in OECD Coutries,** German Economic Review, Volume 11, Issue 2, pages 109–149, May 2010.

Frey, B. S., Pommerehne, W. W. (1984),**'The hidden economy: state and prospects for measurement**', The Review of Income and Wealth, 30(1), pp. 1-23.

Friedman, E., Johnson, S., Kaufmann, D., Zoido-Lobaton, P. (2000), '**Dodging the Grabbing Hand: The Determinants of Unofficial Activity in 69 Countries'**, Journal of Public Economics, June 2000, 76(3), pp. 459-493.

Gershuni, J.(1979), **After industrial society The emerging self-service economy**, Macmillan, London

Johnson, S, Kaufmann, D., Shleifer, A. (1997), '**The Unofficial Economy in Transition'**, Brookings Papers on Economic Activity, 2, pp. 159-239.

Johnson, S., D. Kaufmann and P. Zoido-Lobatón (1998), **Regulatory Discretion and the Unofficial Economy**, American Economic Review, Papers and Proceedings 88 (2), 387-392.

Kaufmann, D., Kaliberda, A. (1996), '**Integrating the Unofficial Economy into the Dynamics of Post –Socialist Economies: A Framework for Analysis and Evidence'**, Policy Research Paper, No. 1691, The World Bank.

Loayza, N.V. (1996), **The Economics of the Informal Sector: A Simple Model and Some Empirical Evidence from Latin America**, Carnegie-Rochester Conference Series on Public Policy 45, 129-162.

Loayza, N.V., A.M. Oviedo and L. Servén (2005), **The Impact of Regulation on Growth and Informality: Cross Country Evidence**, World Bank, Policy Research Paper WPS3623,
Washington, D.C.

Lovrinčević, Ž., Marić, Z., and Mikulić, D (2006), **Maastrichtski kriteriji i uključivanje sive ekonomije - slučaj Hrvatske,** // Privredna kretanja i ekonomska politika. 16 (2006) , 106; 28-65.

Lovrinčević, Ž., Nikšić-Paulić, B., and Mikulić, D (2002), **The Official Statistics Approach to an Estimate of the Size of the Underground Econom**. // Mittelforum. - (2002) , 32.

Lovrinčević, Ž., Mikulić, D., Budak, J. /(2006), **Corruption and Underground Economy-Two Sides of the Same Coin?** // Third International Conference An Enterprise Odyssey: Integration or Disintegration Proceedings / Lovorka Galetić (ur.).
Zagreb : Faculty of Economics and Business University of Zagreb, Mikrorad d.o.o. Zagreb, 2006.

Madžarević-Šujster S., Mikulić, D. (2002), '**Procjena neslužbenog gospodarstva sustavom nacionalnih računa**', Financijska teorija i praksa 26 (1), pp. 31-56.

Mikulić, D. (2000), '**Mjerenje neslužbenog gospodarstva sustavom nacionalnih računa'**, Ekonomski fakultet Zagreb, dissertation.

Nikopour, H., Shah Habibullah., M. and F. Schneider (2010), **The Shadow Economy Kuznets's Curve Panel Data Analysis,** http://mpra.ub.uni-muenchen.de/12956/

Schneider, F. (1994), **Measuring the Size and Development of the Shadow Economy. Can the Causes be Found and the Obstacles be Overcome?,** in: H. Brandstaetter and W. Güth (eds.), Essays on Economic Psychology, Springer, Berlin et al., 193-212.

Schneider, F. (1998), **Further Empirical Results of the Size of the Shadow Economy of 17 OECD Countries over Time**, Paper to be presented at the 54. Congress of the IIPF Cordoba, Argentina and Discussion Paper, Department of Economics, University of Linz, Linz, Austria.

Schneider, F. and D. Enste (2000), **Shadow Economies: Size, Causes and Consequences**, Journal of Economic Literature 38, 73-110.

Schneider, F. (2003), '**Veličina i razvoj sive ekonomije i radne snage u sivoj ekonomiji u 22 tranzicijske zemlje i 21 zemlji OECD-a: Što doista znamo**?', Financijska teorija i praksa 27(1), pp. 1-29.

Schneider, F. (2005), **Shadow Economies around the World: What Do We Really Know?** European Journal of Political Economy 21, 598-642.

Smith, P. (1994), **Assessing the Size of the Underground Economy: The Canadian Statistical Perspectives**, Canadian Economic Observer, Catalogue No. 11-010, 3.16-33, at 3.18.

Thomas, J.J. (1999), **Quantifying the Black Economy: 'Measurement Without Theory' Yet Again?,** Economic Journal 109, 381-389.

PRE ACCESSION ASSISTANCE – RETHINKING ITS EFFECTIVENESS IN PROMOTING DEVELOPMENTAL CHANGE

Sanja Maleković
Institute for International Relations
2 Farkaša-Vukotinovića, 10000 Zagreb, Croatia
Phone: ++ 38514877460; Fax: ++ 38514828361
E-mail : msanja@irmo.hr

Sanja Tišma
Institute for International Relations
2 Farkaša-Vukotinovića, 10000 Zagreb, Croatia
Phone: ++ 38514877460; Fax: ++ 38514828361
E-mail: bsanja@irmo.hr

Key words: *pre accession assistance, program evaluation, cohesion policy, institutional learning, knowledge management.*

ABSTRACT

The authors comment on the concept, principles, tools and practice of current evaluation policy of development programs and reflect upon the theory and practice of EC pre accession assistance (PAA) and cohesion policy (CP), as well as on its contribution to institutional learning and knowledge management. On the basis of the recently carried out evaluation of EC PHARE IPA TAIB[1] programs in the last four years in Croatia, the paper provides an appraisal and informed critique of the overall performance and contribution of these programs from point of view of supporting Croatia's preparation for accession. The overall contribution of this assistance for promoting change and development impacts, in line with the new challenges facing both Croatia and Europe, is judged on the basis of the main evaluation criteria: efficiency, effectiveness, impact and sustainability.

The paper is particularly focused on some problems and needs from point of view of paving the way for achieving more substantial development impacts in the framework of the EC assisted and currently implemented projects/programs. This is achieved on the basis of the assessment of 163 projects and interviews held with numerous stakeholders which enabled the evaluation of the mentioned pre accession programs in Croatia. Finally, the paper indicates a number of lessons learned related to the necessary improvement of performance and developmental change to be triggered by way of the currently implemented projects and evaluated pre accession programs in Croatia. It provides several recommendations for further strengthening of the current as well as forthcoming supported projects' effective and sustainable implementation aiming at reaching major and more concrete development impacts.

[1] IPA (Instrument for Pre-accession) TAIB (Technical assistance and Institution Building)

1. INTRODUCTION

By development assistance and development support in this paper we are basically referring to EC pre-accession assistance (PAA). However, we are also giving due consideration to allocations provided in the framework of Cohesion policy (CP) and its main instruments, the European Structural and Cohesion funds (SCF). Our view point is that pre accession assistance is one of the most important means for preparing a pre accession country (PAC) for effective use of SCF and in this regard it is meaningless to observe this assistance without referring to Cohesion policy.

On the basis of recently carried out evaluations and research in Croatia, we wish to indicate some of the positive achievements but also some problems related to the EC PHARE and IPA TAIB programmes in Croatia. Our further aim is to draw attention to some further needs as well as necessary steps to be taken in order to improve the efficiency and effectiveness of the provided assistance, i.e. to enable as effective as possible use of available SCF resources in the near future.

We consider that the sharing of some of these views and observations has a multi-fold purpose. On the one hand, they could hopefully contribute to forthcoming more effective use of PAC resources by way of indicating some of Croatia's PAA evaluation results, as well as by considering some possible improvements, changes of focus, different priorities and more effective solving of the most pressing needs of pre-accession countries. Second, we consider that our experience might be useful to other PAC and candidate countries undergoing the same processes of adjustments. Further, we consider that observations stemming from the Croatian case can be useful for policy makers and all included stakeholders both in our country as well as in the EC. We are referring to the establishing of the necessary environment for absorbing this assistance in such a way which will ensure sustainable project/programmes' results and relevant developmental impacts in our country, or, as a matter of fact, any pre accession or candidate country in the process of absorbing them.

Since our standpoint is that PAA is a relevant step for preparing a pre-accession country for the new, SCF regime, it is important at this early stage to consider the most recent debates related to the future of Cohesion policy, including also its position in regard to the EU 2020 Strategic Framework. We presume that a thorough insight into the current new considerations of possible changes in approach and necessary smaller conceptual shifts in CP, along with experience and lessons learned in our country, could speed up the learning curve and enable more successful compliance with all accession driven needs, as well as a more successful and faster integration process of both Croatia as well as other PAC faced with similar problems and needs.

The commenting on the efficiency, effectiveness and sustainability of results as pre accession assistance in Croatia was based on the most recent evaluation of 163 EC funded projects which have lately been finalised, or are currently still under implementation. In order to enable appropriate understanding of the evalution results, it was useful to look more deeply into the existing experience with programme evaluation as it is currently being conducted in line with the approach, guidelines and principles as set by the European Commission. The purpose, objectives and functions of such evaluation are thus covered in the following Chapter of this paper.

Our standpoint was that, in order to understand the achievements of PAA on the basis of, among other, the recently implemented interim evaluations, it is first necessary to reflect shortly on the purpose and functions of evaluation policy as well as to observe objectively its role, but also to consider some of its deficiencies and needs for further improvements of the current concepts and methods. The need for such an approach is all the more important in Croatia since awareness and knowledge related to relevance, objectives and methods of evaluations for program (re)design as well as for the effective management of developmental assistance and programs is still insufficiently acknowledged.

The reason why the recent Country Programme Interim Evaluation for Croatia (CPIE) was chosen as an example in this paper is the fact that the main objective of this evaluation was to improve implementation of current assistance programmes as well as the design of future assistance. A further reason was the broad coverage and overarching relevance of CPIE, on the basis of which it was possible to comment and assess PAA in this segment as well as to provide recommendations for slight changes and shifts of approach – one of the objectives of our paper.

On the basis of our observations on the recent debates focused on possible sifts of approach to Cohesion policy (CP) as well as views regarding the lessons learned from Croatia's experience with the implemented and current projects, we elaborated some views and provided some recommendations and conclusions in the last Chapter, which, as said, might be interesting to both those providing pre-accession assistance, as well as to those absorbing it.

2. RELEVANCE OF EVALUATION IN ASSESSING (EFFECTIVENESS) OF EC PRE ACCESSION ASSISTANCE – IS IT CONTRIBUTING?

2.1. Why evaluate development assistance?

Evaluation of previous and ongoing development assistance can provide a very relevant means and tool, enabling us to gain a profound insight into what worked and why, and what didn't, due to which reasons. Such observations help us to provide objective and argumented critique, enabling policy makers and all involved institutions and actors in providing assistance to contribbute to creating conditions for more effective developmental assistance and support in the framework of future programms.

This chapter stresses the main evaluation purposes such as accountability, improving planning, quality and performance, but also argues that there are other very relevant purposes, particularly learning and capacity building - relevant from point of view of Cohesion policy, as well as for management of socio-economic development programs implemented within a certain region/country - an aspect which was not given due importance so far.

We can define evaluation as a selective exercise that attempts to systematically and objectively assess progress towards the achievement of an outcome. It involves assessments of different scope and depth carried out at different stages in time in response to evolving needs for evaluative knowledge and learning during the effort to achieve an outcome. Its focus is on expected and achieved accomplishments, and it aims at determining the relevance, impact, effectiveness, efficiency and sustainability of the interventions (Smith, 2007). In this regard, its main purposes are to:

- understand why and to what extent unintended and intended results are achieved, and their impact on stakeholders,
- serve as an important source of evidence on the achievement of results and institutional performance,
- contribute to knowledge and organizational learning.

Evaluation practice cannot be perceived as purely scientific research. The main challenge is to produce directly useful knowledge that is of value to society. From this point of view, it can be looked upon as a form of participation in the European "knowledge based society" (Basle, 2006). Its purpose of learning, by way of systematic appraisal regarding the efficient design, implementation and delivery of development programs and policies is among its main values for countries which are trying to catch up with the frontrunners in the process of adjustment to accession driven approaches and needs. However, the purposes of learning, as well as capacity building, even though often referred to, have still been rather neglected when referring to the main contributions and relevance of evaluation policy. It is thus important to acknowledge that they address continuous improvements in performance and organizational learning and directly rely on stakeholder engagement, focusing on issues such as: identification of the criteria the programme managers would use to judge "success", the aspects that program managers feel need to change in order to achieve better results; and whether the evaluation helps programme managers gain better understanding as to how to achieve success in the future. In this regard as far as the purpose of learning is concerned, we can state that it is both the ultimate goal and purpose of evaluation. Issues like what lessons can be learned for other programmes and policies, and whether and why there are unintended effects are very valuable (Batterbury, 2006).

An important evaluation purpose - accountability, was the first purpose adopted in the framework of the Structural Funds and still remains the most relevant aspect of evaluation conducted within Cohesion policy. Accountability is partly expressed by way of the formal requirement for evaluation to be undertaken and specifically through assessments of impact that strive to demonstrate what has been achieved through expenditure of public money (Batterbury, 2006). A further purpose – improvement of planning – is addressed through ex-ante appraisal, and, recently, through mid-term evaluation as well. Along with the mentioned, numerous other purposes are often stated – from improved quality and performance, increased ownership of the program and empowerment of stakeholders. From point of view of Cohesion policy, accountability and better planning and program design seem still to have the leading role, while the empowerment of stakeholders and program ownership appear to be considered as least relevant. However, the empowerment and ownership issues are both very relevant issues for pre-accession and candidate countries since both currently still influence effective use of pre accession funds as well as sustainability of the achieved results.

If we agree that the moving force behind evaluation activities is very often the desire to have a positive influence on policy, then we can also agree that one of the main goals of evaluation is to upgrade the current as well as future development policy by way of the assessment of the results of particular interventions, to enable transparency and mentioned accountability when reporting on the results of development activities, as well as to improve the management of socio-economic programmes (Maleković, Puljiz 2007). In this regard, evaluation can be perceived as a management tool, formalizing thus some of the good practice which is currently emerging on an informal basis in the framework of Cohesion policy evaluation.

From this point of view we can consider the improvement of management and delivery as one of the very relevant evaluation goals. Namely, a fully integrated evaluation process can definitely contribute to the way programs are managed and delivered, by way of providing feedback to program management and supporting "mid-course correction" on the basis of nearly always existing early outputs. Since many of the issues encountered at the early stages of implementation concern processes (how parties interact, how decisions and pans are made, how partnerships are being developed, etc.) their evaluation can be helpful to all involved partners as well as to the main sponsors and program managers (Tavistock Institute, 2003). Insight into evaluation results – regardless of the fact whether we are referring to ex-ante, mid-term or impact evaluations, are thus also very valuable when assessing pre accession assistance. They are relevant to those providing assistance for obvious reasons stemming from main evaluation criteria, but, related to our observed topic, also to beneficiary institutions in pre accession countries.

2.2. Current Concepts, Approaches and Methods in Evaluation

The current approach in evaluation practice and activities, in regard to previously mentioned, basically relates to Cohesion policy, in the framework of which evaluation, in the sense we are referring to here, was introduced during in the 1990s, since it was this policy that was subject to more systematic evaluation than any other EC policy. In order to understand evaluation policy as well as to observe objectively its role, but also to consider some of its deficiencies and needs for further improvements of the current concepts and methods, it is useful to observe some of the main approaches of evaluation.

"*Summative" or "allocative"* evaluations, based on the classical, i.e. *positivist* approach are carried out with the main purpose of justifying the use of Cohesion policy expenditure. We come here to one of two main evaluation functions - delivering the above mentioned accountability. "Objectivity" is of pivotal importance - providing legitimacy for external stakeholders contributing with financial resources. The main points of examination within this "summative" evaluation approach are programme performance with regard to efficiency and effectiveness, with programme impacts identified (Eser and Nussmueller, 2006). The positivist approach still remains the most commonly used philosophical background when the evaluation of economic impacts of the Structural funds community economic development initiatives are concerned. However, the shortcomings related to this approach, stemming from measurement difficulties – due to their results often providing imprecise estimates, and the unsolved issue related to reconciling bottom-up micro-analysis, with top-down macro-analysis, (Bachtler and Wren, 2006) are still often raised.

On the other hand, *the realist approach* builds upon the mechanisms that explain the changes in policies and programmes by way of social enquiry among practitioners. Based upon measuring impact and performance within the previously mentioned approach, an often put forward "realist" question is "why things work (or not) in specific contexts" (Bachtler and Wren, 2006; Batterbury, 2006"). This approach, encompassing the often referred to *"formative" evaluation techniques* focuses on examining the effectiveness and relevance of implementation procedures with the goal of improving programme design and deliverables. In contrast to the first mentioned main function of evaluation (summative evaluation), such a formative evaluation function gives prior importance to internal stakeholders, i.e. programme management, civil servants and intra-organizational learning (Eser and Nussmueller, 2006). This philosophical tradition seeks to open up the "black box" of the positivist methods (leaping directly from the input side of the policy to the outputs) within programmes nad

policies with the aim of uncovering the mechanisms that account for change (Tavistock Institute with GHK and IRS, 2003). The methods within this approach result with a relevant contribution to the "learning effect" within programmes (Bachtler and Wren, 2006). However, problems are present here also, related to the conflict between accountability and learning i.e. deciding whether the main purpose of evaluation was to justify expenditures or to learn. The shortcomings are partly seen in the governance structure of the Structural Funds as well as to the narrow focus of EC Cohesion policy evaluation - on improved planning, accountability and performance - with the other possibly useful functions such as capacity building and learning (Batterbury, 2006), which are crucial for enhancing the quality of the programme, being neglected. This philosophy has not been successful in supplanting positivism, since, for example, community economic development priorities still continue to be evaluated using orthodox economic evaluation methods.

Methodological approaches thus depend on the 2 different above mentioned functions of evaluation. If a formative function is envisaged, the recommended methodological approach will be the strong involvement of evaluated administration - thus enabling organizational learning effects. On the other hand, in the framework of infrastructure programmes, with quantitatively measured outputs, where there is no need for organizational learning, a summative/"allocative" methodological approach has proved to be a better evaluation option (Eser and Nussmueller, 2006).

Debates related to different approaches and methods also relate to the qualitative versus quantitative evaluation analysis (Maleković, Puljiz, 2007). Even though it is understandable that clients require precise quantitative data from evaluations, particularly when considering project deliverables and impacts, thus legitimizing public resources, it is also evident that evaluations should reflect upon the strengths and weaknesses of management and delivery systems, which go beyond economic analysis of the effects of strategies, and require a multidisciplinary approach using qualitative analysis (Jakoby, 2006). Immediate outputs of a project can be easily measured, but more indirect impacts are not easy to analyze by way of only quantitative analysis. Even though the EC has not found an appropriate balance and viewpoint regarding this approach, common understanding is reached among experts in this regard, i.e. that quantitative data should be provided whenever available, but should also be complemented with qualitative analysis. Such an approach seems most appropriate when referring to pre accession assistance, since there is little tradition in measuring project deliverables and impacts in PAC.

2.3. Evaluations in the Framework of Pre Accession Assistance (PAA)

It is widely recognized by now that evaluation of EC funded program enables better accountability, efficiency and effectiveness of disbursed resources, leading to more effective and long term developmental impacts and changes as the result of the implemented and supported programs. In this regard, evaluation practice, as one of the main principles of EC Cohesion policy, can be perceived as a means and instrument for continuous upgrading and improvement of the provided pre accession assistance. However, the extent to which these evaluation results are being used, even the level of their "acceptedness" from the part of policy makers is one of the key issues influencing effective EC pre accession support.

Barca is right in observing that policy makers will perceive evaluation as necessary and relevant if evaluation assessments are turned into clear-cut public messages for policy makers, and if the policy-makers are required by partners to respond with information that

only evaluation can provide (Barca, 2006) However, when PAC are concerned, such awareness is hardly raised.

In Croatia's case, project evaluations are very gradually becoming the practice in some segments, and regional policy is one of them, with the Law on regional development making the ex-ante evaluations of County development strategies compulsory. Programme evaluations of EC pre accession support in Croatia is thus gradually becoming compulsory, driven by EC and not national requirements and still basically related to Operational programms, PHARE and IPA TAIB programms, National strategic reference framework, Cross Border Cooperation programmes and similar. However, it is still questionable to what extent these first ex-ante and mid-term evaluation results are being, or will be taken on board by the respective policy makers. The fact that a forthcoming ex-ante evaluation project is planning to assess the use of previous evaluation results is in this regard very welcomed in the academic circles and the results of this assessment will allow us to comment more thoroughly and provide more elaborated observations as well as proposals in the forthcoming months. A fact which is clear at the very start is that it is not necessary to develop further evaluation knowledge and expertise only among the academic/expert community, but also to raise awareness and knowledge as to the relevance and needs for conducting the three main types of programme evaluations among the beneficiaries and policy makers also. Only in such circumstances will it be possible to promote evaluation functions for the purpose of raising programme and policy effectiveness.

The further introducing and raising of capacity for evaluation in Croatia as well as in other PAC, but also candidate countries, is relevant due to a number of reasons, among them the following (OECD, 2010, WB Handbook on Evaluations 2010, Maleković, Puljiz 2007):

- ensuring transparency, efficient and effective management of development programs
- ensuring financial and other accountability of the programme managers
- ensuring maximum return of invested resources for development programms
- ensuring maximum socio-economic development impacts for the development of certain Croatian regions
- serving as a tool for implementing regional policy, since evaluation exercises explicitly point out the results of socio-economic development of the implemented development programms and policies
- serving as a tool for the implementation of the policy of financing regional development in regard to "learning", as a direct outcome of systematic implementation of the evaluation process.

From point of view of the last mentioned, as well as the previously considered approaches, it is our view that the organizational learning effects, so much addressed from the part of Batterbury, Esser and Nusmueller, Bachtler (all 2006) and numerous other, are of key importance when considering the approach to be taken in Croatia and PAC. The initial experience with ex-ante and mid-term evaluation has confirmed this. We fully agree that evaluation, if aiming at learning effects and policy improvements, should not be mixed neither with publicity nor with control and sanctions for failure. We are referring here to the prevailing conflict between accountability and learning i.e. deciding whether the main purpose of evaluation is to justify expenditures or to learn, i.e. whether the role of the evaluator was to be a judge or moderator.

While systematically introducing evaluation in Croatia and PAC – from institutions, to raising capacity for evaluation, developing our own approaches and methods - it is relevant that both evaluators as well as policy makers are aware and well acquainted with the current debates and often quite conflicting views regarding approaches to evaluation in the framework of Cohesion policy, including the mentioned weaknesses and present main constraints – at times considered even as "failures" of evaluation policy.

Insight into the relevant and immense experience based on carried out evaluation exercises in EU member states, including the most recent members - will surely lessen at least some of these obstacles and shorten the learning curve in Croatia and PAC, and serve thus as very valuable experience as the basis to build upon, and, hopefully, enable also contributions from the part of Croatian experience which will enhance future impact of public actions and organizational learning in Europe (Maleković, Puljiz, 2007).

3. ROLE OF COHESION POLICY FOR PRE ACCESSION COUNTRIES (PAC) - ARE ALTERNATIVE APPROACHES IN ITS IMPLEMENTATION POSSIBLE?

3.1. Impacts of Cohesion policy for pre accession countries

It is impossible to analyse and comment on EC assistance in pre accession and candidate countries without providing a short overview of a few current trends in the EU related to cohesion policy (CP), since it had a strategically important role in these countries in promoting developmental change.

Namely, the accession process substantially affected the process of policy design in a number of the, now, new EU member states, and the same applies for pre accession as well as candidate states. It was particularly the EU Cohesion policy which promoted policy changes that supported regional "empowerment", paving thus the way for new opportunities for local and regional actors in supporting local economic development. The design of the rules and principles of disbursement of the Structural Funds (SF) did not allow governments to use EU resources in the previous hierarchical and centralized approach. Changes which took place were particularly important to the new member states as well as to the accession countries whose reliance on central planning, hierarchical imposition of development instruments and reluctance to devolve power were much more pronounced than in the old member states (Maleković, Puljiz, Tišma, 2011). However, when referring to the devolving of power which took place in PAC as well as the new meaning given to the subsidiarity principle, it is necessary to underline that a balance of the top down and bottom up approach is necessary. DG regio, on the one hand, has a clear focus on the bottom-up approach, leaving it to the regions to decide on their needs and priorities (Gaffey, 2011). However, in PAC which have just embarked with the process of implementing their recently designed regional policy, as is the case in Croatia, this balance of the bottom-up and top down is very important, particularly in regard to the overall process of adjustment under way as well as the preparation for participation in the pre accession, and, at later stage, CSF allocations.

The above mentioned relates to a further relevant impact of Cohesion policy – the impact on governance, which was significant in almost all countries, since we witnessed its impact on rules and principles in all member states, and, even though very gradually, we are witnessing its influence on the pre-accession and candidate countries also. It is not surprising that this effect is more significant, and more multidimensional in the less-developed Member states, as

well as those with persistent regional problems (Gorzelak 2011), common to new member states. We are witnessing this in the pre accession countries also. This impact affected a number of areas, among them the role of strategic thinking, adherence to main Cohesion policy principles, including development programming, partnership and coordination, the introducing of the culture of monitoring and evaluation, as well as more consideration been given to effective implementation and sustainability of assisted interventions. Such relevant changes in approach and good governance had major impacts on effective policy implementation in member states. However, the introducing of these principles and new approaches was of fundamental importance to the PAC. Croatia, with the previously prevailing administrative, hierarchic and centralised approach to development policy implementation, is only one of the good examples.

While many actors on all government levels in Croatia perceive preparations for participation in Cohesion policy only from point of view of new funding opportunities, the real value of the policy transformation which is currently underway is not yet fully perceived (Maleković, Puljiz, 2009). However, related to the impacts on improvement of the quality of governance, this is one of the Cohesion policy related segments where awareness has been substantially raised, followed by concrete initiatives on all levels. It is the capacity building of administration on the central as well as regional and local level involved in preparation and implementation of EU funded projects which was the most relevant consequence of this impact and awareness raising. Numerous studies throughout Europe have confirmed this in such an extent that among the most current needs, along with the need to restructure EU aid to convergence countries, is the one to substantially raise EU support for the improvement of ACB, and even more so, to make the allocation of SCF aid conditional upon significant programmes for ACB recommendations (Molle, 2011). This proposal stems from the fact that the technical and financial support given under CP to countries and regions with deficient administrative structures is not substantial, amounting to less then 1% of total cohesion resources (Molle 2011). Since ACB is the main driving force of the necessary pre accession adjustments and reforms in the pre accession countries, this proposal seems relevant.

Further, one of the initial conceptual issues worth reflecting upon when discussing EC pre accession assistance and the cohesion policy approach is conditionality. The use of positive conditionality had been a growing trend in the EU, starting gradually in the framework of development cooperation and post-colonial relations, with its practical implementation remarkably changing in the past decades, being a central method of its pre-accession approach within the 5th round of enlargement. Its complexity developed simultaneously with the criteria for cooperation and membership. Questions have been asked as to whether it has been a neo-functional motive to support fulfillment of accession criteria by candidates or a neo-imperial motive to use the accession conditionality led by economic and political interests of the existing member sates (Veebel 2009, p. 208). A surely more relevant question relates to the nature and goals of the EU: is it still a functional and integrated union of member states or is it transforming into an empire with centre and peripheries? Precisely this last question inevitably links the conditionality approach to the most recent debates on new approaches to Cohesion policy.

Evidently the reasoning in favor of pre-accession conditionality, which initially should be helping the candidate countries to fulfill accession criteria, is not so simple – since there are interests of member states, institutions, lobby groups and other behind this trend (Veeble 2009: 228). It cannot be denied that effective convergence and development have been the public goal for setting up positive conditionality, but research conducted by Veeble leads to

conclusions that it might be hard to find rational reasons and qualified criteria for this concept in practical comparisons since it appears that its use has not been based on neutral evaluation but rather on political and economic interests of member states and EU institutions. In the absence of clear measurable benchmarks and results evaluated by neutral evaluators it is not easy to oppose some of the provided views. As to the related opinions of pre-accession and candidate countries, they vary, are neither harmonized nor fully positive. While most of them share positive opinions on conditionality, considering it as a neo-functional integration and a logical first step in integration, others are critical and interpret this mode of partnership as one whose aim is not fast development and adjustment of the pre-accession /candidate countries, but, rather, the profitability for the EU and member states.

The issue of conditionality is evidently a complex one, and diverging views can lately be heard. Some authors, as is the case with Veebel, doubt its effectiveness, while other advocate a more strict conditionality in maters of, for example SCF and administrative capacity building, proposing SCF support packages as dependent of the quality of the national ACB programme, with the government quality becoming an indicator to be regularly measured by independent organizations (Molle, 2011.) Since government quality has proved to be one of the main obstacles not only in the less developed convergence new member states, but, actually, in most, with this deficiency been even much more pronounced in the pre-accession countries - it appears reasonable that this proposal be included at as early stage as possible in the pre accession assistance package also. Regardless of the array of critique in regard to the conditionality issue, in this segment it thus appears as justified. The effectiveness of EU assistance will doubtlessly increase with such an approach, and all the more so if it is followed by a doubling of the so far (insufficient) resources for this purpose, as well as the progressive SF support approach, i.e. higher in countries with lower GDP per head.

Evidently the concept merits further attention and discussions regarding its implementation. However, more radical shifts are not likely regardless of some existing criticism since it still fares as EU's strongest method in external relations and the enlargement process and the current policy and academic discussion on the future of cohesion policy give it substantial importance.

A further fundamental element linked to Cohesion policy and of pivotal importance for pre-accession countries in the process of adjusting their regional policies in line with CP requirements is accountability. Even though it is not a primary aim of public policies, current trends when discussing the future of Cohesion policy show a distortion in the balance between financial/procedural and outcome/performance accountability, as well as between accountability and effectiveness (Polverari, 2011). Polverari, along with some other authors observes that accountability can run counter effectiveness, with administrations being too focused on inputs and processes, with too much emphasis on financial and procedural accountability. According to her opinion, ex-ante evaluations are not being sufficiently purpose oriented, and a stronger focus on evaluation effects is necessary. Such views are shared in academic circles and are relevant for pre-accession and candidate countries which are in the initial stage of introducing thorough evaluation practice, as is the case of Croatia.

3.2. Europe 2020 Strategic Framework and Pre Accession Countries

The near termination of the current programming period and expected embarking into a new one allows us to reflect upon some new challenges, questions and priorities, as well as to

reflect upon possible changes in approach, objectives and development priorities related to Cohesion policy and SCF. Having in mind the fact that CP will increasingly have to struggle to justify its position as the main entry in the EU budget in the forthcoming period, it is understandable that changes in its approach, with the aim of enabling most effective allocations and impacts of CP, are to be expected.

While Cohesion policy can be considered as promoting the bottom-up approach,, EU 2020 provides a top-down view. Since adherence to Cohesion policy approach, principles and instruments is of key importance to PAC in the process of adjusting their economies to accession driven needs, the taking into consideration of the EU 2020 strategic guidelines as well as some recent changes in approach are a logical further course to be taken.

It is the performance based approach which stands out in this regard. In the framework of pre accession assistance, due attention will thus also have to be given to better concentration of funding as well as result orientation - both strongly advocated from the part of the academic community lately (Dokuzov, 2011, Polverari, 2011, Gorzalek, 2011). Such focus would contribute to better implementation and achievement of the objectives of Cohesion policy, enabling simultaneously more effective and efficient use also of future provided assistance to accession and potential candidate countries. Concentration is after all one of the basic principles of CP. However, it seems that policy maker's ambitions have been too ambitiously set related to the integrated space based policy making, with the means for achieving it not being sufficient. This refers once again to the so often stressed remark that the "what" related to EU 2020 is quite clear, however, it is the "how" which needs to be further discussed. Thus, the limitation of ambitions to available means (Molle 2011: 16,17) in order to avoid waste of all the more scarce resources, seems all the more a reasonable approach. The best way to achieve this Molle sees in leaving much of the sectoral policy autonomous and to coordinate only those cases where the (negative) externalities are obvious and where synergies request the coming together of those responsible for the policies to eliminate conflicts, i.e. an integrated approach. Regional integrated policy making is seen only in the sense of the mentioned improvement of the government quality and administrative capacity and these issues of the EU 2020 Strategy should be given priority – termed thus as the "stepping up of the means to match the more realistic ambitions", i.e. paving the way for more considerable EU support for the improvement of administrative capacity.

The EU 2020 Strategic framework has triggered some fundamental debates in academic and policy circles related to possible forthcoming developments as well as necessary changes of course in the framework of Cohesion policy. Among a few of the interesting ones are the following:

- political accountability is necessary in order to incorporate political discussions into policy in the most effective way
- thematic concentration and prioritisation of objectives is needed
- more focus is needed on objectives, rather then expenditures
- maximisation of performance and stronger focus on results is needed
- ex-ante and ex-post conditionality merit new attention including possible sanctions at a certain point of the programme if results have not been achieved.

Since all PAC consider PAA as a learning exercise for CFS, these current debates related to the future of Cohesion policy are all the more relevant for PAC. One of the ways to contribute to this process and to ensure that capacity for absorption, use and management of SCF is in

place is to assess the current pre-accession assistance, and, along with debates on necessary changes of CP, to contribute also to possible improvements of PAA by way of constructive critique on the basis of their own experience and lessons learnt. After all, as Pose points out, we tend to forget that CP is a process, involving considerable learning and trial and error (Pose 2011).

A number of issues concerning possible improvements in approach related to CP might thus also be reflected on improvements of future PAA and its more effective use from the part of PAC. For example, among the key issues Pose (2011) underlines when referring to CP is greater concentration of resources, to more investment into local capacity. The in built learning capacity of CP he considers is working, but observes that there are still substantial possibilities for improvements. This also relates to the necessary improvements in the institutional environment. Both issues can be perceived as very relevant ones when referring to pre accession assistance also.

The Europe 2020 strategic framework thus presents a further dimension which, on the one hand, will influence future PAA, and, on the other, will ask from the part of the pre accession countries to give it due attention in the processes of their strategic planning. Such an approach will be pivotal from point of view of ensuring the necessary capacity in PAC for embarking into determining their course for further national and regional development in line with the main "flagships" as proposed in the EU 2020 document.

4. EXPERIENCE WITH EVALUATING PRE ACCESSION ASSISTANCE IN CROATIA

4.1. Objectives and scope of the recently implemented interim evaluation of the PHARE and IPA TAIB program

Several evaluations of projects and programmes, in line with EU standards and set guidelines have been carried out in Croatia in the past few years, allowing us to reflect upon the importance and usefulness of these evaluations as well as provided pre-accession assistance.
The first evaluation to be carried out according to EU guidelines and principles was the ex-ante evaluation of the National strategy for Regional Development in 2004-2005. Among evaluations of programs, the ex ante evaluations of the Operational Programs are worth mentioning as well as Country program interim evaluation (CPIE) of the PHARE and Instrument for Pre-Accession Technical Assistance and Institution Building (IPA TAIB) program in Croatia (finalized in January 2011)[2].

The CPiE evaluation analysed the relevance, efficiency, effectiveness, impact and sustainability of initiatives funded under Phare 2005, 2006 and IPA TAIB 2007, 2008 and 2009 programmes. The evaluation covered 163 projects in the following sectors and according to the following accession criteria:

[2] This Chapter is based on the results of the evaluation carried out by Dietmar Agner, Richard Pringle, Sanja Maleković and Andreja Tonc with the assistance of the European Commission. The evaluation was coordinated by ADE in association with Particip GmbH, Triple Line Consulting and Coffey International Development.

Accession Criteria	Monitoring Sector
Political Criteria	- Justice, Freedom and Security
Economic Criteria	- Internal Market and Economy
Obligations of Membership	- Public Administration Reform, Public Finance and Public Procurement - Agriculture, Fisheries, and Food Safety, Veterinary, Phytosanitary and Sanitary Policies - Energy, Transport, and Environment - Regional Development and Cohesion Policy

Evidently, the chosen example is sufficiently broad as well as concrete, simultaneously covering the most relevant pre-accession assistance and initiatives as well as projects in all phases of implementation, including large finalised projects with supply components – allowing us to comment, among other, on the effectiveness as well as sustainability of the provided assistance.

4.2. Evaluation findings of the PHARE and IPA TAIB programmes

In the following part of the Chapter some of the CPiE evaluation findings in line with the main evaluation criteria will be highlighted.

Relevance

Phare/ IPA TAIB support addresses the accession needs and satisfactorily delivers support for membership preparations. Adoption and implementation of the acquis require deep organisational changes, sectoral restructuring and establishment of new institutions, as well as extensive investments in physical and information technology infrastructure. The availability of IPA TAIB support appears to help in defining the scope of what is required. Assessment of the situation in relation to this criteria shows the following:

- Although many sectors have been confronted with the need to cover a very wide range of diversified needs at various stages in the beneficiaries' development towards readiness for accession, Phare/ IPA has managed to address virtually all of these needs in Croatia, however, not always in a fully structured way. The main problems relate to an insufficiently thorough identification of these needs and the key factors in the environment influencing them. Furthermore, there is not always enough flexibility to adjust planned interventions to rapidly changing needs, both in terms of the EU pre-accession system itself as well as in terms of the capacity of staff to notice these changes and to act upon them.
- The role of the beneficiaries in state institutions should be considered in a way to encourage them to take over more responsibility and ownership for their work then is the case currently. Where public administration had more experience, the responsibility and ownership appears to be higher. Hence the importance of this issue in relation to further administrative capacity building.
- Problems still persist in the selection of valid indicators of achievement. This has been an over-arching issue for many years and is well known to all stakeholders of the programme.

Efficiency

Overall efficiency basically suffers from frequent changes of procedures and the need to adapt to constantly changing EU support schemes. Within the last 10 years Croatia has benefited from numerous different EU assistance systems (OBNOVA, CARDS, PHARE, SAPARD, ISPA and IPA Components I-V). In particular the introduction of Phare at the end of 2004 caused a lot of confusion and major delays due to the need to adapt the advanced CARDS

system to Phare requirements. Whilst Phare was just about to be put in place, Croatia had already to start to prepare for the various IPA components. With IPA coming into implementation, Croatia needs to make already detailed provision for preparing for Structural and Cohesion Funds as well as ensuring that decentralised management mechanisms are put in place once the Commission's ex-ante control will be waived. Consequently the frequent change of implementation system and constant adaptation to new rules did not always allow the Croatian administration to develop sufficient experience and to draw lessons learned. The evaluation confirmed the following in this regard:

- Broad awareness of lengthy and complicated procedures exists, but pro-active beneficiary actions taken in advance are rare. Whilst beneficiaries over the years have been acquainted with project cycle management it appears that there is sometimes still a lack of understanding as regards the IPA implementation system as such and the understanding that it has to be seen as a process that is largely managed by the central coordination institutions but requires essential contributions from the beneficiary side.

- Some institution building interventions still suffer from uneven implementation and absorption capacity especially when institutions or structures, often insufficiently staffed, become the subject of large assistance programmes, all introducing new methods and practices which have to be learnt very quickly. Already in the pre-accession period it becomes apparent that Croatia, due to its small size, as is the case with some new member states (such as Slovakia), will be in the undesirable position of wishing to operate fully at a European level while not having the available capacity within the administration and its supporting institutions.

Effectiveness

Phare / IPA TAIB projects have triggered initial acquis-driven reforms and stimulated further progress. While it may seem a contradiction, in those sectors where the programme experiences implementation difficulties, it will in fact often produce significant impacts triggered by way of EU support. However, at the same time, the very rapid development of acquis sectors may create some imbalance in overall national development, as political attention to acquis sectors diverts funds and effort from other equally or even more important sectors for national reform i.e. education and health care. Without pre-accession support, institution building would have been realised on a smaller scale, taking considerably more time and making the process much harder; the investment components would have been much smaller and the number of people trained lower. Institution building activities represent an important part of the interventions dealing with the essential transposition and implementation of EU directives. Overall, the Croatian administrations have managed to establish complex institutions in a comparatively short period. The short period of time creates pressure to ensure that these new or modernised institutions have an appropriate level of competence upon accession. Without doubt, pre-accession support has been an important contributor to this process of competence building. In regard to this criteria, the following observations can be made on the basis of the interim evaluation:

- Activities are being carried out to comply with the membership obligations in terms of legal harmonisation and institutional capacity building, and the achievements today are visible.
- Experience in the framework of the evaluated programmes confirmed that interventions addressing new institutions or bringing existing institutions up to required levels achieve the most successful outputs.

- Clear improvements have been made in developing programming and implementation capacities through training. Effective programme delivery is building up and a large volume of results has been already effectively generated.
- Finally, staffing and capacity of institutions benefiting from EU pre-accession support remains an essential necessity across the system and the lack of permanent human resources remains a horizontal issue which adversely influences all programme areas in Croatia.

Impact

Overall, Phare / IPA TAIB short and medium term impacts can already be noticed, mostly visible as administrative impacts. Prospects for global and long-term impacts are building up. A number of positive immediate and intermediate impacts have been or are being achieved across the programmes. Most completed institution building projects start to produce good impact, which can be observed in the efficient work of those institutions that received pre-accession support. From a qualitative perspective, pre-accession support resulted with a positive impact at all levels, but there is a lack of data to support the quantitative evaluation of impact. Generally, most of the evaluated interventions are at a too early stage to properly assess their impact, or achievement of their wider and global objectives.

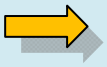
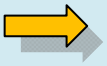
Sustainability

Institutional sustainability is mostly being secured for Phare / IPA TAIB interventions, i.e. institutional reforms can be termed as basically sustainable. Evaluation findings however confirmed the following:

- It is the administrative sustainability which varies and requires further attention since it is very weak in a number of sectors.
- Administrative sustainability is additionally constrained by the constant high staff turnover rates, mainly in ministries. It is the broader supportive programme environment tackling motivation and stimulating satisfaction of beneficiaries in respect to the work being undertaken that has been largely missing so far.
- Sustainability depended mainly on the extent to which the beneficiary is willing and able to implement or enforce the delivered outputs and impacts and to keep them alive and updated. Where more stakeholders are actively involved as well as the beneficiary, the prospects for sustainability of project outputs are better.

Programme sustainability can also be discussed by considering principles of sustainability management. Sustainability management is a business strategy that aligns achieved goals with the wish to sustain them and to allow further growth. One of the chief drivers for sustainability management is increasing demand for compliance with overall global and national requirements. An effective sustainability management framework can help management identify emerging issues of concern that may affect supply, operations and delivery. Based on such an approach the situation for the programme can be summarised as follows (Agner, 2011):

Table 2: Sustainability of IPA TAIB programmes assessed in line with sustainability management principles

Sustainability criteria	Trend	Description
Human and social		Stakeholders' engagement and interest in sustainability has been rising; capability of beneficiaries for learning, using and replicating assistance results being achieved develops; stability of the top level civil service staff will be a significant factor in sustainability; prevailing staff fluctuation makes longer term administrative sustainability questionable.
Financial		Maintenance of deliverables is usually ensured via embedding outputs into national budgets; longer term financial aspects addressing adaptation and replacement of outputs will need to take place gradually and within the limitations of tight budgetary conditions.
Technical		Technical feasibility and operational viability ensured for many sectors; technical sustainability can face difficulties in the longer run due to increasing technological innovation, reduced product lifetime, and rapid development of overarching technical systems and structures in the EU.
Institutional		Stable beneficiary institutions demonstrate legal, organisational and administrative pre-conditions for sustainability in many sectors; in all cases where, as well as the beneficiary institution, more stakeholders are actively involved, prospects for sustainability are better in principle.

Trend: tendency of development in the period 2008-2010

4.3. Overall assessment of the programs and further steps to be taken

In most of the assessed cases it is visible that the Phare / IPA TAIB programme has been effectively used to support Croatia's preparation for accession. Assistance provided to align legal frameworks and comply with the obligations of membership is being successfully absorbed. Some complex areas such as agriculture, public administration reform or structural funds preparation were initially lagging behind but should manage to catch up by the time of accession.

The internal monitoring system for Phare / IPA TAIB has been further professionalised and contributes in the longer term to more effective programme delivery. However, performance oriented management, promoting good practice, encouraging motivation and facilitating institutional learning still does not receive sufficient attention. There are promising signs from the beneficiary institutions that a broader consensus is emerging aiming at a stronger focus on the performance of IPA pre-accession programmes. A similar discussion is ongoing for some time as concerns the future of the regional and cohesion policy after 2014 and such discussions will certainly influence also the way pre-accession programmes should succeed in future. Currently, the management of programmes is driven more by the need to spend resources and financial compliance, than by a focus on results achieved. However, there is no easy way which will easily transform the approach in this regard. It is not a question of new procedures or greater bureaucracy, it is one of changing mindsets and the way things are done rather than doing many new things. Nevertheless, the remaining time for IPA in Croatia should be used to bring results-oriented management principles in particular closer to the Croatian stakeholders. In this respect a broader supportive programme environment promoting good practice, encouraging motivation and facilitating institutional learning has still not sufficiently materialized.

From an overall perspective, Phare / IPA TAIB impacts are positive and significant, especially in the area of institution building. There are good immediate legislative and administrative impacts, particularly related to the setting up of new institutions, alignment of legislation, and strengthening of administrative capacities. Legislative impact was noticeable in the acquis-dominated sectors, leading to the formulation of key legislation and/or breaking deadlocks in the preparation or acceptance of such legislation in the Parliament. A few of the necessary steps worth mentioning are the following:

- Further strengthening of implementation and absorption capacities for IPA TAIB support is necessary by way of continuing to provide specific training on horizontal programme needs and ensuring that training systems become sustainable.

- The stakeholders should consider identifying further practical steps for increasing quality management. All involved should tend to adopt a more process-centric approach. Such a shift in approach facilitates closer measurement and monitoring of resources and performance, combined with the current close monitoring of operational adherence and regulatory compliance.

- Best practice at the design stage needs to be systematically explored. The key success factors in Phare / IPA TAIB interventions were the thoroughly conducted needs' analyses and reviews of existing good practice. In the case of legal harmonisation and institution building it proved to be very helpful to study the member states' experience and to get acquainted with their systems. Beneficiary institutions should be encouraged to explore this good practice more systematically.

- Knowledge management of Croatian stakeholders can be increased by learning about what works. In view of the indispensable need to be able to implement transitional support and structural and cohesion funds, it is of strong importance to increase the knowledge base in the time remaining before the programme terminates and to facilitate learning and experience sharing among stakeholders and beneficiaries.

- Besides the obligatory ex-post evaluation, which is the responsibility of the European Commission, immediate impact assessment is desired to estimate causality between interventions and outcomes. Collecting the evidence of the impact achieved is an indispensable element for assessing the actual success of the intervention and for the planning of future activities. The traditional ex-post evaluation, however, is mostly an input for the Commission's planning. Croatia however should be encouraged to carry out a similar activity in order to learn for future planning of European and national funds.

- Assessments are also necessary related to former recommendations from evaluation projects in order to see how they were addressed and how many of the recommendations were taken into account to date. This is a very relevant task since evaluations have a strategically important role in facilitating the mentioned institutional learning, enabling us to incorporate gained knowledge and best practice based on past experience into forthcoming projects and programms. In this regard, it is recommended to systematically explore good practice already at the design stage. of interventions. The aim of such an approach is to support the raising of knowledge management of Croatian stakeholders by learning about what works.

- Staffing and capacity of institutions benefiting from EU pre-accession support remains an essential necessity across the system and the lack of permanent human resources remains a horizontal issue which adversely influences all programme areas in Croatia. This has proved to be one of the key constraints in Croatia and staff which has been well trained by way of PAA funds, due to overload as result of new accession driven tasks, along with inadequate wages, tend to leave for consultancy and similar better paid posts. This practice can be considered as a substantial loss of PAA funds, (from point of view of resources invested into their training), i.e. contributes to their ineffective use.

5. CAN THE CROATIAN EXPERIENCE HELP I MAKING A DIFFERENCE?

5.1. Lessons Learned From Our Experience

The Croatian experience with PAA, along with been quite lengthy, even though in its last phase - could nevertheless be interesting and of use to other pre-accession and candidate countries initiating or undergoing the same processes. After all, one needs to be reminded that our own experience was based on learning on the experience, best practice examples as well as mistakes of the previous accession countries – now new member states. The last evaluation reports under Croatia's pre-accession regime are to be conducted at the end of 2011. On the basis of the existing regime, it is possible to reflect shortly upon several issues which are worth considering from the part of countries faced with the same process in the forthcoming period.

Among them is the fact that changes in policy and programming can appear once evaluation is in course - which actually often happens also in national and EU programming of socio-economic development. Namely, such changes can cause shifts in defining projects' goals and priorities, after the systems for measuring results have already been determined. As mentioned previously, one of the ways for decreasing these obstacles is the inclusion of policy makers and planners in the design of evaluation which can help in the adjustment of interlinked activities. So far, policy makers were hardly involved in this process in Croatia. One of the reasons was the lack of awareness related to the purpose of evaluation policy in enabling policy design and more effective use of provided assistance. The other reason was the lack of administrative capacity for conducting evaluation practice.

The current Croatian experience also confirms that steps should be taken already at the early stage of the pre-accession process to avoid the mentioned prominence of financial and procedural accountability over outcome and performance accountability (Polverari 2011). Experience and skills need to be developed in Croatia as well as in other PAC with the aim of enabling more focus on project and programme outcomes and long term impacts, i.e. for ensuring result orientation of supported interventions. This is not an easy task since it is expected from the authorities to account for spent money, i.e. to effectively manage EC funds, with the delivering of results being less of a concern, and the obvious negative consequences for effective implementation of EC funded projects and programs. Thus, modalities need to be found which will enable a shift of approach from purely financial compliance towards results to be achieved. Among the directions to take in order to enable this shift is to engage more in results-oriented management principles, closer to the stakeholders as well as to encourage motivation and facilitate organizational learning in the beneficiaries' institutions.

Further, the issue of coordination, which has proved to be of pivotal importance in our case, will by all means be an important factor for effective use of developmental assistance in other PAC, as well as for those in post accession stage. Croatia was late in confronting this issue, with inevitable negative consequences for inter-sectoral horizontal coordination, as well as for vertical coordination, which enable timely, continuous and transparent info flow, partnerships and shared management of the different levels of government.

The inter-sectoral dimension is a particularly critical segment which should have been considered at much earlier stage. Just as an example, some of the extremely related policies in Croatia, such as regional, SME, innovation and research and development, as well as human resource development policies, are being considered completely apart, with the logical consequence being the lack of synergy for fostering regional as well as national competitiveness. This situation is not immanent only to Croatia and PAC. The new member states share similar experiences. For example, in Poland there is no coordination of innovative economy and human capital and there is no joint evaluations testing of the achievements of different policies such as rural and socio-economic. Evidently, synergies are needed between Cohesion policy and other policies and discussions in this regard have been initiated and will surely continue. Once again, such experience from new member states is extremely valuable in PAC with similar and actually much more accentuated problems of inter-sectoral coordination.

Capacity for conducting evaluations, regardless of whether we are referring to ex-ante, ongoing/interim/mid- term or ex- post, is a further critical issue – not only for Croatia and pre accession countries - since this goes for all countries/beneficiaries implementing development programms - regardless of whether they are financed through EC SCF, PAA or other. This process was initiated at a rather late stage and the capacity is still underdeveloped in Croatia - and particularly on the regional level. Consequences of this fact, among other, are less effective and efficient implementation of programmes, negligible long term development impact of implemented projects, poorer sustainability of project's results and, last but definitely not least important – the missing of the opportunity for experience based learning as the concurrent result of evaluation. It is particularly this learning which enables improved quality and performance of projects and programms, i.e. positive effects on the basis of developmental assistance. Also, even though appearing to be as less relevant issue in the framework of CP, such concurrent learning leads to the empowerment o stakeholders and programme ownership – questions which are of particular importance to countries in initial phases of introducing strategic development programming in line with EC approach and principles. Thus, the training of evaluators merits attention at these early stage of using Pre-accession assistance. This does not relate only to the practical knowledge, including profound in field knowledge, but also knowledge of policy specific theories. Namely there is a body of theory associated with socio-economic development, i.e. on how development occurs spatially and sectorally. Such knowledge is a relevant aspect of preparation for SCF. According to OECD studies (OECD, 2010), since the design of interventions is usually underpinned by a rationale that derives from theory within policy areas, it is useful that evaluators have some knowledge of the theories relevant to the themes and policy areas under consideration.

Furthermore, despite the commonality of issues and the prevailing role of EC SCF approach in evaluation policy, it is becoming quite obvious that there is still no standardized approach to strengthening evaluation capacity development and developing effective evaluation systems. Due to constraints related to quality data collection which is a frequent obstacle, effective monitoring can be an extremely important tool for effective implementation of

evaluation exercises. Monitoring of development programs and projects tends to be regarded as a less sophisticated process. Even though it helps and serves evaluators, its significance has often been undermined in Croatia, leading to less effective project/programme implementation at later stage, not to mention problems related to the reaching of the initially set objectives and planned results and impacts.

Finally, the independence of the evaluation function – being a frequently debated issue as one of the key constraints in the current evaluation practice, even though an important issue, was also not sufficiently considered so far in Croatia. Important due to the fact that this independence will be a very relevant function to be "transferred" to the SCF regime. It is particularly the new member states' experience which raises concern in this regard.

This constraint relates to a number of issues, among them even to the political environment, the still present weak demand for evaluation in Croatia, as well as to limited internal capacities in terms of financial and qualified human resources. Current discussions of both academics and policy makers confirm that the latter has been the case in new member states also – allowing us to confirm that this will be a further PAA related problem which will be transferred to the SCF regime if not given due attention at early stage.

6. CONCLUDING REMARKS

Pre accession assistance, including PAA in the now new member states, as well as experience in old member states, confirms that there are a few critical related issues related to the effective use of PAA and SCF which will need to be given more consideration in the PAC and candidate countries. One of the most critical and previously mentioned issues - administrative capacity building (ACB), has been part of the EU toolkit since some time, with its priority recently confirmed. However, according to Molle, 2 problems come to the forefront. First, it accounts to only 1-2% of SCF, Further, there is no relation between the magnitude of problems and the size of efforts. Evidently, the gap between the need for consistency and capacity to achieve administrative efficiency is all the more stressed. Such circumstances will ask for sectors to deal with the most obvious areas of potential synergy on the one hand and for regions to focus on clear roles and to limit coordination within agreed frameworks. As to others, they should opt for informed decision making and accountability (Molle, 2011). Further, conditionality should be more strict, which can be achieved through accepting national programmes only in circumstances that they show strong commitment to ACB. In this regard, Molle's remark that the size of ACB programmes should be made a progressive function of the lack of government quality also appears reasonable.

The Croatian case thus confirms both the previously mentioned Pose's observations (Pose 2011) regarding needs for greater concentration of resources to more investments into local capacity, as well as Molle's view (Molle, 2011) that the issue of quality governance and quality of administration on all levels is one of the currently key ones in our country as well as in other pre accession and candidate countries. Deficient government structures, regardless of whether we are referring to the central or regional level will not be capable of making the most of EU resources at disposal for concrete development initiatives.

When assessing the quality of governance in PAC for absorbing, managing and ensuring best use of PAA, one of the issues which is also immanent both to CP and PAA is the coordination of funds. Among other, coordination also implies the needs for improving the so far still not sufficiently effective inter-sectoral cooperation in PAC. The fact that this need is

also stressed in member states is all the more the reason to initiate concrete steps in this direction, both from part of EC when disbursing future SCF and PAA, as well as from the part of PAC which are absorbing them and making all the necessary adjustment for absorbing SCF.

On the basis of previously mentioned observations and views, a number of research questions arise. Among them the following: what lessens can pre accession and candidate countries draw from recent reforms of Cohesion policy? Further, based on experience from member states, should these countries consider accountability in a different way? What are the means and approaches to be taken in order to foster a more pronounced focus on result orientation? How can we ensure most effective results, their sustainability and long term concrete developmental impacts on the basis of provided PAA? Are the lessons learnt and programme evaluation results being sufficiently considered by EC policy makers and the respective changes triggered? What options are at disposal for ensuring stronger compliance from the part of future Managing Authorities in regard to ex ante and ongoing evaluations? Should, and if so, what kind of sanctions be imposed on the basis negative evaluation results?

A part of these questions relate to Croatia as well as to other pre accession countries. The more they consider them, the less problems from PAA times will be transferred once the SCF regime is in place. The remaining time for IPA pre accession assistance, should, among other, also be used to bring results-oriented management principles in particular closer to the stakeholders. In this respect a broader supportive programme environment promoting good practice, encouraging motivation and facilitating institutional learning has still not sufficiently materialised (Agner, Pringle et al, 2011) and there is plenty of scope for concrete steps to be taken, supported by way of EC as well as national assistance.

On the basis of the research and evaluation results, experience from other pre accession countries as well as views expressed by numerous experts dealing with the above elaborated topics, we can agree that pre accession assistance is one of the most important means for preparing a pre accession country for the effective use of SCF. The recently carried out evaluations in Croatia indicate a number of positive achievements and results of the EC PHARE and IPA programmes. Our aim was, however, also to point to some of the shortcomings and necessary steps to be taken in order to improve the efficiency and effectiveness of the provided assistance, i.e. to enable as effective as possible use of available SCF resources in the near future. As stressed, our view is that such evaluations and the sharing of their results are not useful only to policy makers on the EC as well as those on the national level, but also to all beneficiary institutions and local and regional actors reaping benefits from EC assistance.

BIBLIOGRAPHY

Agner, D., Pringle, R., Maleković, S., Tonc, A. (2011) **Country Programme Interim Evaluation Croatia,** ADE in association with Particip GmbH, Triple Line Consulting and Coffey International Development, Zagreb, pp 161.

Bachtler, J. and Wren, C. (2006): **Evaluation of European Union Cohesion Policy: Research Questions and Policy Challenges**, ***Regional Studies***, Routledge, Newcastle upon Tyne, Vol. 40. No. 2: 143-153

Basle, M. (2006): **Strengths and Weaknesses of European Union Policy Evaluation Methods: *Ex-post* Evaluation of Objective 2, 1994-99**, ***Regional Studies***, Routledge, Newcastle upon Tyne, Vol. 40. No. 2: 225-235

Batterbury, S. (2006): **Principles and Purposes of European Union Cohesion Policy Evaluation**, ***Regional Studies***, Routledge, Newcastle upon Tyne, Vol. 40. No. 2: 180-187

Camagni, Roberto (2007), Towards a Concept of Territorial Capital, paper presented at the 47th Congress of the European Regional Science Association, Paris

Capello, Roberta; Caragliu, Andrea; Nijkamp, Peter (2009), Territorial Capital and Regional Growth: Increasing Returns in Cognitive Knowledge Use, Tinbergen Institute Discussion Papers 09-059/3, Tinbergen Institute.

Collier, P., Goderis, B. (2009): **Does Aid Mitigate External Shocks? *Review of Development Economics*,** Blackwell Publishing, Oxford**,** Vol. 13 (3), 429-451.

Commission of the European Communities (2009), Communication from the Commission. A financial package for the accession negotiations with Croatia. available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0595:FIN:EN:PDF

Christopoulou, I. (2011): **Cohesion Policy: Contributing to Sustainable Development?** paper presented at the conference "***What Future for Cohesion Policy?*** Bled.

Dokuzov, N. (2011): **Alternative Approach to the Implementation of Cohesion Policy,** paper presented at the conference": ***What Future for Cohesion Policy?,*** Bled,

Ellerman, D., (1999): **Knowledge Based Development Assistance*, World Bank,1-25.***

Eser, T.W. and Nusmueller, E. (2006): **Mid-term Evaluations of Community Initiatives under European Union Structural Funds: A Process between Accounting and Common Learning*, Regional Studies,*** Routledge, Newcastle upon Tyne Vol. 40. No 2: pp. 249-258

Gaffey, V., (2011) Speech at the Plenary Session of the Conference: "***What Future for Cohesion Policy***?, Bled.

Gorzalek, G., (2011) **The Influence of Cohesion Policy on Strategic Objectives and Governance in Member States,** paper presented at the conference "***What Future for Cohesion Policy***?, Bled.

Jakoby, H. (2006): **Evaluation as Part of the Regional Policy Life Cycle: The Example of North Rhine-Westphalia, Germany, *Regional Studies***, Routledge, Newcastle upon Tyne, Vol. 40. No 2: 281-284

Leonardi, R. (2006), *The Impact and Added Value of Cohesion Policy*, Regional Studies, Routledge, Newcastle upon Tyne, Vol. 40. No. 2: 155-166

Lion, C., Martini, P. (2006): The **Evaluation of a Complex Social Program: Lessons Learned From the Experience of the European Social Fund, *Evaluation and Pogramme Planning,*** Elsevier, 29, 1-9

Maleković, S., Puljiz, J., (2007), **Introducing Evaluation of Development Programmes in Croatia – an Option, Obligation or Necessity. *7th International Conference on Enterprise in Transition, University of Split,*** May 24-26, 2007, Bol, (CD-ROM), pp. 25.

Maleković, S., and Puljiz, J. (2009*),* **Challenges of a New Approach to Development on the Local and Regional Level in Croatia,** in: ***New Croatian Local and Regional Self-Government,*** Croatian Academy of Science and Arts, Zagreb (on Croatian),pp 26.

Maleković, S., Puljiz, J.and Tišma, S., (2011), **New Opportunities for Regional and Local Actors in Croatia in Supporting Socio-Economic Development**, *Southeastern Europe*, (forthcoming issue)

Maleković, S., Puljiz, Bartlett, W., Tišma, S., Funduk., M. (2011**), Decentralisation and Regional Policy in Croatia: the Impact of EU Accession and the Prospect of Territorial Reorganisation**, ***LSE Occasional Papers***, London, pp 26.

Molas-Gallart,; J. Davies, A,. (2006): **Toward Theory Led Evaluation**, ***American Journal of Evaluation***, Vol. XX No,. X, 1-18

Molle, W. (2011): **Cohesion post 2014; Ambitions and Capacity,** paper presented at the conference "What Future for Cohesion Policy?, Bled

OECD, (2010): **Supporting Evaluation Capacity Development,** Dac Evaluation Network,

Smith, R.D. (2007): **Monitoring and Evaluating - from inputs to results,** Seminar on Cohesion, Ministry of Foreign Affairs and European Integration, Zagreb, pp. 15

Polverari, L. (2011): **The Effectiveness of Cohesion Policy Implementation: Conflicting Accountabilities and Accountability Efficiency Trade Offs, p**aper presented at the conference ***"What Future for Cohesion Policy?,*** Bled.

Rodriguez-Pose, A. (2011): Speech at the Plenary Session of the Conference: ***"What Future for Cohesion Policy?,*** Bled, Slovenia.

Rodriguez-Pose, Andres (2010): **Do Institutions Matter for Regional Development**?, ***Working Papers Series in Economics and Social Sciences***, Madrid, NO. 2, str. 48.

Sridharan, S, Nakaima, A., (2011): **Ten Steps to Making Evaluation Matter,** ***Evaluation and Program Planning,*** Elsevier, 34, 135-146

Tavistock Institute with GHK and IRS (2003): **The Evaluation of Socio-Economic Development**: The Guide, London

The Fifth Report on Economic, Social and Territorial Cohesion (2011), European Union Regional Policy, Directorte General for Regional Policy, Bruxelles.

Veebel, V. (2009): **European Union's Positive Conditionality Model in Pre-Accession Process,** ***Trames - Journal of the Humanities and Social Sciences,*** Tatu, pp 207-231

MISSING DATA PROBLEMS: AN APPLICATION OF IMPUTATION IN EDUCATIONAL RESEARCH

Maja Mihaljević Kosor
University of Split, Faculty of Economics
Matice hrvatske 31, 21000 Split, Croatia
Phone: ++ 38521430601; Fax: ++ 38521430702
E-mail: majam@efst.hr

Key words: *Imputation Methods, Multiple Imputation, Higher Education, Student Attainment Model, Croatia*

ABSTRACT

This paper introduces a topic that is often overlooked in research using survey or cross-sectional data that is frequently plagued by missing data problems. In general, estimation with missing data may introduce bias into the results if the observations with complete data are unrepresentative of the entire sample. Hence there is a need to consider whether the missing values should be deleted or imputed.

The advantage of data imputation is that it uses all available data, preserving sample size. It also provides unbiased estimates and it is thus more appropriate than deleting missing observations. Finally, it can be performed with standard statistical software.

In the empirical part of the paper three missing data scenarios are examined and their performance compared using a large student-level dataset from one Croatian higher education institution. Some of the main problems of administrative student-level records in Croatian higher education are also highlighted. A student attainment model is used to assess various missing data techniques. In the first scenario the simplest approach of casewise deletion is used. In the second scenario the missing data is imputed using single regression imputation (also referred to as conditional mean substitution) and in the third scenario multiple imputation method is used. The main differences in the results are in the size of the coefficients and t-statistics. There is also a change of significance for some variables thus potentially influencing policy proposals. This suggests that it important, in general, to use methods such as multiple imputation to check the robustness of conclusions.

1. INTRODUCTION

Problems with missing data are a part of almost every research which is based on survey or cross-sectional data. This is especially the case in Croatian higher education (HE) where the administrative student-level records differ between various HEIs and it is difficult to replicate the same research on two or more higher education institutions (HEIs). There is also the problem with missing data within these records. Subsequently, HEI's student records are rarely used by researchers and some of the main outcomes of the education system are not observed, monitored or compared over time.

In general, estimation with missing data may introduce bias into the results if the observations with complete data are unrepresentative of the entire sample. Hence there is a need to consider whether the missing values should be deleted or imputed. This paper introduces data imputation which refers to methods for estimating missing values. Several missing data techniques are examined and their performance compared using a large student-level dataset from one Croatian higher education institution. A similar research can thus be replicated for other HEIs. A student attainment model is used to assess various missing data techniques. This builds on the model developed by Mihaljević (2008) examining the Croatian HE system. However, due to missing cases in HE databases in Croatia that model could not be estimated for a full sample. The advantage of imputation is that it uses all available data, preserving sample size. It also provides unbiased estimates and it is thus more appropriate than deleting missing observations. Finally, it can be performed with standard statistical software. The software used in this paper is Stata. The techniques presented here can, however, be applied in other types of research with missing data as in Van Ginkel (2010) and Jenkins et al. (2011).

The goals of this paper are to: provide an overview of imputation theory and most widely used methods and their recent development; assess the application of three imputation techniques to the dataset used in modelling student attainment in Croatian HE, and to inform further research on the relative performance of different imputation methods.

The paper is organised as follows. An overview of the imputation theory and missing-data mechanisms is presented first in 2. This is followed by a presentation of the main missing data techniques and a discussion of their advantages and disadvantages in section 3. In section 4 the dataset is examined and in section 5 three missing data methods are applied and compared. A discussion of the results is also presented. The conclusion follows in section 6.

2. IMPUTATION THEORY

The literature on the analysis of partially missing data is quite recent. Some of the first contributions were made in the 1970s and 1980s (e.g. Hartley and Hocking, 1971; Dempster et al., 1977; Kalton, 1983; Little and Rubin, 1987; Rubin 1987). Prior to the late 1970s most social science data analysts recorded the missing values but took no steps in correcting them. A wider introduction of imputation methods ensued in the 1980s, primarily in the United States for the purpose of filling in missing values in major federal survey data. A recent example of multiple imputation applied in the United States is in measuring inequality (Jenkins et al., 2011) based on the Current Population Survey. However, the deletion of complete cases whenever a variable is missing is still quite common in social and behavioural sciences, probably due to the lack of familiarity with different imputation methods and/or their computational complexity. This is also the case in educational research where explicit discussions of missing data increased substantially from 1999, but the use of imputation techniques is rare and studies rely almost exclusively on casewise deletion (Peugh and Enders, 2004). Furthermore, the clarification of the process by which missing values influence empirical investigations is quite rare and authors do not consider how this neglect might introduce potential bias in their estimates.

The theory on imputation reveals three main concerns when dealing with missing data, namely the loss of efficiency, problems in data handling and analysis and, finally, bias due to differences between the observed and unobserved data (Barnard and Meng, 1999). The data can be missing due to a variety of reasons. Determining the reasons why the data is missing is crucial for the analysis since it might suggest what imputation method should be used. The

mechanisms that lead to missing data commonly fall into three standard categories, namely missing completely at random (MCAR), missing at random (MAR) and not missing at random (NMAR).

The data is MCAR when the probability that an observation x_i (the i^{th} observation on variable x; e.g. student effort) is missing is unrelated to the value of x_i or to the value of any other variable in the dataset. As Little and Rubin (1987) warn, this assumption does not mean that the pattern of "missingness" is itself random, but rather that the "missingness" mechanism does not depend on the observed or missing data values. This means that the distributions of observed and missing data are indistinguishable.

The MAR assumption is less restrictive than the previous one and more common (i.e. more applicable and more frequently used) in the empirical work (Azar, 2002; Royston 2005). The data is MAR when the probability of missing data on any variable is not related to its particular value. However, the missing data pattern is predictable from other variables in the dataset and the reason for missing data can be explained from the observed data (Little and Rubin, 2002).

When the missingness mechanism is MCAR or MAR, then the missingness is observable and the mechanism leading to missing data does not need to be modelled. However, if the reasons for missing values depend on the unavailable observations, that is, if the probability that x_i (i.e. the i^{th} observation on the variable student effort) is missing depends on the value of x_i then the missing values are not missing at random (NMAR) and the results from the regression analysis without imputation cannot be interpreted coherently for the entire population or subpopulation. Ways to model NMAR are examined in the economics and econometrics literature, especially when dealing with incidental sample selection problems. However, that discussion is beyond the scope of this paper and a more detailed approach is in Little and Rubin (2002) and Rubin (2004), and a recent example is in Jenkins et al. (2011).

2.1. Missing-Data Methods and Their Main Characteristics

Simply stated, imputation means "filling in" some values to those entries of the data matrix that are missing. After imputation one can use standard econometric techniques to analyse the data for the new complete data set given that statistical procedures are applied to complete (rectangular) data sets.

In general, the methods discussed in this paper that are not based on complete case analysis start from the assumption that the data is MAR (probability of missingness does not depend on unobserved information), which is hard to prove but is however, crucial to avoid bias (Royston, 2005).

Commonly used methods to handle missing data can be separated into four categories presented in Table 1 and a brief discussion of their advantages and disadvantages is presented below.

Table 1. Missing-data methods

(1) METHODS THAT IGNORE MISSING OBSERVATIONS	a) Complete case analysis b) Available case analysis
(2) SINGLE IMPUTATION METHODS	a) Last value carried forward b) Mean and regression imputation c) Hot deck and cold deck imputation
(3) LIKELIHOOD BASED METHODS	a) Expectation-Maximisation Approach b) Raw Maximum Likelihood methods
(4) OTHER IMPUTATION METHODS	a) Multiple imputation

Methods that ignore missing values use only complete observations for a certain subject i.e. if any of the observations for the subject are missing the entire subject is omitted from the analysis. These are the simplest approaches in econometric analysis; they are relatively easy to carry out and may be acceptable with small amounts of missing data. The disadvantage is that they commonly result in a substantial decrease in sample size and may lead to serious biases. However, if the missingness mechanism is MCAR or MAR, they lead to unbiased estimates but the estimation itself is inefficient because it is "throwing away data" (Baltagi, 2001).

Single imputation methods are also commonly used due to their simplicity. They are not computationally complex and can be relatively easily applied to different datasets. Also, the end users very often prefer working with a single complete dataset. In the comparison of imputation methods demonstrated in section 5, regression imputation is used as a representative of single imputation methods. This method is superior to casewise deletion and simple mean substitution since it uses regression analysis on cases without missing data and then through these regression equations it predicts values for missing values. However, in common with other single imputation techniques, the variance is underestimated and standard errors are lower than for the complete case model. Also, the available empirical evidence on the use of different imputation methods strongly recommends avoiding ad-hoc approaches, such as replacing the missing values by the mean of the variable, carrying the last observation forward, creating an extra category for the missing variables or imputing the mean using regression analysis. All of these approaches can give unpredictable results, and are not underpinned by statistical theory (e.g. Little and Rubin, 1987; Schafer, 1997; Acock, 2005). Scheffer (2000) advises that single imputation methods can work under the MAR assumption only when less than 10 percent of the data is missing. However, if the variance structures in the data are important than these methods should not be used if more than 5 percent of data is missing. Additionally, there are more statistically aligned methods for handling missing data that are found to perform better than the standard ad-hoc procedures (e.g. Little and Rubin, 2002), which leads us to discussion of likelihood based methods and multiple imputation.

Likelihood based methods are techniques for finding maximum likelihood estimates of parametric models with missing data. In these methods all the information from the observed data, including the means and variances of available covariates, are used to generate estimates of the missing values. The limitation is that with small samples, high rates of missing information and a large number of variables, these methods may require a lot of iteration to achieve convergence. However, if the data is MAR, these methods are less biased than the ones previously discussed.

Multiple imputation (MI) has become one of the leading methods applied when dealing with missing data. It can be described as a three step process. First is the imputation of missing variables by imputing *m* times and creating *m* complete datasets. Second is the analysis of those complete, rectangular datasets with imputed values using complete-case methods. Finally, the results for each of the sets are combined to obtain an overall picture i.e. parameter estimates are averaged across the generated datasets and standard errors are computed according to Rubin's rules (Rubin, 1987; 2004) to allow for between and within-imputation components of variation in the parameter estimates. The model for the missing data assumes all data is normally distributed.

Although researchers generally do not clarify how successful different imputation techniques are for different amounts of missing data, in the case of MI no more than 10 imputations are usually required, since even with a large number of missing data a small number of imputations will provide estimates of standard errors that are almost fully efficient. In this regard, MI has the advantage over likelihood based methods that are computationally more complex. More specifically, the efficiency of an estimate based on *m* imputations, can be calculated (Rubin, 1987; 2004) and is presented in Table 2.

Table 2. Percent efficiency of MI estimation by number of imputations (m) and fraction of missing information (δ)

m	***δ =0.1***	***δ =0.2***	***δ =0.3***	***δ =0.5***	***δ =0.7***
3	97	94	91	86	81
5	98	96	94	91	88
10	99	98	97	95	93
20	99,5	99	99	98	97

The calculations in Table 2 suggest that with e.g. 50 percent of missing information (δ=0.5) there is a 95 percent efficiency achieved by imputing 10 times while, when doubling the amount of calculations and imputing 20 times only raises the efficiency to 98 percent.

If one can assume the data are MAR then the most recommended methods to deal with the missing data are multiple imputation and raw maximum likelihood estimation (Sarkisian, 2005). In recent literature it is suggested that MI is always better than case-deletion or single ad-hoc methods.

Given the discussed advantages of MI and the disadvantages of the more simple methods it was decided to use multiple imputation as the analytic strategy for handling missing data in the dataset. Additionally, that method is compared with simple regression imputation and casewise deletion. Before applying different imputation techniques a general examination of the dataset and its main characteristics is presented in the next section.

3. PROBLEMS WITH STUDENT-LEVEL DATA IN CROATIAN HIGHER EDUCATION

In most cases, the Croatian HEI's administrative records already provide a rich source of information on the HEI and its students. There is data on student's personal characteristics (age, gender, marital status, place of living), socio-economic background (parents' qualifications or education levels), previous schooling characteristics (name and type of secondary school) and current schooling characteristics (fee status, enrolment status, grades).

At the same time some potentially important information such as secondary school grades and admission exam score are not typically included in the database, although it is collected by the HEIs during enrolments. Consequently, HEIs' administrative records are rarely used by researchers. One of the main factors to blame for this is their format which is not 'research-friendly' and a lot of time is required for interpreting, sorting and coding the data. Furthermore, the data and the format in which they are preserved differ between various HEIs and it is difficult to replicate the same research on two or more institutions. Missing data is also a large problem. All of these problems with administrative records in HE are not only present in the Croatian HE system, but elsewhere.

It is not only important to stress what type of information should be collected but also how that information should be preserved. The Croatian HEIs should be encouraged to keep track of their students through time. This would present a minimum investment in time and skills on their part, but would be highly beneficial for any research on the efficiency of the HE system. Additionally, databases should be standardised across HEIs in terms of data and its format. This would be more costly to implement. However, it would increase the quality of future research and allow better tracking of students who are transferring between institutions and should be encouraged.

In order to assess the performance of various imputation techniques in the research on Croatian HE a large cross sectional dataset is used. The dataset contains a large number of variables. It captures the entire student population for one Croatian HEI in the period from 1995-2005. A model of to student attainment after the first year of studies is formulated as follows:

$$A_i = f(X_i, F_i, S_i, P_i, E_i, C_i) \quad (1)$$

where student attainment (A) is a function of student's personal characteristics (X), family characteristics (F), previous schooling (S), peer effects (P), effort (E), and course characteristics (C). Only students who had completed their first year courses and were graded on them are included in the dataset and they represent the population under investigation in this paper (N=3573). The first year grade point average (GPA1) is used to take more advantage of the dataset and the analysis is performed using nine consecutive cohorts of students over the period 1995-2003, leaving two years for the last cohort (until 2005) to complete their first year exams. In more detail, the model of educational attainment for the first level of study has the following form:

$$\log GPA\ 1_i = \beta_0 + X_i\phi + F_i\varphi + S_i\gamma + \beta_1 P_j + \beta_2 P_i^2 + \beta_3 E_i + C_i\psi + T_i\lambda + \varepsilon_i \quad (2)$$

Student attainment is measured by the grade point average (*GPA 1)* for all completed courses in the first year/level of study of student *i*, taking continuous values from 2.00 (lowest) to 5.00 (highest). The X_i is a vector of a student's personal characteristics including gender, marital status, age at enrolment, urban or rural place of living. The variables for parental qualifications, in the vector F_i, proxy a family's socioeconomic status and represent parents' education. S_i is a vector of previous schooling characteristics containing information on the type of secondary school that student attended and if the student studied subjects that were related to his/her present subject area. Peer effects (*P*) are captured by the mean ability of students in the same course group as student *i*, where this ability is proxied by the obtained GPA at the completion of all the first level modules. To allow for a possible non-linear effect, as suggested by the previous empirical work in this area, a squared measure of academic peer

effects variable (P^2) is also included. Student i's effort (E_i) is proxied by the average number of exam attempts for all the courses at the first year of studies (taking values from 1.00 to 8.00). Several dummy variables are used to indicate current schooling characteristics (C_i). These include a student's enrolment status (full time or part time) and whether he/she is paying tuition fees or is exempt. Year of enrolment dummies are captured in the vector T, with the year 2003 being omitted. Given that the model is not the focus of this paper more detail on the variables and their expected signs can be found in Mihaljević (2008).

The problem of missing data was acknowledged previously. This primarily relates to a large incidence of missing values for some of the explanatory variables, especially for the effort variable and parental education. Before deciding on the strategy in the empirical part of investigation one should understand the reasons data are missing to deduce from it the missing-data mechanism e.g. is it because some questions in the questionnaire were not appropriate for the respondents, or some subjects were sensitive about some topics and did not answer, were there problems with data collection? For this Croatian HEI some of the reasons for missing values might be that some student information (such as marital status, secondary school type, number of times student took an exam), was not entered into the database at all by the administrative staff perhaps due to high demands the job poses at the time students enrol or due to understaffing, although the data existed, which would point out to a random pattern of missingness. Furthermore, it might be the case that some students did not respond to some of the initial questions in the questionnaire (e.g. regarding their marital status) and this data was never collected.

To take advantage of the dataset for the purpose of multivariate analysis the approach suggested in the relevant literature is to impute the data for missing observations. However, as mentioned earlier, this approach is not widespread in educational research leaving us with potentially biased results in empirical investigations. Before considering imputation, the starting point was to familiarise ourselves with the fully observed data set. The dataset has a general missing-data pattern (as in Little and Rubin, 2002). This is simplified in Table 3 in which the rows correspond to observations and columns to variables (both dependant and independent) and the shaded cells represent missing values.

Table 3. Missing data patterns

	X_1	X_2	X_3	X_4	...
student 1			√	√	
student 2	√	√		√	
student 3	√	√	√	√	
student 4	√	√	√		
student 5	√		√	√	
student 6	√	√	√		
student 7		√	√	√	
...					

In the Table above, although each of the variables (X_i) has only one or two missing values illustrated by shaded squares, the observations on students 1, 2, 4, 5, 6, and 7 are incomplete and only student 3 has observations for all four variables. Consequently, only student 3 can be

used in regression analysis requiring all four variables. This illustrates the problem with missing data when a small percentage of missing values may cause a substantial decrease in the sample available for regression analysis.

This first part of data inspection was a rather general representation. However, the main aim is to analyse which variables cause most damage in terms of limiting the usable set of observations in the empirical part of investigation, hence it is not sufficient to state that a certain variable has a certain number of missing values. As the second step, Spearman rank correlation is used, and also the number of missing values for each variable with respect to all other variables is presented.

Spearman rank correlation assumes that the variables under consideration were measured on at least an ordinal scale and this preserves the potentially meaningful rank-ordering information. The Spearman correlation is calculated for variables with most missing information in the dataset (i.e. effort and parental education) and GPA1 to obtain more insight into the relationships in the data. The results are presented in Table 4. Additionally, the percentages of complete observations are calculated for the variable or pair of variables (in parentheses). The *effort_1* variable can take a continuous value from 1.00 to 8.00, the variables *father_edu* and *mother_edu* are parent's qualification taking the value from one to three (1=highest, 3=lowest) and *GPA1* is the average grade obtained after completing all first year's exams (taking a continuous value in the range 2.00 to 5.00).

Table 4. Spearman rank correlations among variables in the dataset (N=3573) based on available pairs of non-missing observations

Variable	*effort_1*	*father_edu*	*mother_edu*	*GPA1*
effort_1	1.000 (54.5%)			
father_edu	0.012 (41.2%)	1.000 (89.9%)		
mother_edu	0.022 (41.5%)	0.474 (87.8%)	1.000 (90.8%)	
GPA1	-0.379 (54.5%)	-0.030 (84.4%)	-0.052 (85.5%)	1.000 (100%)

The main variable of interest was effort, which itself had 45.5 percent of missing values. However, with respect to all other variables the missingness increased to 58.8 percent thus further limiting the size of the available dataset. In a further examination of the dataset only age at enrolment, gender, marital status, fee status, full or part-time study, peer group effects, GPA1 and all the year of enrolment dummies were found to be 100 percent complete.

4. AN APPLICATION OF IMPUTATION METHODS IN STUDENT ATTAINMENT MODELLING

An important step in imputation is the construction of a predictive model for drawing imputations, especially when the number of variables is large. According to von Hippel (2009) variables that need to be included in the imputation model are the ones from the complete model that can explain a substantial amount of variance for the target variables and other factors known to be associated with "missingness". It follows that both the dependent

and the independent variables should be included although the dependent variable may be 100 percent complete as is the case in this paper.

Three approaches were used to handle the missing data problem and the goal is to compare them. First was the simplest approach of casewise deletion of all observations that had any missing values. Under this approach it is assumed that the missing data mechanism is MCAR under which the casewise deletion will produce unbiased estimates of the regression coefficients. More specifically, in this empirical investigation the variable with most missing values is effort i.e. the average number of times the student took exams for courses at the first level/year of study. The reporting of this number is automatic through the HEI's computer system or individually by administrative staff and thus it cannot be deduced that the missing information is related to the student or his/her characteristics. Therefore since the "missingness" mechanism cannot be directly linked with the student and his/her characteristics it might be assumed that the effort data is missing completely at random. If the data are MCAR then the reduced data set resembles a randomly selected sub-sample of the original data and the conclusions made from it are valid.

In the second scenario the missing data is imputed using single regression imputation (also referred to as conditional mean substitution) under the more common assumption that the data is MAR. This method was described in more detail in section 2.1. Before the imputation there are several rules that are followed (summarised in Sarkisian, 2005) and only the ones related to this dataset are referred to. Firstly, the dependent variable should be included along with the independent ones. Secondly, if there are possible nonlinear relationships among the variables then such new variables should be created prior to imputing. Thirdly, sets of dummies should be created if there are categorical variables. Finally, once the imputation is completed, the values should be restored to fall within the normal range for that variable (i.e. values need to be rounded to keep them realistic). All of these rules were followed. This method was performed in Stata using the *impute* command through which all the missing values were imputed and the size of the sample increased to 3573 cases (which is the initial subpopulation under investigation). After imputation Ordinary Least Squares estimation method is used for the regression analysis.

In the third scenario multiple imputation method (MI) is used. MI is performed in Stata for which Royston (2005) introduced the *ice* programme for the method of multiple multivariate imputation of missing values under the MAR assumptions. Due to the high incidence of missing data in the dataset both 10 and 20 imputations are used in order to raise the efficiency of MI and to compare the results. All missing values in the dataset were replaced (N=3573). To obtain final estimates of the imputed dataset one needs to fit a model in each imputation and carry out the suitable post-MI averaging procedure on the results. This can be simply performed in Stata using the user-written *micombine* command (as in Royston, 2004) which combines parameter estimates across several replicates obtained previously by MI. The OLS regression results from all three missing-data methods used are presented in Table 5. The dependant variable is the natural logarithm of GPA 1.

Table 5: Regression results for three missing-data methods

VARIABLE	Casewise deletion		Conditional mean imputation		Multiple imputation (10 imputations)		Multiple imputation (20 imputations)	
	Coeff.	(t-stat.)	Coeff.	(t-stat.)	Coeff.	(t-stat.)	Coeff.	(t-stat.)
Constant	-1.841*	-1.75	0.265	0.42	-0.281	-0.41	-0.198	-0.30
Personal characteristics (X)								
Age	0.004*	1.86	-0.001	-1.33	-0.001	-0.87	-0.001	-0.96
Gender	0.022**	2.45	0.026***	4.70	0.025***	4.11	0.025***	4.30
Urban	0.053***	2.65	0.051***	3.57	0.046***	3.43	0.044***	3.21
Married	0.015	0.33	-0.040**	-2.02	-0.030	-1.45	-0.035*	-1.68
Previous schooling (S)								
Gymnasium	0.015	1.00	0.025***	2.88	0.021**	2.18	0.018**	2.05
Studied rel. subject	0.010	0.67	0.018*	1.90	0.017*	1.76	0.015	1.59
Second. school grades	0.0006***	6.05	0.0005***	9.22	0.0006***	11.46	0.0006***	10.96
Admission exam	0.0003***	3.23	0.0003***	4.78	0.0003***	4.00	0.0003***	4.95
Family characteristics (F)								
F_Uni or college degree	-0.006	-0.30	0.020**	2.14	-0.004	-0.33	-0.006	-0.45
F_Secondary school	-0.003	-0.16	0.033***	3.97	0.006	0.52	0.005	0.41
M_Uni or college degree	0.006	0.38	0.004	0.42	0.001	0.09	0.001	0.12
M_Secondary school	0.013	0.80	0.003	0.30	0.003	0.27	0.003	0.33
Current schooling (C)								
Fee status	-0.066***	-4.57	-0.049***	-5.53	-0.059***	-6.27	-0.058***	-6.38
Full or part time	-0.071***	-3.62	-0.059***	-4.26	-0.050***	-3.52	-0.050***	-3.50
Peer effects (P)								
Peers	1.579**	2.29	0.243	0.61	0.609	1.40	0.551	1.30
Peers squared	-0.225**	-2.02	-0.001	-0.02	-0.068	-1.01	-0.058	-0.89
Effort (E)								
Exam attempts	-0.067***	-11.71	-0.083***	-19.35	-0.060***	-13.55	-0.060***	-14.82
Year dummies (T)								
Enrolled in 1995	0.142**	2.32	0.061***	2.85	0.093***	3.85	0.101***	3.34
Enrolled in 1996	0.046	0.85	0.050**	2.54	0.076**	2.53	0.067**	2.30
Enrolled in 1997	-0.021	-0.55	0.059***	2.73	0.035	1.39	0.042*	1.83
Enrolled in 1998	0.012	0.35	0.068***	3.00	0.067***	2.86	0.072***	3.18
Enrolled in 1999	0.036	1.42	0.065***	3.39	0.068***	3.67	0.068***	3.59
Enrolled in 2000	0.025	1.56	0.017	1.32	0.018	1.46	0.019	1.60
Enrolled in 2001	0.019	1.23	0.013	0.99	0.013	1.03	0.013	1.04
Enrolled in 2002	0.021	1.45	-0.001	-0.07	-0.002	-0.15	-0.0004	-0.05
	N=1519		N=3573		N=3573		N=3573	
	R^2=0.30		R^2=0.39					

*Notes: Significant at ***1%, **5% and *10%.*

With casewise deletion the regression is estimated for only 1519 students while with imputation the number of observations increases by more than twofold (N=3573 students). At first sight, the regression results are similar for all missing data methods in terms of the signs of the coefficients and their statistical significance. Gender, urban, schooling characteristics and admissions (secondary school grades and admission exam) are statistically significant at the 1 percent level (except for gender in casewise deletion, which is significant at the 5 percent level) in all estimations and the estimated sizes of the effects are similar. Student effort, as measured by examination attempts, also has the expected negative sign in all estimations and is statistically significant at one percent level. The estimated size of the effects varies between casewise deletion and MI(20) for the peer effects variable, with the magnitude of the effect much smaller (and insignificant) with imputation. Although peer effects are no longer significant when imputation is used, the expected signs for peers and peers squared are consistent across the methods used.

The estimated coefficient on the age variable is positive for casewise deletion (and significant, but only at the 10 percent level), but when imputation methods are considered it is negative (and insignificant) which is more consistent with the relevant research in this area. Similar is the case for the marital status variable. It has a positive sign in casewise deletion (but is insignificant). However with imputation the sign is negative (and significant), but only at the 10 percent level with MI(20) which is consistent with theoretical assumptions.

When using the conditional mean substitution the OLS estimates give the greatest number of statistically significant relationships e.g. attending a gymnasium has a significant positive impact on attainment when compared to students from other secondary schools, whilst studying a related subject is has significant beneficial effect on attainment at the HEI. In addition, more of the year of enrolment dummies become statistically significant (cohorts from 1995-1999). The results suggest that being enrolled in any year from 1995-1999 has a positive effect on student attainment when compared to the omitted category – students enrolled in 2003. A similar result for these variables is also found when MI is used.

The results for both MI methods are quite similar, the estimated coefficients being slightly smaller when MI(20) is used. The key variables (current schooling characteristics, effort and admissions) are all statistically significant at the one percent level, with the expected signs. As noted previously, peer effects have a much smaller coefficient and t-statistic value when multiple imputation is used. The peer effect variables are significant when casewise deletion is considered, but not significant when using conditional mean imputation, MI(10) and MI(20). Using these estimation methods there is insufficient evidence to support the hypothesis that having high ability peers has a positive influence on student attainment in this HEI in the first year of study. In general, the differences between the various approaches are small in terms of signs, significance and estimated size of the effects, except for the peer effects, age and marital status variables.

There are also some limitations of this research that need to be addressed. With casewise deletion (nevertheless acknowledging its limitations) there are post-estimation procedures that can be used that are not currently available with MI. The rationale for considering MI is that this approach produces unbiased parameter estimates which reflect uncertainty associated with missing data. The method is also robust to departures from normality assumptions and, as previously noted, it is adequate when there are high rates of missing data. However, being a rather new technique it still needs to be further investigated.

5. CONCLUSION

This paper introduces a topic that is often overlooked in research using survey or cross-sectional data that is frequently plagued by missing data problems. Even a small proportion of missing data may produce biased and less efficient estimates as demonstrated in section 2.1. Therefore, the objective of imputation is to make the most of the available data, to express the relationship between the observed and unobserved variables and to take into account the uncertainty of imputation. Several methods of imputation are compared and their results analysed. When simple methods of imputation are used the usual variance formulae understate the variance of estimates. At the same time, MI specifications for 10 and 20 imputations are over 94 percent efficient when the fraction of missing information is 60 percent (this can be calculated from Table 2). Hence, in accordance with McKnight et al. (2007), MI can be considered currently as the only practical, commonly applicable technique for large datasets.

The main differences in the results are in the size of the coefficients and t-statistics (which are somewhat smaller in most cases under MI, as expected) and a change of significance for some variables (peer effects) thus potentially influencing policy proposals. The use of MI in this paper, although supporting most of the findings with casewise deletion, does not support the conclusion on the peer effects variable, age and marital status. This suggests that it is important, in general, to use methods such as MI to check the robustness of conclusions.

Given the discussed advantages of multiple imputation and the disadvantages of the more simple methods, MI is considered as the most appropriate analytic strategy for handling missing data in dataset. This approach produces unbiased parameter estimates which reflect uncertainty associated with missing data. The method can also be successfully employed in NMAR conditions (Verbeke and Molenberghs, 2000; Schafer and Graham, 2002), and, as previously noted, it is adequate when there are high rates of missing data. Some other methods are not as flexible in this respect. However, the literature on imputation is still developing and empirical testing of the performance of several imputation methods is rare. There are no prescribed "best-practice" approaches and caution should be exercised when using imputation methods.

BIBLIOGRAPHY

Acock, A. (2005): **Working with Missing Values,** ***Journal of Marriage and Family***, 67(4): 1012–1028

Azar, B. (2002): **Finding a Solution for Missing Data,** ***Monitor on Psychology***, 33(7): 70

Baltagi, B. (2001): **Econometric Analysis of Panel Data**, 2nd edition, Chichester: John Wiley

Barnard, J. and Meng, X. (1999): **Applications of Multiple Imputation in Medical Studies: From AIDS to NHANES,** ***Statistical Methods for Medical Research***, 8(1): 17–36

Dempster, A.; Laird, N. and Rubin, D. (1977): **Maximum Likelihood from Incomplete Data via the EM Algorithm,** ***Journal of the Royal Statistical Society (Series B)***, 39(1): 1-39

Hartley, H. and Hocking, R. (1971): **The Analysis of Incomplete Data,** ***Biometrics***, 27: 783-823

Jenkins, S.; Burkhauser, R.; Feng, S. and Larrimore J. (2011): **Measuring Inequality Using Censored Data: A Multiple imputation Approach to Estimation and Inference,** ***Journal of the Royal Statistical Society (Series A)***, 174(1): 63-81

Kalton, G. (1983): **Compensating for Missing Survey Data**, Institute for Social Research: Ann Arbor, MI

Little, R. and Rubin, D. (1987; 2002): **Statistical Analysis with Missing Data**, 1st and 2nd edition, Wiley, Hoboken, NJ

McKnight, P.; McKnight, K.; Sidani, S. and Figueredo, A. (2007): **Missing Data: A Gentle Introduction**, Guilford Press: New York

Mihaljević, M. (2008): **Examining the Efficiency of Croatian Higher Education: An Application of Student Attainment Modelling,** ***Eastern European Economics***, 1(1): 74-88

Peugh, J. and Enders, C. (2004): **Missing Data in Educational Research: A Review of Reporting Practices and Suggestions for Improvement,** ***Review of Educational Research***, 74(4): 525-556

Royston, P. (2004): **Multiple Imputation of Missing Values,** ***Stata Journal***, 4(3): 227-241

Royston, P. (2005): **Multiple Imputation of Missing Values: Update,** ***Stata Journal***, 5(2): 188-201

Rubin, D. (1987, 2004): **Multiple Imputation for Nonresponse in Surveys**, Wiley: New York

Rubin, D. (1996): **Multiple Imputation after 18+ Years,** ***Journal of the American Statistical Association***, 91: 473-489

Sarkisian, N. (2005): **Topics in Multivariate Statistics**, www.sarkisian.net/sc704/ september26.pdf [Accessed 20.1.2010]

Schafer, J. (1997): **The Analysis of Incomplete Multivariate Data**, Chapman & Hall: London.

Schafer, J. and Graham, J. (2002): **Missing Data: Our View of the State of the Art,** ***Psychological Methods,*** 7: 147-177

Scheffer, J. (2000): **An Analysis of the Missing Data Methodology for Different Types of Data**, Unpublished Masters Thesis, Massey University, available at www.massey.ac.nz/ ~wwiims/research/letters/volume3number1/scheffer_2.pdf [Accessed 30.9.2010]

Van Ginkel, J.R. (2010): **Investigation of Multiple Imputation in Low-quality Questionnaire Data,** ***Multivariate Behavioral Research,*** 45: 574-598

Verbeke, G. and Molenberghs, G. (2000): **Linear Mixed Models for Longitudinal Data**, Springer-Verlag: New York

Von Hippel, P. (2009): **How to Impute Interactions, Squares, and other Transformed Variables,** ***Sociological Methodology***, 39(1): 265-291

ENTREPRENEURIAL UNIVERSITY AS THE MOST IMPORTANT LEVERAGE IN ACHIEVING KNOWLEDGE-BASED SOCIETY

Sunčica Oberman Peterka
J.J. Strossmayer University in Osijek, Faculty of Economic in Osijek
Gajev trg 7, Osijek
Phone: ++ 385 3122 44 26; Fax: ++ 385 31 22 44 38
E-mail: suncica@efos.hr

Key words: *Entrepreneurial University, Knowledge Based Society, Triple Helix*

ABSTRACT

In a world where change is the only constant, the role of education, and especially higher education, is becoming increasingly important.

The question arises whether universities will be capable to carry out the needed reforms in order to occupy an important place in the development (economic and political) of a country. Each of activities of the university (teaching and research) should make its contribution to the development of society, taking into account responsibility towards community and society in which it operates ("culture of accountability").
In order to fulfil its task, universities need to redefine their mission, vision and activities and replace their traditional approach with a new, contemporary approach, which has been named "entrepreneurial approach" by many authors.

Entrepreneurial answer offers a formula for institutional development of university in which university defines and determines its autonomy, ensures diversified financing (and thus decreases its dependence on the state), develops new university departments and activities in accordance with society's demand, and leads to structural changes, which are securing better university's capacity in responding to changes.

The objective of this paper is to present the model of entrepreneurial university and test it at J.J. Strossmayer University in Osijek; to determine the way in which this university perceives its environment, how it reacts to changes, and how close, or how far from entrepreneurial university it is and what needs to be done to change it.
Result of this paper can help management of J.J. Strossmayer University in Osijek in conducting needed changes, but also to all other Universities in Croatia to understand the process of creating entrepreneurial university and urgency to do it.

1. INTRODUCTION

We live in times of great and continual change. Changes are occurring in all fields - from social and economic, to technological, political… No one can afford not to use the wealth of opportunities that are brought by changes in environment in which they live, because they would thus lose the chance to live in a better world. Global competition and new technologies are fathering the need for new skills and knowledge, needed for work. It is difficult to predict

the speed of change, but it is certainly greater than any answer to it there currently is (Kirby 2004, Negroponte 1996, WB 2002). It has become clear that our response to these challenges will have a profound influence on our future as a nation. In such world, where change is the only constant, the role of education, and especially higher education, is becoming increasingly important.

The question arises whether universities will be capable to carry out the needed reforms in order to occupy an important place in the development (economic and political) of a country. In order to fulfil its task, universities need to redefine their mission, vision and activities and replace their traditional approach with a new, contemporary approach, which has been named "entrepreneurial approach" by many authors.

Entrepreneurial answer offers a formula for institutional development of university in which university defines and determines its autonomy, ensures diversified financing (and thus decreases its dependence on the state), develops new university departments and activities in accordance with society's demand, and leads to structural changes, which are securing better university's capacity in responding to changes.

This paper is consisted from three parts; first part talks about importance of higher education in general and universities in particular for economic and social growth. In order to fulfil its task, universities need to redefine their mission, vision and activities and replace their traditional approach with a new, contemporary approach, which has been named "entrepreneurial approach" by many authors. Second part of the paper is trying to give an answer to following questions: What is "entrepreneurial approach" of university and how (and why) to change university to become entrepreneurial. Third part is giving an example of University of J.J. Strossmayer in Osijek – how far (or how close) is this university from entrepreneurial concept?

2. ROLE OF TERTIARY EDUCATION IN ECONOMIC AND SOCIAL DEVELOPMENT

Tertiary education has a prominent place in this framework, because it provides highly educated people, but also represents the basis for information dissemination and spreading of the culture of use of knowledge.

2.1. Knowledge is the key factor of development (if it is used)

Society's capacity for creation, selection, commercialization and usage of knowledge constitutes the key prerequisite for sustainable economic and social development and improvement of quality of life of each individual. Competitive advantages are no longer based on possession of natural resources, but on possession of certain knowledge and skills. Knowledge is increasingly at the core of a country's competitive advantage (Porter 1990, Delanty 2001, David&Foray 2002).

Today, growth is more in the function of accumulation of knowledge than in accumulation of capital. According to the World Bank report from 2002[1], investments of OECD countries in research and development, education and software, i.e. investments in that what comprises the

[1] Constructing Knowledge societies: New Challenges for Tertiary Education, The World Bank, Washington, D.C., 2002

knowledge base, are either greater than or equal to investments in physical equipment. Companies are dedicating at least a third of their investments to intangibles like employee training, research and development, licensing, design and marketing. International competition has imposed and increased the importance of employment of knowledge and possession of information. The key to success on today's global market is to use knowledge better than the competitors. In so doing, it is demanded from companies to actively participate in creation of that knowledge, which imposes the need of connecting companies with universities, as institutions whose primary activity is "production of knowledge". Investment in development of a country's knowledge base is the main prerequisite for survival in the world market. In the contemporary context, the penetration of knowledge into all spheres of life is clearly one of the major characteristics of the age (WB 2002).

2.2. Role of Tertiary education in society

Tertiary education[2] has the central role in society's answer to challenges brought by globalization. It is the foundation for the development of knowledge-based economy; it secures research and analysis, which make it possible to face the oncoming problems and opportunities, and represents important connecting points of national and international environments (Neave 2002, WB 2002). Therefore, the existence of quality and sustainable tertiary education institutions is one of the fundamental requirements of every modern democratic society.

Without adequate higher education that secures critical mass of educated and qualified people, no country can ensure sustainable growth and progress, and developing and undeveloped countries will not be able to decrease the gap that separates them from industrially developed countries. Higher education is facing a great challenge of adjusting to the newly arisen situation and the growing role in the society that belongs to it. Many international institutions, including the World Bank, point out in their numerous reports the importance of the role of knowledge and education for social and economic development. Education is the foundation for creation, dissemination and application of knowledge, as well as for building of country's technical and professional capacities. It is precisely the inadequate preparedness of tertiary education institutions in countries in transition and developing countries to answer the requirements of global competitive society that is emphasized as one of the principal reasons for marginalization and lagging behind in the world economy.

The role of education in general and of tertiary education in particular, is now more influential than ever in the construction of knowledge economies and democratic societies.
Tertiary education, in its training, research, and informational role, is vital if countries are to adapt to these far-reaching changes. Tertiary education is indicated as vital because it has a direct influence on national productivity, which to a great degree determines the quality of living of the individual and the capability of the country to compete and participate in globalization processes.

[2] According to definition by the World Bank, universities are the key element of tertiary systems of education, but the diverse and growing set of other public and private institutions also constitute a part of the system. These are: colleges, technical training institutes, community colleges, nursing schools, research laboratories, centers of excellence, distance learning centers, and many more. All of these form a network of institutions that support the production of the capacity necessary for development. – Constructing Knowledge Societies: New Challenges for Tertiary Education, The World Bank, 2002, Foreword, page.ix.

Universities are the most important respresentative of higher education institution. Their research (especially) and teaching performances are the basis for success (or otherwise) in the knowledge-based economies that mark the contemporary era (King, 2003).

2.3. Role of university in the contemporary world

Of the institutions that had been established in the Western world by 1520, 85 still exist – Catholic Church, the Parliament of the Isle of Man, of Iceland and of Great Britain, several Swiss cantons, and 70 universities. Of these, perhaps the universities have experienced the least change. (Kerr 2001, p.115)

Universities are facing great political and economic changes. Public pressure for easier access to higher education, governments' expectations of universities' involvement and contribution to the socio-economic development of the country, and the demands for applying the principles of market economy and organisation management in their own organisation have created a new context of development of higher education. Univiersities cannot any longer be viewed just as parts of national educational system, protected by the state and in charge of study and research programs. In a highly competitive world, universities have to fight for students, research and financing, they have to pay a great deal of attention to development of relations with external stakeholders, which requires a complete change of their current way of management, financing, internal structure and external relations, as well as the ways of carrying out activities (van Ginkel 2002).

Changes with which universities throughout the world (and especially in Europe) are faced, which impose the need for adaptation and change of these institutions, can be classified into five basic categories (Communication of the Commission, 2004): **increased demand for higher education** –*More persons will attend colleges and universities in the next century than in all of human history* (Goodman, A., Preface in Altbach et al. 1999); **internationalization of education and research** – this trend has been significantly accelerated by the development of information and communication technology. Increased competition appears as the result of internationalization; competition between different universities, competition between states, but also competition between universities and other institutions, such as, for example, public or private research institutes; **increase in the number of institutions which produce knowledge –** due to globalisation and technological development, production of knowledge, innovations and dissemination of knowledge are no longer primarily reserved for universities (Hagen, 2002). The increasing number of places in which knowledge is produced has created a great pressure on universities if they want to maintain the leading position. Leading professor from Oxford and founder of the Manchester Business School believes that universities have outlived their usefulness ("... For the first time there are more clever people outside universities than inside", Hague D., cited by Hagen 2002:205); **reorganisation of knowledge –** this trend has two, completely opposite viewpoints: on the one hand there is increased diversification and specialisation of knowledge and the appearance of very specific research. On the other hand, there is great need for interdisciplinary character of scientific research, imposed by major social problems, such as sustainable development. Reorganisation of knowledge can be seen through the removal of boundaries between fundamental and applied research. Fundamental research is still university's primary area of research, but taking into account the possibilities of its application, in which significant successes have been achieved by American universities; **emergence of new expectations –** universities must take into account the new needs, which

have arisen from the society based on knowledge. This includes the growing need for scientific and technical education, "horizontal skills" (infrastructural skills, such as, for example, financial management, and the so-called "soft" skills, such as negotiation skills, creativity...), and opportunities for lifelong learning.

Some of the factors, which slow down the change in higher education, and which, in combination with each other contribute more to the continuity than to the change of university (Kerr, 1984) are: conservatism of lecturers in opposing the changes in fields such as curriculum, areas of research, methodology of teaching, standards and criteria for career advancement. Those factors also include difficult and lengthy decision-making processes, inevitability of including highest hierarchical levels in decision-making processes, lack of rewards for risk-taking, subordinate position of administrative staff in relation to faculty, and the inability of structure to accept numerous external pressures.

The survival and development of university depend on the extent to which universities will want and know how to incorporate the principles of efficiency (internal performance) and effectiveness (external performance) into its operations. Inertia of the university system, which exclusively uses efficiency as a measure of quality of its activities (using partial indicators: grades, number of students, length of studying, etc.), not taking effectiveness into account (through contribution to the process of change of society for the better, through decreasing the unemployment figures…) leads to the creation of a gap between the developmental demands of the society and the university's ability to respond to those demands (Singer 1996). At present, the gap between what the "society of knowledge" should know and what the existing systems of higher education are able to provide is very large (O'Hara 2007). The reason for this gap can be found in the unpreparedness of the higher education institutions for the challenges of modern society, ignoring and unpreparedness for the forthcoming changes. Universities should behave just as companies do, which have to prepare for and try to predict what the future will bring, and define their strategies for dealing with change based on those predictions, thus ensuring sustainable growth and development (*Shell Global Scenarios to 2025, foreword: "We face real challenges in the future, we will all need to be able to respond to changing circumstances and make informed and rigorous judgements about our decisions...").*
The strategic question with which higher education is faced today is not whether it should, but how should it cope with the changes, which characterise the modern society today.

What characterises the modern society is the new model of production of knowledge, the so-called *Mode 2*, as opposed to the now present *Mode 1 (Gibbons 1998)*[3]. Mode *1* is characterised by a specialist structure of knowledge (Gibbons 1998), which has played a major role in the design of organisation and management at today's universities. Specialist knowledge has represented the framework for defining the curriculum, it provided a foundation for organising teaching at universities, and represented a link between research and teaching. This structure provided guidelines for researchers on important issues for research, the method and place of their research, and the rules regulating employment of new researches and career advancement in the academic world. The new model of production of knowledge, the so-called Mode 2 is characteristic for the society of today, and it leads to disappearance of the previously described Mode 1 model. Mode 2 is characterised by the presence of a great number of producers of knowledge, which are connected by the

[3] Gibbons has decided to use these names, since the conventional terms that were used in everyday speech, such as *applied science, technological research or research and development* were not appropriate, because they were too narrowly defined and did not allow understanding of the relationship between these categories.

understanding of the importance and responsibility for the application of that knowledge; universities are no longer the primary places for production of knowledge, knowledge is created in research centres, government agencies, industrial laboratories, think-tanks and through their interconnecting. Research groups do not have to be tightly institutionally connected. Work teams and networks are created and exist until the problem is solved, after which they are dissolved. When another problem has to be solved, new, different teams are formed. Potential solving of any problem requires integration of different skills and knowledge, which do not belong only to one discipline.

Multidisciplinarity, that is, transdisciplinarity is becoming the norm. In organisational sense, Mode 1 is characterised by hierarchy, while Mode 2 is characterised by straighter, lateral organisational structures. In comparison with Mode 1, creation of knowledge in Mode 2 is more socially responsible and includes a wider system of quality control (not just peer review; opinions of various experts are requested, who then consider the problem in a specific and localised context). Greater concern for applicability of knowledge increases the sensitivity of scientists and researchers for greater application of what they do. Research is not carried out only in the interest of researchers, but is the result of the need to solve some problem in the environment. It is expected from research to make the results applicable, which leads to connecting the university with individuals and groups that are traditionally outside the scientific system. They become active actors in defining problems and evaluating their solutions and performance (David i Foray 2002, Altbach 2004, Vlasceanu 2005, WB 2002, Gibbons 1998, Gibbons 2004). It is this change in the way knowledge is produced (research) that significantly affects the functioning and organisation of universities.

The question arises whether universities will be capable to carry out the needed reforms in order to occupy an important place in the development (economic and political) of a country. Universities of the future will develop many more and different kinds of links with surrounding society. They will increasingly be ranked in terms of their "connectivity" to the distributed knowledge production system and their relevance as determined by their efficiency in drawing upon the resources of the knowledge production system (Gibbons, 1998). Relevance is going to become something that will need to be demonstrated, not just once but on an ongoing basis. Relevance here relates to quality of teaching and quality of research. Each of activities of the university should make its contribution to the development of society, taking into account responsibility towards community and society in which it operates ("culture of accountability") (Singer et.al. 1993, Sesardic 1993, Svarc 1998, Gibbons 2004).

3. ENTREPRENEURIAL UNIVERSITY

The intensity of university's institutional rigidity and its multidimensionality (culture, financing, structure, functions…) constitute such a force of resistance that small, incremental changes in the environment have never been sufficient to articulate an initiative for the university to change. Universities have, as a rule, accepted the options of slow adapting to the changes in their environment. However, the force of change which has been continuously happening in the last decade has raised the issue of different positioning of the university towards changes in the environment, that is, defining new university's mission and re-engineering the organisation, financing, function and the culture itself, in accordance with the new mission.
The simplest explanation of entrepreneurial university is that it is the antithesis of the "ivory tower" (Blenker et.al, 2006). Detachment of research-oriented universities from the needs of

the environment requires transformation of university towards entrepreneurial university (Etzkowitz 2000) in which it is expected that university perceives its environment as its market and to respond to it accordingly.
Entrepreneurial capacity of each university will enable for that dynamic change in the environment to be either used or not. Due to differences in organisational culture and leadership capacity, the process of building the entrepreneurial capacity differs from one university to the other. Successful implementation of transformation of university to entrepreneurial university strengthens university autonomy, university unity, educational achievements and achievements in transfer of research to commercial practice in the environment. Entrepreneurial character of universities does not mean that they will become dependent on the industry, nor it turns them into "all-purpose shopping malls" (Clark 2001:10). Entrepreneurial universities are active actors of the society, affecting their environment (industry), just as the environment affects them. These are institutions that are capable of change, without compromising their mission towards complex and uncertain environment.

In the last twenty years universities were occupied with their teaching mission, mainly by adding new programs and implementing the Bologna reform. Research activities simply continued, as business as usual, with some minor additional topics, but stayed fragmented, underfunded, and disciplinary focused (Singer, Oberman Peterka, 2009).

Technological changes, innovations, and increasing global competitiveness demand a change in the organisation and functioning of each market actor, including universities. *"Universities must turn into evolutionary entrepreneurial organizations to fulfil their mission in an economy which must increase wealth and create employment by incorporating new knowledge in innovative products and technologies." (*Röpke 1998: 8) Entrepreneurial orientation is the way in which some institution/ organisation/ company should be organised in order to be able to respond to the turbulent environment in which it operates (Lumpkin and Dess, 1996)

3.1. Triple Helix – the basis for understanding the entrepreneurial university

In the discussion about the entrepreneurial university, the Triple Helix metaphor is used to describe the interconnection and operation of three forces (actors) in the society: university, business sector and government (Blenker et al. 2006; Etzkowitz et al. 2000; Etzkowitz and Leydesdorff 2000).

The Triple Helix model explains the new arrangement of institutional forces in the process of creating innovation. As knowledge has become an extremely important part of the innovation process, universities as centres of creation and dissemination of knowledge play an increasingly important role in industrial innovation. Previously, this activity belonged either to the industry or the government or, depending on the social system, cooperation of these two factors. Thus, the policies were focused on relations between government and industry, on improvement of the business climate, reduction of taxes or various subsidies for the business sector.

Emergence of entrepreneurial university is a response to growing importance of knowledge in the national and regional innovation system in which university is the agent of effective and creative creation and transfer of knowledge and technology from university to society (Etzkowitz and Leydesdorff 2000, Etzkowitz et al. 2000). In knowledge-based economy,

university is becoming the key institution of the innovation system – both as a producer of human capital and as a foundation for the development of new businesses, and together with government and industry, appears as an indispensable element in the development of society. These three institutional spheres are mutually connected in a helix, and connections between them are occurring at different levels of the innovation process (Etzkowitz et al. 2000).

Four processes have contributed to the development of the triple Helix model (Etzkowitz et al. 2000, Etzkowitz 2000). The first process refers to internal change of each of the institutions in this model (university, business sector, government). Lateral connections have been created within universities, strategic partnerships formed, and university mission changed due to increasing pressure for the university to define contribution to economic development as one of its principal roles. The second process is connected to strengthening of the influence of each of the individual spheres on the other two (government, university and business sector). The third process is the creation of trilateral networks, connections and organisations, as a consequence of mutual interactions of these three spheres, which serve as a means of communication and encouraging creativity, and creation of regional cohesion. The significance of these trilateral networks is especially notable on the level of regional industrial clusters, which previously lacked a common organisational structure. Creation of such new forms of organising is typical for crisis situations, such as general economic recession or increased international competition[4]. The fourth process is associated with the recursive effect of these mutual networks and organisations, not just on university, business sector and government, but on the society as a whole. Triple Helix model does not apply only on relations between university, business sector and government, but also on the internal transformations of each of these spheres. Examples of such effects are internal changes within universities, strengthened by government policies.

The Triple Helix model helps in understanding the concept of entrepreneurial university, but does not fully describe what entrepreneurial university is, nor the creation and existence of relations between these institutions leads to the triple helix effect. In two thirds of cases, partnerships between universities, businesses and governments do not lead to the achievement of the set goals and end in failure (Hagen 2002), mainly due to different business cultures of partners, differences in their products and differences in their methods of work (Cyert and Goodman 1997, cited by Hagen 2002:209). However, when it is successful, cooperation results in synergistic effects.

3.2. Process of creation of entrepreneurial university

Emergence of entrepreneurial university is the result of internal development of the university and external influences on the university, coupled with the increasing role of knowledge in society and innovation based on knowledge. University is becoming entrepreneurial in order to meet the needs of its environment and contribute to regional and national economic development, but also to improve its financial situation and position of its employees. Thus, emergence of entrepreneurial university is the result of the increasing importance of knowledge in economic and technologic development and the fact that university is a cost-effective and creative bearer of the innovation process and the transfer of knowledge and technology to the society.
However, some scientists are opposed to the creation of entrepreneurial paradigm, which they see as a threat to the traditional integrity of the university, and excessive emphasis on profit

[4] Examples of this are American *The New England Council* and *Joint Venture Silicon Valley Network*.

leads to the loss of university's role as an independent critic of the society (Krimsky 1991, cited by Etzkowitz et al. 2000). These critics of the entrepreneurial modality of university believe that production of students and publishing of research should remain university's fundamental roles. But, despite the criticism, creation of entrepreneurial university is evident, although its development, organisation and management pose many questions. The transition towards entrepreneurial university does not mean that university becomes less oriented towards research, but that research and educational activities are seen as capital, and university expects to generate profit from its activities, primarily through projects with the business community (Blenker et al. 2006).

Entrepreneurship at the university does not apply only to natural and technical sciences and possibilities for creation of new ventures in those disciplines; entrepreneurship must be present in all parts of the university, since it provides good results not just for some but for all the scientific disciplines in research, teaching and relationships with the environment. Managing the traditional university disciplines, by combining new and old values is very complicated and is a test of university unity. Ignoring the importance of traditional university disciplines and leaving them to themselves can lead to the loss of university's intellectual heritage, on which university's competence is dependent (Clark 2001).

Integrated, entrepreneurial university will develop its portfolio of activities in which individual activities will have different potential for generation of income, but also for reputation of research excellence. The best situation is when research reputation carries a potential for generation of income. However, sometimes it will be necessary to ensure internal cross-financing between the parts of university that have both reputation and financial attractiveness and the parts with reputation and low financial strength.

Entrepreneurial character of the university, because of its relationship with the stakeholders, and the concern for development of the environment (internal and external), contributes to the creation of a good university image, which plays a very important role in university's development. A positive university image brings more students, greater number of projects, and thus larger income, necessary for functioning and development of the university.

3.3. Characteristics of entrepreneurial university

Entrepreneurial university is an institution which provides the basis for regional and national growth and development through close and intensive cooperation with its environment (Blenker, 2006).

Although a relatively large number of authors (Röpke 1998, Trachtenberg 1999, Clark 1998, Gibb 2005) have studied the characteristics of entrepreneurial universities, there is significant agreement on those characteristics:

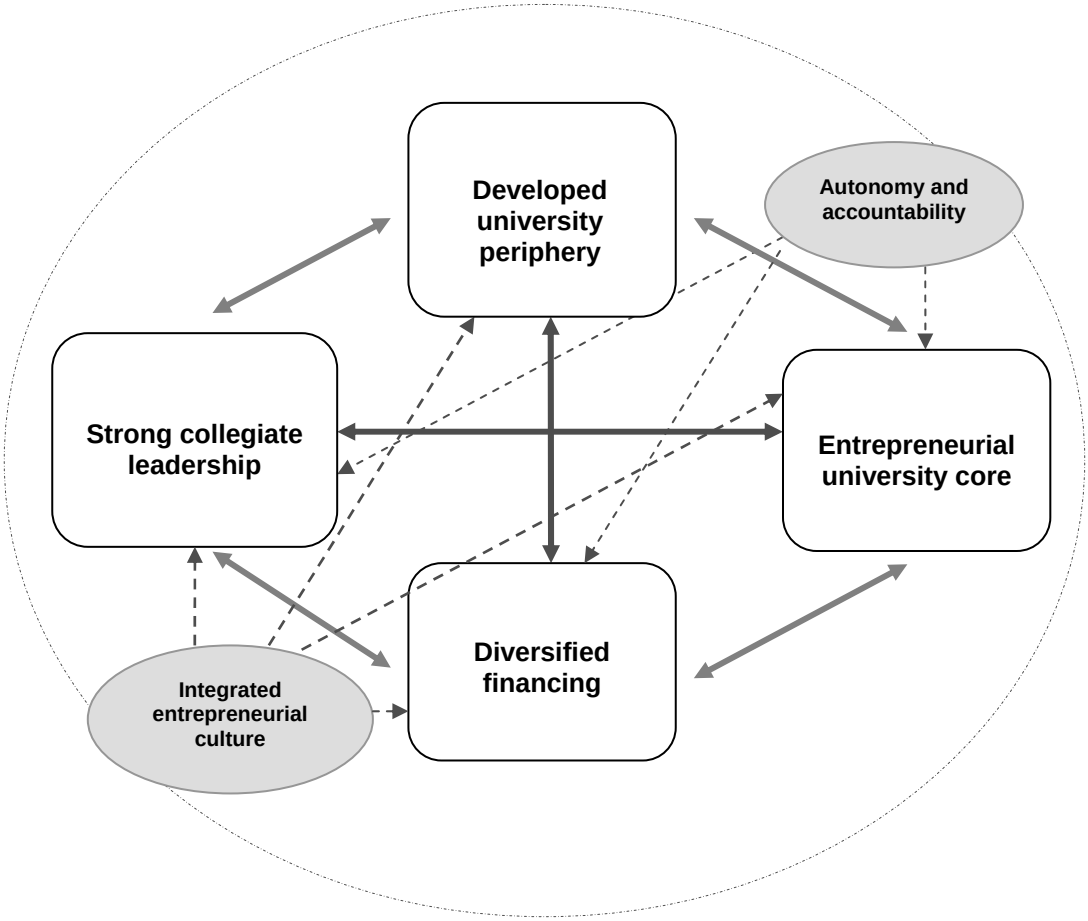
- In order for university to become entrepreneurial, each of its parts has to become entrepreneurial; creation of a unified university in which each of its employees, each department share a common vision is a prerequisite for creation of entrepreneurial university;

- University's leadership capacity is an important factor in transformation of university to entrepreneurial university. Strong leadership[5] is essential in the transformation of university, its increased flexibility, faster recognition of changes in the environment, responding to them, and focusing on the increasing and changing demand for university's services;
- Entrepreneurial university finds other sources of financing (beside the state), and thus ensures its financial independence, which enables it to preserve independence and prevent complete commercialisation (in the sense of choosing activities and not compromising its mission and the quality of its activities);
- Entrepreneurial university develops various forms of partnerships and connections with the world outside the university, though which it provides transfer of knowledge and technology, establishes connections with the business world, develops intellectual property, lifelong learning, finds additional sources of funding, maintains connections with the alumni, etc.
- Creation of entrepreneurial university contributes to restoring university reputation, because it proves that it is ready and willing, and that it knows how to solve specific problems of the environment, contribute to the economic development of the region in which it operates, and knows how to change and adapt to environmental conditions that are constantly changing. Entrepreneurial university is integrated and autonomous, but above all, responsible to the environment in which it operates.
- Entrepreneurial university is always oriented towards the future and is aware that once captured market position does not last forever, which constantly forces it to seek more effective methods of adapting, changing and responding to the changes in the environment. *"Competition ruled out any stopping point* (Clark 2004:178)".

Model of entrepreneurial university (Image 1) is the result of integration of various discussions and studies on the issues of effectiveness and efficiency of universities, and the ways in which to create the next-generation university (Oberman Peterka, 2008).

[5] James R. Johsen's doctoral dissertation: Leadership in context: A Case study of presidential effectiveness in a State university system defended at University of Pennsylvania in 2006 studies the essential role that university leadership plays in transformation of a university.

Image 1. Model of entrepreneurial university



Source: Oberman Peterka, 2008

The model consists of four basic elements, two value components and a system of connections between basic elements and value components (Oberman Peterka, 2008).

Basic components are: 1. entrepreneurial university core which consists of university components which perform the basic research and education functions (faculties, departments...), and supra-organisational structure of integrated university; 2. developed university periphery that are represented by university's interdisciplinary, project-oriented research centres, which work on the transfer of university's knowledge and technology to the business community (applied research), develop and take care of university's intellectual property, organise and implement (in cooperation with other university departments) continuous education programs (Lifelong Learning), help with university fundraising activities, develop contacts with the alumni, help with the development of their students' careers, and organise and participate in all the activities through which university establishes contacts with its environment; 3. strong (collegial) leadership; it is essential in the process of university transformation. If university leadership doesn't accept the concept of entrepreneurial university, it is unlikely that transformation to entrepreneurial university will

take place. Collegial leadership relates to creation of governance structure which motivates and encourages all parts of the university to proactive and enterprising behaviours, achievement of team goals comes is ahead of realization of personal goals ("we" vs. "I"); 4. diversified financing of university, which means creation of financially independent (on state sources of financing) university as an important prerequisite for creation of entrepreneurial university.

Value components are: 1. Responsibility and autonomy of university are two inseparable characteristics of entrepreneurial university: through responsible behaviour towards environment university obtains the right to autonomy in performing of its activity. Responsible behaviour of the university implies caring for the needs of the environment, desire to implement projects which will contribute to solving problems in the environment (research and educational). University autonomy can be observed through gradation: e.g. complete freedom is important in the choice of research approach and expression of positions based on conducted research, and in forming educational programs that meet future needs of the environment for specific competencies. Autonomy can be relatively limited by university's responsibility towards the environment, e.g. in choice of research topics or selection of the offer of educational programs; 2. Integrated entrepreneurial culture presumes high integration of all university elements around the value dimensions of entrepreneurship (proactivity, innovativeness, readiness to assume risk), and high decentralization of university on the principle of subsidiarity in reacting to changes in the environment. For the emergence of entrepreneurial university it is necessary that university core (integrated university, university components in basic research and educational functions), university periphery, as well as two management functions (leadership and financing) are capable of entrepreneurial behaviour.

Model is based on a systematic approach, which presumes connection of all parts of a system: in the model of entrepreneurial university this means mutual connection of each component and value determinant, and openness towards the environment. Thus, for example, entrepreneurial university core influences the development of university periphery, which creates opportunities for additional sources of financing for the university; precondition for successful implementation of such interactions is the existence of strong collegial leadership at the university. Influences of one sub-system of entrepreneurial university on the other are valid in all directions.

For the process of creation of entrepreneurial university it is not important from which part of this model the process starts, it is important that leadership capacity for managing such a complex change exists (Kerr 2001, Johnsen 2006).

The aim of building entrepreneurial university is to generate accomplishments which will enable the achievement of sustainable university, a desirable partner to the business and government sector within the stimulative Triple Helix development spiral. This can be possible only under the assumption that university is unique, but also subsidiary and autonomous, and responsible towards the environment in which it operates. Only in this way university can achieve the following: faster and better responding to changes in the environment, production of knowledge which allows more efficient problem-solving, educating people who will be able to manage their careers, cope with uncertainty and complexity of the environment in which they live and work, and contribute to the development of the region in which they operate (Singer 1996, Svarc 1998, Clark 1998, Clark 2001, Gibb 2005, Gibb&Hannon 2006, Lauc 2007).

4. JOSIP JURAJ STROSSMAYER UNIVERSITY – HOW CLOSE TO AN ENTREPRENEURIAL UNIVERSITY?

The J.J. Strossmayer University was established in 1975 and it is one of 7 public universities in Croatia. There are about 14.000 students that are enrolled at 11 faculties (Economy, Electrical Engineering, Philosophy, Civil Engineering, Catholic Faculty of Theology, Medicine, Agricultural, Law, Food Technology, Mechanical Engineering and Scholastic Faculty), 4 departments (Mathematics, Physics, Biology and Chemistry) and Art academy.

With the aim to analyse situation at the J.J. Strossmayer University in Osijek, and to determine how this university looks at its environment, how it reacts to changes, and how close or far it is from entrepreneurial university, in the December 2007 to February 2008 period 10 interviews were conducted (6 deans, 2 vice-deans, 1 head of university department and 1 vice-rector, according to a previously prepared Guide), 35 university employees (from assistants to full professors) and 364 university students (from 6 faculties) were surveyed (Oberman Peterka, 2008).

It is interesting to note that almost all respondents agree with the thesis that university should be entrepreneurial, but that term is differently understood. Some have noted that private universities are entrepreneurial by definition, while it is difficult for state universities to be entrepreneurial, where the term "entrepreneurial" is most often understood as a university that generates own income and performs commercial activity. It is visible from interviews and questionnaires that one part of respondents associates the term entrepreneurial university with university's educational activity i.e. that is the university which educates its students on entrepreneurship and prepares them for "entrepreneurial career", i.e. develops students' entrepreneurial skills and knowledge, where entrepreneurial skills are seen as those that are important for starting and developing a business venture. However, several respondents associate this term with organisation and behaviour of the university itself, and state that entrepreneurial university is one that anticipates changes in the environment and adapts to them, and one that cooperates with the business sector and enters into projects with it.

The following definition, given by one of the respondents, employed as a full professor at one of university's social science faculties shows to what extent is the term "entrepreneurial university" perceived with certain scepticism and mistrust, almost negatively. For him, entrepreneurial university represents a "sensitive idea which in a small and transitional context, i.e. wild and poorly defined market, can significantly destabilise the foundations of educational processes if it is accepted as a strategic and ultimate projection, since it is aggressively denied by unethical diversions." From this definition we can feel the fear of collapsing of the values on which university is based, and the fear of destabilisation of university in favour of unconditional commercialisation. In this understanding of the term entrepreneurial university we see the often accepted link between "entrepreneurship" and "market", which is still "poorly defined" in our society and is ruled by "unethicalness" and "aggressiveness".

Many do not connect entrepreneurship with proactive and innovative behaviour and therefore do not think that it should have a place at the university. For the vast majority of people (including those employed at the university) entrepreneurship is about starting ventures with the aim to make profit, and university, at least the state university is perceived by many as an institution where that should not be the main mission.

Such attitudes indicate that in the process of creation of entrepreneurial university attention should be given to how entrepreneurship is perceived, and that a wide discussion on relationships between university, business sector and government (Triple Helix), on the new paradigm of university performance based on the Mode 2 concept and on university's responsibility for those changes is required within the university, but also with all who are interested in the fate of the university.

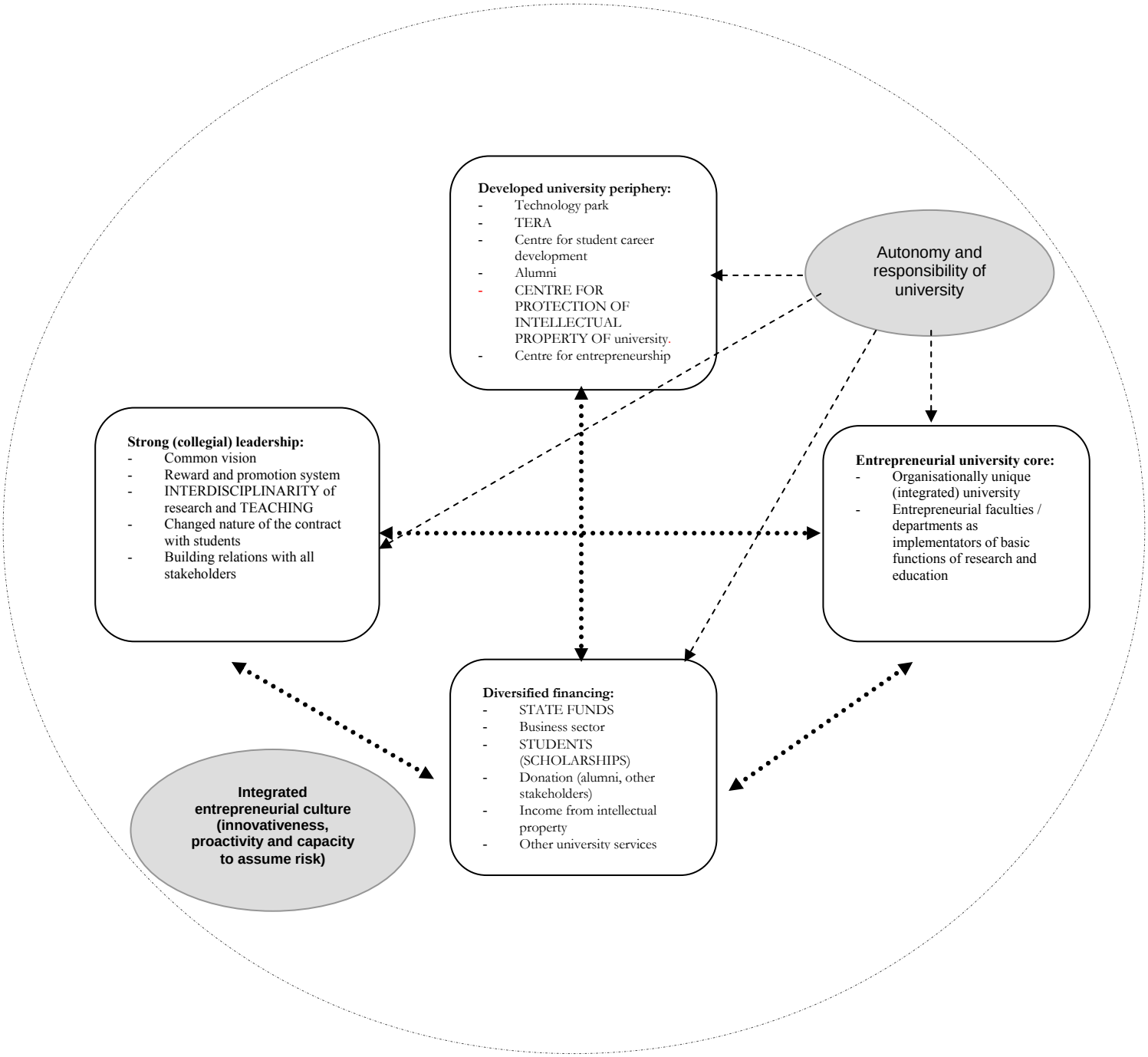
Connecting entrepreneurship with business and profit can be explained by organisational location and content: the vast majority of entrepreneurial studies in the world are located within business schools and faculties of economics (which is also the case at J.J. Strossmayer University in Osijek) and the vast majority of them are really focused on start-up, management and development of small ventures, whose owners' primary goal is generation of profit, which ensures sustainability, growth and development of ventures. However, there is more and more talk of entrepreneurship as an interdisciplinary phenomenon, and distinction is made between terms "enterprising behaviour" and "entrepreneurship behaviour"[6] (Gibb 1998). *Enterprising behaviour* is a wider term, which speaks of enterprising behaviour of each individual, necessary for survival in today's world, while *entrepreneurship behaviour* relates to entrepreneurial behaviour of a person that owns and manages a small business. Also appearing are entrepreneurial studies, which are not primarily oriented to the development of small business and which are not located within business schools and faculties of economics.

4.1. Where is J.J. Strossmayer University in Osijek in relation to the model of entrepreneurial university?

Image 2 shows the model of entrepreneurial university, in which entrepreneurial elements currently present at the J.J. Strossmayer University in Osijek are marked (with capital letters). Much is missing, from institutions, functions to elements of entrepreneurial organisational culture, but the lack of connections between individual components of the model is the biggest obstacle to the emergence of integrative and then entrepreneurial university. It is visible that some connections do exist, but they are insufficiently developed and do not contribute to development of entrepreneurial university in the full sense.

[6] In Croatian, both „enterprising behaviour“ and “entrepreneurship behaviour“ are translated the same.

Image 2 Components of the model of entrepreneurial university at the J.J. Strossmayer University in Osijek (Source: Oberman Peterka, 2008)



The missing components can be built in into functioning of the university with different intensity of investment (dedication, time, money); some relatively quick and without greater financial strain: interdisciplinarity of research will be easily achieved if the way of financing by the Ministry of Science, Education and Sports is changed; starting university alumni organization and career development office; some demand more time and great financial investments: technology park, enabling faculties / departments for entrepreneurial acting in implementing their basic functions (e.g. development of new educational programs, virtual learning platforms...), while some demand dedication of all actors at the university and time, but not money: developing a joint vision, integrated entrepreneurial culture, social responsibility, organizationally integrated university with a network of relations among all components of entrepreneurial university (organizational and commercial, and value), development of new business functions (fundraising campaigns, collaboration with business sector).

Building entrepreneurial university is a lengthy process work on which must be continuous and systematic. This particularly applies to the mechanisms of internal connections and the value components of the model. It is not not enough to make a decision to create entrepreneurial culture within university and create a responsible university; what is required is to work on building such value awareness through a series of measures and activities, and show on examples what responsibility of university is, and encourage entrepreneurial and responsible behaviour of everyone at the university. University is a part of society in which a huge amount of knowledge is concentrated, and it should serve as an example of an organisation that knows and can solve its own developmental problems. University must educate and bring up young people as socially responsible persons, who will be carriers of positive change in society.

5. CONCLUSION

Time, when only one out of twenty people sought university education, when the research base was small and when education consisted of preparing students for several possible areas of work, and when the community did not think about what university is doing and how can it contribute to community development, has passed. Knowledge and technology play an increasingly significant role in the development of the society. New discoveries and innovations in natural sciences, information technology, advancements in physics, but also a greater awareness of human rights to involvement, of responsibility to future generations through our relationship to the environment today... completely change the existing social, economic, political and ethical structures. Research directed towards the application of knowledge is the driving source of social development. The demand for different forms of cooperation between university, business sector and government is intensifying (Triple Helix), which imposes the need for reorganisation of the ways of working and thinking of all subjects in the society, including university.

Monitoring changes in the environment and adapting to them, together with initiating positive change represent the principal assumption for sustainable development of the university, as well as its survival as an important factor for the development of the society as a whole. Entrepreneurial response (proactivity, innovativeness and capacity to assume risks and cope with change) of the university is a chance for active participation in the development of society, in which knowledge becomes a right and obligation for everyone. Entrepreneurial response also offers a formula for institutional development of the university in which university defines and determines its own autonomy, secures diversified financing (and thus

decreases dependence on the state), develops new university departments and activities in accordance with society's demands, and leads to structural changes which ensure better capacity of university in responding to changes.

BIBLIOGRAPHY

Altbach, P., (1999) Peterson P.M., Higher education in the 21st century: global challenge and national response, Institute of International Education and the Boston College Center for International Higher Education

Blenker P., Dreisler P., Kjeldsen J., (2006) Entrepreneurship Education – the New Challenge Facing the Universities, A framework or understanding and development of entrepreneurial universitiy communities, Department of Management, Working paper, Aarhus School of Business and University of Aarhus, Denmark

Clark B., (1998) Creating Entrepreneurial Universities, IAU and Elsevier Science, Paris and Oxford

Clark B., (2001) The Entrepreneurial University: New Foundations for Collegiality, Autonomy, and Achievment, Higher Education Management, Vol.13, No.2, 2001

Clark B., (2004) Delineating the Character of the Entrepreneurial University, Higher Education Policy, 17

Communication from the Commission (2003), "Education and training 2010" – the success of the Lisbon strategy hinges on urgent reforms, Brussels

Constructing Knowledge societies (2002), New Challenges for Tertiary Education, The World Bank, Washington, D.C.

David P.A., Foray D., (2002) Discussion paper by Stanford Institute for Economic Policy research, Stanford University, Stanford

Delanty G., (2001) Challenging Knowledge The University in the Knowledge Society, The Society for Research into Higher Education & Open University Press

Denman B.D., (2005) What is University in the 21st Century?, Higher Education Management and Policy, Volume 17, No.2, OECD

Etzkowitz H., Leydesdorff L, (2000) The Dynamics Of Innovation: From National Systems And "Mode 2" To A Triple Helix Of University-Industry-Government Relations, Research Policy 29(2)

Etzkowitz H., Leydesdorff L., (2001) Universities and the Global Knowledge Economy, A Triple Helix of University – Industry – Government Relations, Science, Technology and the international political economy, London-New York

Etzkowitz H., Webster A., Gebhardt C, Terra B.R.C., (2000) The future of the university and the university of the future: evolotuion of ivory tower to entrepreneurial paradigm, Research Policy 29

Gibb A., Cotton J., (1998) Concept into Practice? The Role of Entrepreneurship Education in schools and further education, background paper to the conference held at the

Department of Trade and Industry, 8 December, Enterprise and Industry Education Unit, Durham University Business School, Durham

Gibb A., (2005) Towards the Entrepreneurial University, Entrepreneurship Education as a lever for change, National Council for Graduate Entrepreneurship, Policy paper #003

Gibb A., Hannon P., (2006) Towards the Entrepreneurial University, NCGE paper

Gibbons M., et.al., (2004) The new production of knowledge, The dynamics of science and research in contemporary societies, SAGE Publications

Gibbons M., (1998) Higher education relevance in the 21st century, The World Bank

Ginkel van H., (2003) The University of the Twenty – First Century: From Blueprint to Reality, Higher Education in Europe, Vol. XXVIII:, No.1

Hagen R., (2002) Globalization, university transformation and economic regeneration, A UK case study of public/private sector partnership, The International Journal of Public Sector Management, Vol.15, No.3

Johnsen J.R., (2006) Leadership in context: A case study of presidential effectiveness in a state university system, A dissertation in higher education management, University of Pennsylvania

Kerr C., (2001) The uses of the University, 5th ed., Harvard University press

King R. (editor) et.al., (2004) The University in the Global Age, Palgrave Macmillan

Kirby D.A., (2004) Entrepreneurship education: can business schools meet the challenge?, Education and Training, Volume 46, Number 8/9

Lauc, Z., (2007) Autonomija sveučilišta i načelo supsidijarnosti, Seminar: Učinkovitost postojećih organizacijskih modela obzirom na stupanj funkcionalne integriranosti pojedinog sveučilišta, Begovo Razdolje, 3- 5.05.2007.

Lumpkin G.T., Dess G.G., (1996) Clarifying the entrepreneurial orientation construct and linking it to performance, Academy of Management review 21

Neave G., (2002) Globalization: Threat, Opportunity or Both?, IAU Newsletter, Vol. 8, No. 1

Negroponte N., (1996) Being digital, 1st ed., Vintage books, New York, 1996

Oberman Peterka, S., (2008) Entrepreneurial universities in a function of effective dissemination of intelectual property of universities, doctoral theses, J.J. Strossmayer University in Osijek, Faculty of Economics in Osijek

O'Hara M., (2007) Strangers in a strange land: Knowing, learning and education for the global knowledge society, Futures, 39, No 8.

Porter M., (1998) On competition, A Harvard Business Review Book, Harvard Business School Press, Boston.

Röpke J., (1998) The Entrepreneurial University: Innovation, academic knowledge creation and regional development in a globalized economy, Philipps-Universitat Marburg, Germany

Sesardić N., (1993) O autonomiji sveučilišta, Erasmus: časopis za kulturu demokracije, br. 2.

Shell Global Scenarios to 2025, (2005) Shell International Limited

Singer S., (1996) Transformation of CEE countries and unemployment – is the university a missing link in making transformation faster and unemployment lower?, EAEPE Conference 1996, Antwerp, Belgium, 7-9 November

Singer S., Oberman Peterka S., (2010) From ignoring to leading changes – what role do universities play in developing countries? (Case of Croatia), Ekonomski vjesnik, J.J. Strossmayer University in Osijek, Faculty of Economics in Osijek, br. 2

Singer S., Horvat J., Zekić M., Medić M., Borozan Đ., Rebić M., Pleslić Z., (1993) Iz razvoja u razvitak, Sveučilište Josipa Jurja Strossmayera u Osijeku, Osijek

Skills for Graduates in the 21st Century, (1995) The association of graduate recruiters, October

Svarc J., (1998) Uloga znanstvenih istraživanja i visokog obrazovanja u inovacijskom društvu: potreba stvaranja nove paradigme, Vidljiva i nevidljiva akademija, Mogućnosti društvene procjene znanosti u Hrvatskoj, urednik: Darko Polšek, Institut društvenih znanosti Ivo Pilar, Zagreb, str.177-202

http://get2test.net/background/index.htm, 12.04.2011.

THIRD SECTOR/CIVIL SOCIETY DEVELOPMENT IN GLOBAL PERSPECTIVE

Primož Pevcin
University of Ljubljana, Faculty of Administration
Gosarjeva ulica 5, SI-1000 Ljubljana, Slovenia
Phone: ++ 38615805584; Fax: ++ 38615805541
E-mail: primoz.pevcin@fu.uni-lj.si

Key words: *Third sector, Alternative labels, Measures of the sector size, Determinants of global variations, Empirical analysis*

ABSTRACT

The third sector (alternatively also often labelled as civil society, non-profit sector, social economy etc.) is a very diverse sector, with organisations serving certain common purposes. The third sector emerged due to the several potential reasons, although the most important reasons portrayed in the literature tend to be market and government failure in the provision of certain goods and services to citizens, the emergence of pluralism and individual freedom in modern societies, and the increased pressures on solidarity among people. Basically, the third sector development could be taken as the result of the democratic and capitalist development of the society. The existing evidence shows substantial increase in socio-economic importance of the third sector in recent decades. Nevertheless, substantial variations exist in the size of the sector among countries. Consequently, paper discusses and analyses dimensions of the sector, socio-economic roles and importance of the sector in modern societies, but also theoretically and empirically investigates (in the sample of selected countries for which relevant data on the size of the sector are available) potential factors affecting differences in the size of the sector among countries, which are predominantly based on premises of heterogeneity theory, resource dependence theory, interdependence theory and failure theories.

1. INTRODUCTION

As Hodgkinson and Weitzman (1996) have pointed out, the so-called third sector includes a diverse set of organisations, which basically serve public purposes, such as organisations in health, human services, arts, culture, education, research, religious services, fund-raising and advocacy activities, etc. This sector is influenced by various factors, such as the state of national economy and public policies, changes in population and its preferences etc., but unique to this sector are certain sources of support, which are based on voluntary donations of time and other contributions.

Since this is a very diverse sector, numerous alternative labels for defining it are used both in theory and in practice. Indeed, Lorentzen (2010) has recognised that four most commonly used labels for this sector are non-profit, third, voluntary and civil sector (society). He has though admitted that the choice of the sector label seems to be accidental, which means that labels are usually used as synonyms. He has argued that voluntary label was the first one to

emerge as the result of the ideological struggle between associations and the state in the times of industrialisation in the nineteenth century.

Nevertheless, all three other most commonly used labels emerged much later. For instance, third sector label emerged in 1970's as the sector was seen as potential alternative to the expanding state and market-based welfare. In contrast, civil society label gained ground in 1980's as this sector was associated with new evolutionism and the need for an autonomous civil sphere outside the state, which was particularly relevant in totalitarian regimes as well as in the circumstances of state-controlled reforms. Similarly, non-profit label also gained ground in 1980's, and was aimed at describing the sector as the one with existing non-distribution constraints and differentiated demand as the form of distinction from government and business (for-profit) sector. Furthermore, Lyons (2009) has argued that the increasing popularity exist of using the label civil society, since this term has normative dimension of something to be encouraged. Consequently, civil society is nowadays often seen as one the key pre-requisites of economic and social development.

The existing literature and empirical evidence generally supports the thesis that there has been a substantial growth in the number of third sector organisations and in socio-economic importance of the third sector in recent decades. Nevertheless, substantial variations exist in the size of the third sector across countries. Consequently, the main purpose of the paper is to identify and empirically validate potential factors that shape the differences in the size of the sector in cross-national perspective.

2. STRUCTURE AND FUNCTIONING OF THE SECTOR

The majority of third sector activities are concentrated in the fields of culture and recreation, education and research, health and social services (see figure 1). Actually, according to readings in Ott (2001), this sector emerged due to the four distinguished forces, those forces being the existence of market and government failure in the provision of certain goods and services to citizens, the emergence of pluralism and individual freedom in modern societies as well as the increased pressures on solidarity among people. Basic characteristic of the third sector organisations is that the main goal of their activities is not the recovery of investment costs and profit maximisation[1], but primarily the advancement of certain social (or public) goals. Moreover, the existence of the sector is, in fact, the result of the development of democratic society and the capitalist economic system, where this sector exists for the purpose of elimination or reduction of market and government failures in provision of certain goods and services or in meeting certain needs of citizens.[2] Indeed, Weisbrod (1998) says that the relative importance of third sector increases with the increasing heterogeneity of modern societies, which causes that the preferences and needs of citizens more and more differ, thereby decreasing demand for universal public goods and services but increasing demand for public goods and services with more individualistic and pluralistic characteristics.

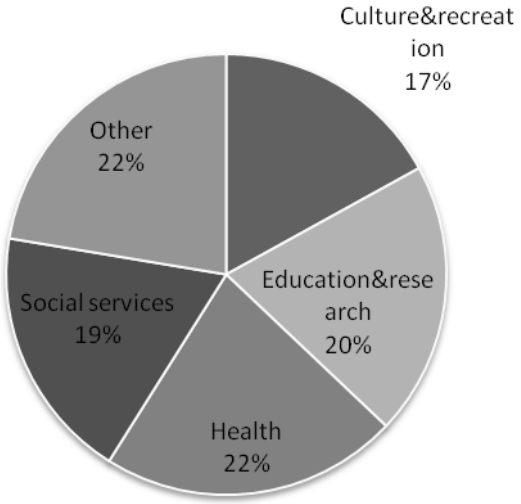
Furthermore, also the failures of for-profit sector increase the need for the existence of the third sector. These failures can be described as market or contract failures, which are predominantly caused by imperfections in market relationship as well as informational

[1] Although these contingent profits are desirable in order to be reinvested for development of existing and new organisational activities.

[2] Intuitively, it can be concluded that in crisis situation both market and government failures increase, indicating that the relative socio-economic importance of non-profit sector should increase.

asymmetry, which causes that providers can exploit market position and the ignorance of buyers to maximise their interest (Grønbjerg, 1998). In this sense, because third sector organisations have less incentives and possibilities to exploit buyers' ignorance, they are usually more trusted in providing certain goods and services, which are characterised by large market imperfections or the existence of important informational asymmetries (e.g., education, counselling etc.).

Figure 1. Fields of third sector activities and shares of their contribution to GDP, 7-country average for the period 1999-2004[3]

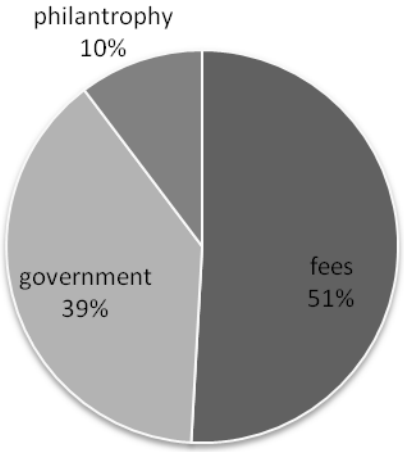


Source: Salamon et.al. (2007)

The essence of the third sector is that it receives resources and revenues for its operation from many different sources. Actually, in the past the most important sources were voluntary donations by individuals and business sector. However, recently observed trends, which can be also elaborated from figure 2, show, that user fees and other sources from commercial activities are increasingly replacing governmental funding, while grants have become, relatively speaking, quite negligible. This has occurred predominantly due to the fact that in recent years significant trends and pressures exist for larger commercialisation of the activities of third sector organisations, which are caused predominantly by changes in the system and the amount of budgetary and grant financing.

[3] Data represent 7-country average for the period 1999-2004, analysed countries being Australia, Belgium, Canada, Czech Republic, France, Japan and New Zealand. For more information see Salamon et.al. (2007).

Figure 2. Third sector revenue sources, 26-country average for 1995[4]



Source: The John Hopkins Comparative Nonprofit Sector Project (2004)

Namely, the main force that the third sector organisations are facing recently is the emergence of ever-increasing demand for commercialisation of their activities.[5] This commercialisation of activities has been based on the ideology of the new public management, which heavily influenced governmental policy-making in recent decades, basically promoting the idea of increasing market orientation of governmental and non-profit organisations.[6] These requirements and policy issues have usually been expressed more indirectly, mainly with the changes in the extent of governmental funding, which required from third sector organisations to be more market oriented, if those organizations even wanted to operate normally. Although the commercialisation of activities is actually in contradiction with the basic purpose of those organisations, that is to be non-profit, it has now become a predominant form of operation for a substantial part of third sector organisations in practice.

In general, the majority of third sector organisations have been relatively successful when facing the need of increased commercialisation of their activities, yet this has generated some possible problems for them. One of the problems is related to the increased cooperation with the for-profit sector, which can often result in certain limitations imposed on the activities of third sector. This can seriously affect the autonomy of non-profit organisations, also possibly

[4] Data represent 26-country average for 1995. It should be noted that substantial regional differences exist in relative importance of each source of revenue. For instance, in analysed Western European countries government sources still represent the largest single source of revenue of non-profit organisations, whereas in analysed Latin American countries fees represent almost three quarters of all sources of non-profit organisations. For more detailed insight in data see The John Hopkins Comparative Nonprofit Sector Project (2004).

[5] This growing pattern has been described by Weisbrod (1998) with the fact that non-profit museum are opening retail shops, non-profit universities are engaging in research networks with private firms, non-profit hospitals are opening various health clubs etc. Yet, the assertion relates to all organisations in general. It should be quite understandable that for some organisations, such as charities etc., this assertion does not hold. Similarly, Anheier (2000) reports that user fees and charges were in 1990 the most important source of revenues for third sector organisations in Hungary, Italy, Sweden, Japan, United Kingdom and United States, but not in France and Germany, although this share has, nevertheless, quite substantially increased till 1995 in those two countries.

[6] It should be stressed that this ideology was, and in some instances still is, very influential in policy making, also in post-socialist countries.

putting at risk the goals and values of their initial mission (Macedo and Pinho, 2006).[7] A typical example is the cooperation of universities with business corporations, where certain limitations can be put on the dissemination of scientific findings, especially those that are not in line with the expectations, needs or strategy of corporation. Moreover, another problem of such arrangements is their instability, but we should also not neglect the fact that universities are usually less cost-effective organisations in relation to other competing research organisations, a real danger being the »outsourcing« of research activities from universities (Ott, 2001).

Nonetheless, a substantial change has also occurred in the forms of governmental funding of non-profit organisations, which has become increasingly performance oriented. It should be acknowledged that the positive effects of performance oriented budgeting - for instance increased allocative, managerial or stabilising role of the budget[8] - are usually addressed from the governmental point of view. However, certain traps exist for third sector organisations when this concept of financing is introduced. First of all, performance oriented budgeting inevitably puts the focus on measurable efficiency of non-profit organisations, which, according to Euske (2003), forces those organisations to seek economies of scale. Notwithstanding, this can cause the loss of the organisational responsiveness to certain societal needs.

Second, experience of certain countries, which have implemented performance oriented financing in the classical non-profit areas of education and health, reveals relative inefficiency and limitations of using performance indicators as a foundation for the amount of governmental financial support. Namely, those indicators and criteria for funding are usually based on the amount of »production« of each institutions, as for instance so-called taximeter model used in Denmark (Ginnerup et.al., 2007).[9] It should be noted that such models of financing can easily cause unintended effects on motivation of organisations receiving funds as they can lower the criteria in order that more students actually pass the exam or patients receive more medical treatments that actually is needed.[10]

3. CURRENT STATUS OF THE SECTOR

The third sector currently represents important part of economical, political and social environment of almost all developed countries. In particular, the growth in socio-economic importance of the sector has been very intensive in the last few decades. Salamon (1994) has labelled that process as »associational revolution«. He has stressed that this growth occurred because third sector actually increasingly complements government and markets in the provision of important services, especially in health, education and social fields. Since those services are often funded or subsidised by government, this actually means that government indirectly promotes the growing importance of third sector organisations in the society. Some

[7] This can potentially lead to so-called organisational isomorphism, where non-profit organisations can start to resemble their resource providers.

[8] More on the issue of programme and performance oriented budgeting see Robinson (2007).

[9] For instance, educational institution obtains funds for each student that passes the each year required exams; health institution obtains funds on the number of medical treatments that it actually performs etc.

[10] This was the experience of Norway, where they have experienced large difficulties in implementing performance oriented budgeting in practice (Anderson et.al., 2006). Similarly, the experience of the United States reveals that performance budgeting does not have immediate and substantial effect on the improved efficiency and effectiveness of organisations, where specifically graduation rates are seen as very biased form of measure, as it tends to increase artificially after it is put up as performance measure (Shin and Milton, 2004).

authors (see, e.g. Anheier, 2000) have even argued that actually the introduction of the New Public Management initiative, which among others promoted the ideas of "lean government" with privatisation and commercialisation of certain governmental functions, contributed to the growth of the third sector. Similarly, Hammack (2001) has also observed the same trend of rising socio-economic importance of third sector, although he has argued that the growth had occurred predominantly because individuals, businesses and other institutions had gained greater independence from the government.

Ye, it should be noted that current economic crisis has more or less paralysed significant part of for-profit (business) sector, with the government policies in the majority countries being focused on the aftermath of such situation. Consequently, the relationship between the government and for-profit sector is increasingly changing from constitutionalism into paternalism, where economic activity is subjected to more intensive governmental subsidisation and regulation. However, economic slowdown actually positively affects the importance of the third sector, as can we elaborate from the experience of previous economic crises. Namely, the third sector is characterized by the fact that crisis situation increases demand for its products and services (such as charities, educational organizations, etc.), yet this sector is also characterised to be relatively less sensitive to economic trends, which refers to financial (and other) resources of organisations in the sector (NCVO, 2008).

Two main reasons for this lower sensitivity of third sector are diversified resources and the in-build ability of non-profit organisations to mobilise resources, especially in crisis situations. Indeed, social networks, constituting a third sector, allow extremely rapid and effective mobilisation of especially human resources, enabling the organisations within the sector to achieve certain objectives without necessity to establish state coercion or to provide economic incentives. In fact, the functioning of third sector is based, according to Ott (2001), on the existence of so-called economies of grants, which include voluntary donation of time, money, etc. This enables the sector, contrary to state coercion or market economy, to operate in almost all areas of social life, often quite independently of the current political and economic conditions.

4. SECTOR IMPORTANCE IN GLOBAL PERSPECTIVE – THEORY AND EMPIRICS

Given the fact that this is a very diverse sector, difficulties exist also in measuring its size, development and socio-economic importance. One of the first attempts in this direction in cross-national perspective has been made by the John Hopkins Comparative Nonprofit Sector Project (2004), which has delivered the data on the size of the sector for 46 countries, where sector expenditures in GDP and sector workforce in economically active population have been taken as the measures of the size of the sector. However, various alternative measures of the size of the sector emerged more recently, predominantly in the form of various indexes, such as for instance Civil Society Index or Diamond (CSI), developed by Civicus (2006).

As already described, the existing literature generally support the thesis that there has been a growth in the size of the third sector in recent decades. Nevertheless, substantial differences exist in the development and relative socio-economic importance of third sector among countries, even among developed ones. For instance, as it can be observed from table 1, the size of the third sector seems to be smaller in less developed and post-socialist countries. Namely, the activities of third sector organisations are usually hampered in totalitarian

political regimes, as the tendency exists there for political system and government to dominate civil society. In particular, Civicus (2006) has reported that in post-socialist countries one of the major factors affecting smaller extent of third sector is the legacy of socialism, as rather negative attitude towards voluntary work has been observed in those countries. The argument is that the citizens in those countries strongly associate this type of work with the socialist era, during which people were often 'coerced into volunteering' for state-controlled organisations.

Table 1. Civil Society Index – summarised scores for selected countries

Country	**Civil Society Index (CD) – summarised score**	**Country**	**Civil Society Index (CD) – summarised score**
Argentina	6,7	Ghana	6,9
Bulgaria	6,3	Guatemala	5,3
Chile	7,7	Honduras	7
Croatia	7	India	5,4
Czech Republic	7,6	Indonesia	6,5
Germany	9,4	Jamaica	6,7
Greece	6,4	Lebanon	5,9
Italy	8,4	Macedonia	6,8
Netherlands	8,3	Mongolia	6,4
Poland	6,8	Mozambique	4,4
Russian Fed.	4,9	Nepal	5,9
Slovenia	6,8	Nigeria	6,8
Ukraine	6,6	Romania	6,6
Azerbaijan	4,1	Korea	7,6
Bolivia	6,7	Togo	3,9
China	5,5	Turkey	4,9
Ecuador	5,6	Uruguay	5,9
Egypt	4,8	Vietnam	5,9
Georgia	5,8		

Source: Civicus (2006); Own calculations

Interesting question is, how could we explain those variations. It is worth noting that theories on the development and growth of the third sector are multidisciplinary and interdisciplinary in their nature, since they have been developed by economists, political scientists, psychologists, sociologists, historians etc. This has caused that no unified theory exists, which would be able to explain differences in the development of the third sector among countries (Worth, 2009). The existing hypotheses, concepts and theories can be separated between demand and supply side approaches. The demand side approaches usually focus on the role of the third sector in provision of goods and services that are not adequately provided by for-profit and government sector. In contrast, supply side approaches usually contemplate that size of the third sector is related to the extent of resources available to the sector, which should, among others, depend also on the wealth of certain society (Grønbjerg and Paarlberg, 2001).

Among typical demand side oriented approaches, failure theories are one of the most influential ones. These theories are very economic in their nature; they state that third sector exists due to market failure, contract failure, and government failure (Young, 1998). Hence, government failure argument has been also addressed in heterogeneity theory (see Weisbrod, 1998), which argues that the relative importance of third sector is related to the increased heterogeneity of modern societies, in particular from the cultural point of view.[11]

In contrast, Salamon (1987) has argued, in line with supply side approach, that government provides substantial financial resources to third sector that in turn delivers the services, thereby replacing governmental provision. These are actually foundations of the so-called interdependence theory that claims the government is a partner to non-profit organisations in the production of quasi-public goods, which means that complementary role of third sector and government exists when dealing with market and government failures. Similarly, the resource dependence approach, initiated by Pfeffer and Salancik (1978), actually argues that resources available to the third sector depend on the wealth of certain society (as the prerequisite for ability to contribute funds), as well as on the amount of government spending (as one of the most important revenue sources for non-profit organisations).

5. EMPIRICAL ANALYSIS

The purpose of the study is to identify and empirically verify the effect of potential factors, derived from the theories, hypotheses or concepts discussed above, on the cross-country differences in the size of the third sector. The empirical analysis is based on the sample of 37 countries, listed in the table 1. The main approaches evaluated in the study are demand and supply heterogeneity, resource dependence theory, interdependence theory and failure theories. However, it needs to be stressed that this is exploratory study, which tries to share some insight into potential factors shaping differences in the size of the sector among countries, and particularly, how much variation could be explained with those factors.[12] With this purpose, the summarised score of Civil Society Index, obtained from separate diamond scores, is used as dependent variable. As already noted the data for this variable are derived from Civicus (2006).

First explanatory variable describes supply-side heterogeneity of society of the society, which could be measured with the level of income inequality in society. Therefore, Gini index is used as a proxy for income inequality in society. Source of data for these measures is Human Development Report (2009) and relates to the period 1992-2007. Second explanatory variable describes the level of the democratic development of the society, which should try to explain the notion that the socio-economic importance of the third sector is the result of democratic development of society. In this context, it should be expected that third sector is larger in more democratic countries. Source of data for these measures is index of democracy taken

[11] It is necessary to differentiate two distinct features of heterogeneity: socio-economic (supply side) heterogeneity and cultural (demand side) heterogeneity. Cultural aspect of heterogeneity is actually in line with Weisbrod's preposition of the positive affect of heterogeneity on the size of third sector. In contrast, the effect of socio-economic heterogeneity on the size of the third sector should be opposite. The idea is that the resources available to non-profit organisations are more easily attainable in more socially homogeneous societies, where also larger social cohesion exists. This means that also the frequency of social interactions tends to be larger in those societies (Corbin, 1999).

[12] Since many variables used in the analysis are not collected and reviewed on regular basis, the focus is more oriented towards the evaluation of the concepts discussed in the paper rather than on issues related to data quality.

from Vanhanen (2000). The data relate to year 2000, since they are taken from dataset version 2.0. Third explanatory variable relates to resource dependence hypothesis, which contemplates that the development of the third sector is related to the availability of resources to the sector. Variable real gross domestic product per capita in 1.000 purchasing power parity USD is used as a reasonable proxy to measure wealth of the society. Source of data for these measures is Freedom in the World Report (2002) and relate to year 2000. Fourth explanatory variable used in the analysis relates to interdependence and government failure hypotheses. This variable describes the size of government transfer expenditures in GDP. This variable describes the amount of governmental welfare related spending; the study would like to portray, whether this spending promotes or crowds out third sector (social) activities. The data for this variable are taken from the Gwartney and Lawson (2009) dataset and relate to the year 2000.

Furthermore, in relation to demand side heterogeneity, three explanatory variables are used that describe ethnic, linguistic and religious fragmentation of society. All three indexes are computed as one minus the Herfindahl index of ethnic, linguistic or religious group shares, where ethnic fragmentation considers not only linguistic, but also racial and physical characteristics, which are omitted if only linguistic fragmentation is taken into consideration. Source of data for these measures is Alesina et.al. (2003). Finally, last explanatory variable used in the analysis relates to market failure argument. Although it is difficult to directly investigate the effect of market failure argument, an insight into the existence of market failure could be indirectly observed through poverty (Corbin, 1999). Yet, the problem of achieving internationally comparable data on poverty exists in cross-national comparison. For instance, data on Head Count Index, which measures the percentage of population in country with a standard of living below national poverty line is biased, since definitions of poverty vary among countries and wealthier countries tend to employ more generous standards of poverty, and some countries even do not report the official values of index (see World Bank, 2010). Still, for the purpose of developing the model, the variable measuring poverty with Head Count Index is included. Source of data for these measures is CIA (2010).

Table 2. Factors of sector development - empirics[13]

Dependent / Explanatory	Civil Society Index – summarised score
Constant	1.4261 (0.1260, 11.322)***
Wealth	0.0170 (0.0072, 2.380)**
Transfers	0.0079 (0.0048, 1.657)
Ethnics	0.342 (0.196, 1.743)*
Linguistics	-0.250 (0.165, -1.519)
Religion	0.148 (0.137, 1.080)
Poverty	0.0035 (0.0026, 1.369)
N	37
$R^2_{adj.}$	0.3587
SEE	0.1567
Durbin-Watson d	2.02
F-stat (p)	3.61 (0.012)
RESET (p)	0.976

Source: Own calculations

The results of the ordinary least squares regression analysis (OLS) are presented in table 2. Multiple regression measures the effect each explanatory variable has on the dependent variable while controlling for the effects of all other selected (included) variables. Explanatory variables are listed in the left-hand column, whereas unstandardised coefficients, standard errors and values of t statistics (in parantheses) are presented in right-hand column.

The results provide rather weak support for the majority of explanatory variables included in the model, although the majority of variables tend to have expected direction of the effect. This may be due to the potential problem associated with multicollinearity, since relatively high pair-wise correlation between variables describing ethnic and linguistic fragmentation can be observed (although this correlation is not excessively high). Since the main goal of the analysis is providing the assessment how well the model predicts cross-country variations in the size of third sector, the issue of multicollinearity should not be seen as a problem that needs to be addressed further, especially if we want to avoid committing specification bias of the model.[14] Yet, variables describing income inequality and level of democracy have been even excluded from the model, since the statistical test proved they tend to be redundant variables deflating adjusted R^2.

Nevertheless, the adjusted R^2 value even suggests that the selected six explanatory variables explain almost two fifths of the variation in relative size of the third sector among 37 analysed countries. This result should not be seen as irrelevant, given the fact that cross-section data are used and that sample under consideration is very diverse.[15] Particularly notable is the

[13] Log-lin regression function is estimated. T-values include White heteroscedasticity-consistent standard errors.
[14] More on this issue see Gujarati (2003).
[15] Methodological problems associated with the calculation of CSI index (see Lyons, 2009) should also be taken into account.

effect of the variable gross domestic product per capita, which is even the most important explanatory variable in the model (beta). This indicates that supply-side factors, such as the availability of the sources to the sector, seem to be more important in explaining cross-country differences in the size of third sector. Consequently, the notion that socio-economic importance of the sector is related to the economic development of the society is also strengthened. Besides, the effect of the variable describing ethnic fragmentation of society, a measure of demand heterogeneity, supports the idea that diversity in society positively contributes to the size of third sector, which obviously acts as place where different needs of various (cultural) groups in pluralistic societies are met.

6. CONCLUSION

Interestingly, six explanatory variables used in the multiple regression model explain almost two fifths of variation in the relative size of the sector among 37 countries in the sample. This should not be neglected, especially if we take in mind that cross-sectional data are used. In particular, gross domestic product per capita has the largest explanatory power in the model, suggesting that resource availability, derived from the wealth of society, is the most significant attribute in explaining cross-country variations in the size of the third sector. This compares favourably to the theoretical predictions, and specifically tends to promote the role of wealth in sector development. Nonetheless, demand side heterogeneity, in particular ethnic fragmentation of society, has also positive effect on the size of the third sector, which is in line with predictions of Weisbrod (1998). In this context, the real problem of the analysis is the lack of internationally comparable data on the size of the third sector, both from cross-country as well as from time frame perspective, which omits the analysis to be performed in the larger sample. This would enable more accurate estimates and even provide a tool for possible elimination of multicollinearity problem. Nevertheless, since this study is more exploratory in nature, it should be seen as a basis for additional research on the macro and micro factors causing cross-county variations in the size of sector.

BIBLIOGRAPHY

Alesina, A.F., et.al. (2003): **Fractionalization,** ***Journal of Economic Growth***, 8: 155 - 194

Anderson, B., et.al. (2006): **Budgeting in Norway,** ***OECD Journal on Budgeting,*** 6: 7 - 44

Anheier, H. (2000) **Dimensions of the Third Sector: Comparative Perspectives on Structure and Change,** Central Policy Unit Seminar: The Third Sector: Beyond Government and Market, http://www.cpu.gov.hk/ [Accessed 4.2.2011]

CIA (2010) **The World Factbook 2010,** Washington: Central Inteligence Agency

Civicus (2006) **Civicus Civil Society Index: Preliminary Findings Phase 2003-2005,** World Alliance for Citizen Participation

Corbin, J.J., (1999): **A Study of Factors Influencing the Growth of Nonprofits in Social Services,** ***Nonprofit and Voluntary Sector Quarterly,*** 28: 296 - 314

Euske, K.J., (2003). **Public, private, not-for-profit: everybody is unique?.** ***Measuring Business Excellence***, 7: 5 - 11

Freedom House (2002) **Freedom in the World 2002 Report,** http://www.freedomhouse.org [Accessed 8.6.2010]

Ginnerup, R., et.al., (2007): **Performance Budgeting in Denmark,** ***OECD Journal on Budgeting,*** 7: 67 - 90

Grønbjerg, KA, (1998): **Markets, Politics, and Charity: Nonprofits in the Political Economy** in JS Ott, ed.: ***The Nature of the Nonprofit Sector,*** Boulder: Westview Press, 2001, pp. 217-231.

Grønbjerg, K.A., Paarlberg, L., (2001): **Community Variations in the Size and Scope of the Nonprofit Sector: Theory and Preliminary Findings,** ***Nonprofit and Voluntary Sector Quarterly,*** 30: 684 - 706

Gujarati, D., (2003): **Basic Econometrics**, Boston: McGraw-Hill

Gwartney, J., Lawson, R. (2009): **Economic Freedom of the World: 2009 Annual Report,** Vancouver: Fraser Institute

Hammack, D.C., (2001): **Introduction: Growth, Transformation, and Quiet Revolution in the Nonprofit Sector Over Two Centuries,** ***Nonprofit and Voluntary Sector Quarterly,*** 30: 157 – 173

Hodgkinson, VA, Weitzman, MS, (1996): **Overview: The State of the Independent Sector,** in JS Ott, ed.: ***The Nature of the Nonprofit Sector,*** Boulder: Westview Press, 2001, pp. 9-22.

John Hopkins Center for Civil Society Studies (2004) **The John Hopkins Comparative Nonprofit Sector Project**, Baltimore.

Lorentzen, H., (2010): **Sector Labels**, in R Taylor, ed.: ***Third Sector Research***, New York: Springer, pp. 21-36.

Lyons, M., (2009): **Measuring and Comparing Civil Societies,** ***Cosmopolitan Civil Societies Journal***, 1: 71 - 84

Macedo, I.M, Pinho, J.C., (2006): **The relationship between resource dependence and market orientation: The specific case of non-profit organisations.** ***European Journal of Marketing***, 40: 533 - 553

NCVO (2008) **Economic downturns and the voluntary and community sector: a short review of the evidence,** http://www.ncvo-vol.org.uk/ [Accessed 1.9.2009]

Ott, J.S., (2001): **The Nature of the Nonprofit Sector,** Boulder: Westview Press

Pfeffer, J., Salancik, G.R., (1978): **The external control of organisation: A resource dependence perspective,** New York: Harper Collins

Robinson, M., (2007): **Performance Budgeting: Linking Funding and Results**, Basingstoke: Palgrave Macmillan

Salamon, L.M., (1987): **Partners in public service: The scope and theory of government-nonprofit relations**, in WW Powell, ed.: ***The nonprofit sector: A research handbook***, New Haven: Yale University Press, pp. 99-117.

Salamon, L.M., (1994): **The Rise of the Nonprofit Sector,** ***Foreign Affairs***, 73: 109 – 122

Salamon, L.M., et.al. (2007), **Measuring Civil Society and Volunteering: Initial Findings from Implementation of the UN Handbook on Nonprofit Institutions,** , John Hopkins Center for Civil Society Studies, Baltimore, Working Paper No. 23.

Shin, J., Milton, S. (2004): **The effects of performance budgeting and funding programs on graduation rate in public four-year colleges and universities.** ***Education Policy Analysis Archives***, 12: 1 - 27

United Nations (2009): **Human Development Report,** New York: United Nations

Vanhanen, T., (2000): **A new dataset for measuring democracy, 1810-1998,** ***Journal of Peace Research,*** 37: 251 – 265

Weisbrod, B.A., ed., (1998): **To Profit or Not to Profit: The Commercial Transformation of the Nonprofit Sector,** Cambridge: Cambridge University Press

World Bank (2010) **Poverty & Inequality Analysis**, http://web.worldbank.org [Accessed 5.1.2011]

Worth, M.J., (2009): **Nonprofit Management,** London: SAGE Publications

Young, D.R., (1998): **Government Failure Theory & Contract Failure Theory,** in JS Ott, ed.: ***The Nature of the Nonprofit Sector***, Boulder: Westview Press, 2001, pp. 190-196.

TECHNOLOGY INTENSITY, FOREIGN COMPETITION AND FIRM GROWTH

Nina Ponikvar
Assistant Professor
University of Ljubljana, Faculty of Economics
Kardeljeva pl. 17, 1000 Ljubljana, Slovenia
Phone: ++ 386 (1) 5892 567; Fax: ++ 386 (1) 5892 698
E-mail: nina.ponikvar@ef.uni-lj.si

Katja Zajc Kejžar
Assistant Professor
University of Ljubljana, Faculty of Economics
Kardeljeva pl. 17, 1000 Ljubljana, Slovenia
Phone: ++ 386 (1) 5892 643; Fax: ++ 386 (1) 5892 698
E-mail: katja.zajc@ef.uni-lj.si

Key words: *Firm growth, Total factor productivity, Technology intensity, Manufacturing, Growth persistence*

ABSTRACT

This paper compares the determinants of firm's extensive and intensive growth. The former is measured in terms of employment and the latter is defined in terms of total factor productivity. The specificity of factors in terms of the direction and magnitude of their impact is further tested by splitting the sample according to the technology intensity of industry. Based on a panel of the population of Slovenian manufacturing firms in the 1994-2003 period we apply a dynamic panel model, which, besides other things, allows us to account for possible endogeneity of explanatory variables and to study growth persistence. We find significant differences between the factors of intensive and extensive firm growth. Our models also confirm differences in direction and/or weights of particular growth determinants in different technology regimes. Growth persistence, capital and skill intensity are found to be general employment growth determinants irrespectively of the considered technological groups. Other tested factors proved to be technology specific to a smaller or larger extent. The variability of the set of growth determinant and the direction and the magnitude of their impact is even greater in the case of productivity growth. In fact, the only general determinant of the intensive growth turns out to be firm's capital intensity.

1. INTRODUCTION

In the empirical literature a rich body of evidence on the evolution of firm size can be found, providing evidence on how firms enter into industry, grow or stagnate and ultimately survive or exit from the industry. Since the seminal work of Gibrat (1931), several authors have sought to form a list of factors that impact the firm's growth. According to the literature, the determinants of firm growth can be classified in three general groups: first, the characteristics of the firm, among which the theories postulate firm's size, age and productivity; second, industry-specific factors which represent the characteristics of an industry with regard to its market structure, to the technological characteristics of the industry's production and to

openness of particular industry to foreign competition and third, factor prices and several exogenous factors that reflect conditions outside the domestic industry.

A starting point in the firm growth literature is the Law of Proportionate Effects, also known as Gibrat's law (Gibrat, 1931; Sutton, 1997), according to which behind the size distribution of firms is a universal process of random growth common to all firms. A substantial amount of empirical as well as theoretical studies on Gibrat's law validity can be found in the field of the growth theory of firms. While early studies tended to confirm Gibrat's law, subsequent research began to question its overall validity, based on observations of negative relationship between growth and initial size. According to the surveys of the existing empirical literature (Sutton, 1997; Lotti, Santarelli and Vivarelli, 2003 and Audretsch et al, 2004), the existence of Gibrat's law cannot be rejected on the whole although the characteristics of particular industries and the age of firms have to be taken into consideration. In compliance with the latter, another widely investigated factor of firm's growth is firm's age. The supposedly negative impact of firm's age on its growth is on one hand based on the theoretical work of Jovanovic (1982). He proposes a passive-learning model of industry dynamics. Although his model deals with selection and not explicitly with growth, the learning effect generates negative firm growth-age dependence. On the other hand, some other theoretical models use alternative mechanisms for the explanation of size and age effects on firm growth. Hopenhayn (1992), for example, contributed to the issue by proposing a model in which size captures productivity differences across firms, making growth independent of age. The empirical evidence of Doms, Dunne and Roberts (1995) confirm that, when productivity is directly controlled for, patterns of size or age coefficients might be less significant than in those empirical studies that do not control for productivity. Additionally, they report that capital-intensive plants and plants employing advanced technology have higher growth rates even after controlling for plant productivity and age; however, the technology results are sensitive to the inclusion of size variables.

The second group of firm growth determinants are industry-specific factors, which represent the characteristics of an industry with regard to the concentration of firms, entry barriers, product differentiation, technological characteristics of the industry's production and the demand dynamics. Although the Industrial Organisation theory suggests that the market structure and other industry-specific characteristics influence greatly the conduct of firms within a particular industry, the impact of industry membership on firm growth attracted much less attention. The industry-specific factors to a great extent depend on the openness of particular industry to foreign competition. Recently, models of industry dynamics with heterogeneous firms have been integrated into general equilibrium trade models (among others, Bernard, Eaton, Jensen, and Kortum (2003); Melitz (2003)) to account for the effects of increased foreign competition through the lowering of trade barriers on evolution processes within industries. While the above mentioned models are similar in their main prediction that trade liberalisation forces the least efficient firms to contract or exit while promoting the growth and success of more efficient ones, they differ with respect to channels and motivations.

A series of empirical studies that examine the evolution of industries in response to increased trade supports the predictions of these models. Most of empirical effort has been directed towards investigating the channels through which trade liberalisation affects firm productivity (see Dovis and Milgram-Baleix (2009), also for the review of these studies). In general, it seems that tariff reductions and increasing import penetration contribute positively to the intra-firm productivity growth, but there is a high degree of sensitivity of the positive impact

with respect to firm's characteristics, in particular its efficiency, export orientation and foreign ownership. As far the extensive growth of the firms is considered, the results are more mixed. For example, Bernard, Jensen, and Schott (2003) find for US manufacturing that both employment and output growth are slower for plants that face higher levels of low-wage import competition in their industry. While the impact of import competition is relatively well covered empirically, the impact of foreign competition from foreign owned firms that enter via FDI on firm growth is very limited. Two of the notable exceptions are studies by Kosová (2004) for Czech Republic and Zajc Kejžar and Kumar (2006) for Slovenian manufacturing firms. While the former study provides evidence that foreign expansion, measured by the foreign firms' sales growth rate, has a positive effect on the growth firms, the later study finds that the impact of FDI competition depends on firm's efficiency, where the least efficient firms are experiencing a drop in their employment growth upon a foreign firm's entry via FDI. The studies reviewed above, without the exception, consider only one source of foreign competition either imports or incoming FDI. This paper, however, attempts to fill this gap and contribute to the empirical literature by studying the impacts of both sources of foreign competition within the single framework.

Empirical studies on firm growth are usually based on one of three different measures of firm growth; growth of sales[1] (e.g. Kuynh and Petrunia, 2010; Coad and Rao, 2008), extensive (employment or assets) growth (e.g. Choi, 2010; Bigsten and Gebreeyesus, 2007; Oliveira and Fortunato, 2006) and intensive (productivity) growth (Huergo and Jaumandreu, 2004), where the latter is defined either as labour productivity or total factor productivity growth. Although, several researchers have sought to create a list of determinants of firm growth, the differences between the lists of factors, influencing firm extensive and intensive growth has not been studied systematically. An important advantage of this paper is that it explicitly accounts for the differences in factors, driving the extensive firm growth in terms of employment and factors, related to the intensive growth of firms, measured by the growth of total factor productivity.

Within the firm growth literature, a vast amount of literature about the impact of technological activities on firm growth and productivity can be found. Theoretical literature emphasizes technological innovations generalized by research and development (hereinafter R&D) investments as the engine of growth. These theories tend to be supported in empirical works, finding evidence that industries with greater aggregate levels of R&D intensity are related to higher rates of firm-level innovation and that innovative firms are likely to enjoy high growth rates (Klette and Griliches, 2000; Yang and Huang, 2005 and Thornhill, 2006). Further, some studies (e.g. Thornhill, 2006) find differences in the list of growth determinants and also in their impact on firm growth between firms from high-tech and firms from low-tech industries. Most of the existing literature, however, studies the difference in the impact of technology investment such as R&D expenditure and innovation. On the contrary, our aim is to investigate the differences in the set of growth determinants and the differences in their impact on growth of firms with different technology regimes. Accordingly, we hypothesise that even in supposedly relatively homogenous manufacturing industries the significance of growth determinants and especially the magnitude of their impact vary across industries with different level of technological intensity.

[1] Growth of sales summarises the growth of physical production of output and prices. Growth of physical output can be contributed to the growth of the used production factors (e.g. employment), latter on referred to as the extensive growth and their productivity, which is latter on referred to as the intensive growth. As the adequate firm-level price indices needed for deflation of sales are usually not available, the use of the sales based measure of growth has significant limitations in the case of imperfectly competitive markets.

To test for different determinants of firm growth and to highlight the difference between factors of intensive and extensive firm growth, we estimate two versions of the firm growth model based on comparable specification: the extensive growth model, where the firm's size is measured by its employment, and the intensive growth model where firm's growth is measured in terms of total factor productivity growth. In particular, the paper tests (i) the predictions of firm dynamics models that smaller and younger firms grow faster than old and large firms and (ii) the expected positive impact of firm's productivity as well its capital and skill intensity on its extensive growth. Additionally, the paper investigates (iii) how the impact of level of domestic competition and industry's openness differs with respect to employment and productivity firm growth, (iv) whether foreign-owned firms differ in their growth performance compared to domestic competitors and (v) the importance of firm's export orientation for its growth. To account for the possibility of differences in the set and the magnitude of impact of firm growth determinants, the extensive and the intensive growth models are estimated first for the whole sample and second, separately for a sub-sample of firms from industries with high, medium and low technology intensity according to the aggregation of industries by NACE Rev. 1.1. Thus each of the above listed hypotheses is tested for the whole sample of manufacturing firms and also for each of the three sub-samples of firms according to their technological intensity.

Based on a panel of the population of Slovenian manufacturing firms in the 1994-2003 period we apply a dynamic panel model, which, besides other things, allows us to account for possible endogeneity of explanatory variables and to study growth persistence. Empirical studies on the topic provide mixed results, although some of the latest studies (Oliveira and Fortunato, 2006 and Huynh and Petrunia, 2010) provide evidence on the existence of such dynamic growth dimension. We use the Levinsohn and Petrin (2003) approach to measure the total factor productivity of firms, which enters as a dependent variable in our intensive growth model.

The paper is organised as follows. The next section discusses the database, specification of the intensive and extensive growth models together with the research hypotheses and empirical methods. The third section presents and discusses the results, while the last section concludes.

2. DATA AND EMPIRICAL MODEL SPECIFICATION

2.1. Data

The primary data source for the empirical investigation of determinants of firm's growth is the database of firms' financial statements collected by the Agency of the Republic of Slovenia for Public Legal Records and Related Services, which covers the whole population of Slovenian manufacturing firms and is extended with some internal databases of the Statistical Office of the Republic of Slovenia and the data from the Business Register of the Republic of Slovenia.

A firm's industry membership is defined according to the five-digit NACE Rev.1 classification of industries and all financial data are in fixed prices from the year 2000. Industries are classified into high, medium and low technology groups based on the aggregation of industries by NACE Rev. 1.1 The panel nature of the firm-level data allows us to combine inter-temporal as well as inter-firm information efficiently, to control for

unobservable firm-specific variables by focusing on differences over time and to efficiently overcome the econometric issues. In addition, it enables us to test the time persistence of firm growth and to study the variability of firms' size and growth over time. In order to assure 'cleaner' data entering, the dataset was narrowed by leaving out firms with a negative value of equity. Additionally, we apply the method of removing excessive outliers from the dataset introduced by Hadi (1992) since the excessive outliers could bias the subsequent results and conclusions. When all characteristics of the model specification and the estimation method are taken into consideration (time lags and difference model equation) our analysis is based on more than 17,000 observations for approximately 4100 manufacturing firms.

Table 1. Characteristics of firms in the sample by technology-intensity classes

Variable / Mean	**All firms**	**High-tech firms**	**Medium-tech firms**	**Low-tech firms**
No. of employees	54.5	54.4	57.6	50.9
Firm's age	14.4	14.6	14.4	14.4
Annual wage per worker in thousand SIT	1,135	1,463.4	1,200	1,008
Export orientation (% of sales)	17.35	17.91	21.09	13.46
Foreign firms' share in industry employment (%)	11.43	20.74	14.21	06.87
Import intensity (%)	47.37	65.43	52.89	38.03

Note: Summary statistics exclude firms with zero employees and those reporting non-positive equity.

In Table 1 we show key characteristics of the whole sample of Slovenian manufacturing firms as well as of the main features of the technology sub-samples. In the 1994-2003 period an average manufacturing firm in Slovenia was 14.4 years old with a little over 50 employees. These characteristics were similar for all groups of firms according to their technology intensity. The average wage was on average 45 percent higher in firms from high technology industries compared to low-tech firms. In the analysed period an average Slovenian manufacturing firms sold 17 percent of its output abroad. The export orientation is highest in firms from medium technology intensive industries. The share of foreign firms, measured by the share of foreign firms in total industry employment was highest in high-tech industries, which were also to a largest extent exposed to a foreign competition from imports.

2.2. Model specification

Our growth model specification follows Evans' (1987) approach where growth is modelled as a function of initial size:

$$S_{t+1} = G(\lambda_t, \gamma_t, \theta_t, \tau_t) \cdot S_t \cdot e_t, \quad (1)$$

where S_t denotes the size of the firm. Among the set of factors that affect a firm's growth we include various factors proposed by the different theoretical and empirical studies. Most of the recent studies adopt the framework of so-called firm and industry dynamics models which focus on the selection process among heterogeneous firms within a particular industry that operates through the entry and exit process and emphasise the importance of firms' learning process for the selection and evolution process within the industry. These models are thus also known as 'learning models' as the entrant typically does not know its own cost structure (efficiency), but its relative efficiency is discovered through the processes of passive (Jovanovic, 1982) or active learning (Erikson and Pakes, 1995) from actual market experience subsequent to entry.

The factors proposed by these theories can be classified into the following groups: (i) firm characteristics (λ_t); (ii) industry or product market characteristics (γ_t), (iii) factor prices (τ_t),

and other exogenous factors (θ_t) that reflect conditions outside the domestic industry (τ_t and θ_t factors are both captured by the inclusion of annual dummies). Through a logarithmic transformation of (1) we obtain the firm-growth rate equation

$$\ln S_{t+1} - \ln S_t = \ln G(\lambda_t, \gamma_t, \theta_t, \tau_t) + u_t, \tag{2}$$

where u_t is a normally distributed error term with a mean zero.

For the functional form of G(·), we follow Evans (1987) approach and test a higher-order logarithmic expansion in two principal firm-specific variables (firm's size and age) until there is no evidence of further nonlinearity. Similarly as in several other studies the second-order logarithmic expansion in firm's size in the case of intensive growth model and only the first-order logarithmic expansion in other variables were confirmed. The regression equations of extensive and intensive firm growth model for the whole sample of manufacturing firms are the following:

$$\begin{aligned}\Delta \ln Empl_{ijt} = {} & \beta_0 + \sum_{k=1}^{3} \beta_k \ln Empl_{ijt-k} + \beta_4 lnTFP_{ijt\text{-}1} + \beta_5 lnKint_{ijt\text{-}1} + \beta_6 lnWage_{ijt\text{-}1} + \beta_7 lnAge_{ijt} + \\ & + \beta_8 fdi_{ijt\text{-}1} + \beta_9 EXor_{ijt-1} + \beta_{10} IndMarkup_{jt\text{-}1} + \beta_{11} hFDI_{jt\text{-}1} + \beta_{12} IMint_{jt\text{-}1} + \sum \beta_{13.jt} dindustry + \\ & + \sum \beta_{14.t} dyear + \sum \beta_{15.j} dtechnology + u_{it}\end{aligned} \tag{3}$$

$$\begin{aligned}\Delta \ln TFP_{ijt} = {} & \beta_0 + \sum_{k=1}^{3} \beta_k \ln TFP_{ijt-k} + \beta_4 lnEmpl_{ijt\text{-}1} + \beta_5 lnKint_{ijt\text{-}1} + \beta_6 lnAge_{ijt} + \\ & + \beta 7\, fdi_{ijt\text{-}1} + \beta_8 EXor_{ijt-1} + \beta_9 IndMarkup_{jt\text{-}1} + \beta_{10} hFDI_{jt\text{-}1} + \beta_{11} IMint_{jt\text{-}1} + \sum \beta_{12.jt} dindustry + \\ & + \sum \beta_{13.t} dyear + \sum \beta_{14.j} dtechnology + u_{it}\end{aligned} \tag{4}$$

where subscripts *i*, *j* and *t* refer to firms, industries and years, respectively. In the extensive firm growth model, the dependent variable is defined as the difference in the log values of the firm's employment $Empl_{ijt}$ ($lnEmpl_{ijt+1}$-$lnEmpl_{ijt}$), while in the model of the intensive growth, the firm growth is defined in terms of total factor productivity (*TFP*) as the difference in the log values of the TFP_{ijt} ($lnTFP_{ijt+1}$-$lnTFP_{ijt}$). *ln* in variable names denotes the natural logarithm of a particular variable, while 2 denotes that the variable enters the estimation in a squared form. The dynamic specification of the models tests for firm's size and TFP dynamics with the inclusion of the lagged dependent variable among regressors. All values of the financial variables are deflated using producer prices indices at the 2-digit NACE classification and all industry-level variables are calculated based on the 5-digit NACE classification of industries. u_{it} is composed of $u_{it}=\mu_i+\nu_{it}$, where μ_i is an unobserved individual-specific time-invariant effect which allows for heterogeneity in the means of the growth across individual firms and ν_{it} is a disturbance term. Time-specific individual-invariant effects are captured with the set of time dummies among regressors.

When models 3 and 4 are estimated on the whole sample of firms, i.e. for all industries in one joint model, the regression coefficients are restricted to be constant across all manufacturing industries regardless of their technology intensity. To allow for the possibility of different weights of particular firm growth determinants in different technology regimes, the models 3 and 4 are further estimated separately for the three sub-samples of firms, based on the industry technology intensity. The first sub-sample comprises of firms from high-technology industries, the second includes firms from medium-technology industries, while firms from low-technology industries are included in the third sub-sample. Industries are classified into three technology regimes according "High-technology aggregations based on NACE 1". The

group of high-technology firms is comprised of firms from manufacturing industries coded 24.4, 30, 32, 33 and 35.3. Firms from industries coded 23-29, 31, 34 and 35 (excluding 35.3) are included in the group of medium-technology firms. Conducting business in industries coded 15-22, 36 and 37 classifies firms into group of low-technology firms.

Among the principal firm characteristics that affect firm's growth the theories postulate firm's size, age and productivity. The size of a firm ($Empl_{ijt}$) is measured by the number of employees. Age_{ijt} denotes a firm's age counting from the formation year according to the Business Register. As age enters our empirical models in a logarithmic form we start to count age with a value of 1 in order to prevent the dropping of observations in the first year of firm's operation, which would generate sample selection bias due to the relatively high infant mortality rates. Productivity is measured as total factor productivity (TFP_{ijt}) based on production function estimates. Firm dynamics models predict that smaller and younger firms grow faster and are less likely to survive than old and large firms. This predicted size-growth relationship sharply contradicts the Gibrat's traditional law of independence between the growth of a firm and its size. The productivity of the firm is expected to negatively affect the likelihood of exit and positively affects the firm's growth. Further, we include capital-intensity $Kint_{ijt}$, measured by real fixed assets per worker. The capital intensity of a firm is expected to positively affect its ability to survive and grow. According to the Olley and Pakes (1996) model, the stock of physical capital affects the distribution of future plant productivity[2]. In this case, capital intensity may act as a proxy for other unobserved sources of efficiency leading to the higher likelihood of an exit and lower growth for low-capital-intensity plants. $Wage_{ijt}$ is defined as the average yearly real wage per employee. Unfortunately, data on the skill structure of employees is not available; therefore we also use the wage variable as a proxy for the skill intensity of a firm. This implies we are assuming that wages for similar education level/qualification categories of workers are similar across firms and industries. The real wage is also used as a proxy for human capital in Mata and Portugal (2004). Skill intensity is expected to positively affect a firm's growth potential as it can serve as a proxy for its absorptive and learning capacity, which is a key determinant of the course of the firm's life. Wage variable is included only in extensive growth model specifications due to strong multicolinearity detected in TFP growth specifications.

Unlike the majority of other studies on firm growth, we explicitly test the influence of the characteristics of the industrial environment on firm growth. Besides the time-invariant market characteristics that are captured in the set of industry dummies, we include average industry-level markup to capture the characteristics of industry's market structure, especially market concentration and average applied technology. By using sales, inventories and costs in a similar manner as Domowitz, Hubbard and Petersen (1986), Kalecki's version of the markup definition (1954) as the ratio between industry's revenues and the sum of industry's direct (variable) costs is used:

$$IndMarkup_{jt} = \frac{\sum_{i=1}^{n} \text{sales}_{ijt} + \sum_{i=1}^{n} \Delta \text{ inventories}_{ijt}}{\sum_{i=1}^{n} \text{payroll}_{ijt} + \sum_{i=1}^{n} \text{cost of material}_{ijt}} \quad (5)$$

It is argued that a high average industry-level markup size is characteristic for industries with smaller intensity of competition, i.e. high market concentration. The expected effect of degree

[2] There is a relationship between a producer's underlying efficiency and the incentive to invest in capital. Essentially, efficient firms generate higher levels of investment and larger capital stocks.

of competition, measured by the average industry-level markup size, is not so clear-cut. On one hand, a low intensity of market competition is expected to be positively related to the survival and growth of firms. The argument is that the price level is more likely to be elevated above the long-run average cost at the minimum efficient scale level of output in concentrated industries which may facilitate the survival of suboptimal scale firms which is what typical entrant firms are. On the other hand, firms in such industries may be subjected to fierce aggressive behaviour by rivals, which may reduce their chances of growth.

Foreign competition can have a significant impact on firm growth through sales of foreign affiliates and through imports. The impact of foreign competition stemming from foreign firms that have entered in Slovenian manufacturing sector via FDI is tested by the variable $hFDI_{jt}$ that measures the concentration of foreign firms in industry j as the foreign firms' share in total industry employment:

$$hFDI_{jt} = \frac{\sum_{i=1}^{n} empl_{ijt} \cdot fdi_{ijt}}{\sum_{i=1}^{n} empl_{ijt}}; \tag{6}$$

where n denotes the number of all firms in industry j and $empl_{ijt}$ denotes the number of employees in firm i. The measure excludes the firm for which the observation is taken. The employment share of foreign firms is used in many studies testing the presence of horizontal spillover effects, among others (Barrios et al., 2005), (Keller and Yeaple, 2003), (Görg and Strobl, 2003)[3]. The concentration of foreign firms in a particular industry potentially generates two opposite effects. On one hand, higher concentration of foreign firms in an industry is expected to be associated with higher competition pressure on other firms operating in this industry. The foreign firms are usually more efficient and are paying higher wages on average (according to Table 1 this is the case also in Slovenian manufacturing) which results in an additional competition pressure in goods and factor markets and tend to limit firm growth prospects. On the other hand, the activity of foreign firms may confer positive externalities (e.g. productivity spillover effects) on domestic firms which may decrease the firm's unit costs and consequently increase in their output.

Import intensity $Imint_{jt}$ is defined as the share of industry imports in the industry's sales in the domestic market (the home sales of domestic firms in the industry at the 5-digit NACE classification of industries plus the sum of the industry's imports). The availability of imports in domestic markets (assuming that foreign and domestic products are at least partial substitutes) is expected to increase the intensity of competition in domestic markets. On the other hand, technical innovation through imports of intermediate goods is also evidenced theoretically and empirically (for instance, in Dovis and Milgram-Baleix (2009)). However, we expect the scope of efficiency externalities to be greater in case of FDI than in case of imports.

To control for the impact for firm's ownership and its export orientation, we include two additional firm-level regressors. First, fdi_{ijt} is a dummy variable for foreign ownership. It takes

[3] Instead of the employment share, other studies consider also foreign firms' share in the industry's output (Smarzynska, 2004), and the relative number of foreign firms (De Backer and Sleuwaegen, 2003). Some studies also take into account the share of foreign equity participation in foreign firms, including (Aitken et al., 1999) and (Smarzynska, 2004).

a value of 1 for 'foreign firms' considering a 10% ownership share threshold. Second, a firm's export orientation $EXor_{ijt}$ is defined as the share of its revenues from exports in its total annual sales. When domestic market characteristics and domestic demand are simultaneously controlled for, exporting enables firms to increase their output sales and thus to grow. It is therefore expected for the exporters to have higher extensive growth compared to non-exporters. The contribution of firm's exporting activity to its intensive growth is usually associated with economies of scale utilisation and ability to learn by exporting. The role of exports in promoting productivity growth has been extensively investigated empirically. A comprehensive survey of these empirical studies by Wagner (2007) argues that exporters are found to be more productive than non-exporters, and the more productive firms self-select into export markets, while exporting does not necessarily improve productivity.

$dtechnology_t$ is a set of technology dummy variables, measuring differences in firm growth rates between industry groups with different technology intensity. This set of dummy variables is included only in the whole sample models. To control for the industry- and time-specific effects throughout our 1994-2003 sample period we include annual dummies $dyear_t$ and industry dummies at the 2-digit level of NACE $dindustry_j$[4].

2.3. Method & econometric issues

In order to differentiate between the determinants of extensive and intensive firm growth, we estimate two growth models. In the first growth model firm's growth is measured in terms of employment, whereas in the second one, growth is measured in terms of TFP. To investigate the possibility that the set of growth determinants and the magnitude of their impact vary across industries with different level of technological intensity, both the extensive and the intensive firm growth models are estimated not only for the whole sample of manufacturing firms but also separately for three sub-samples of firms operating in industries of low, medium and high technology regimes.

To estimate the dynamic growth models based on a panel containing many firms and a small number of time periods, we use a system GMM estimator developed by Arellano and Bover (1995) and Blundell and Bond (1998). The system GMM estimator uses additional moment conditions compared to the estimator proposed by Arellano and Bond (1991). The applied estimator controls for the presence of unobserved firm-specific effects and for the endogeneity of the current-dated explanatory variables. It uses equations in first-differences, from which the firm-specific effects are eliminated by the transformation, and for which endogenous lagged variables for two or more periods will be valid instruments, provided there is no serial correlation in the time-varying component of the error therm. The consistency of the system GMM estimator therefore hinges heavily upon the assumption there is no second-order serial correlation for the disturbances of the first-differenced equation. The assumption is tested with the test statistic m_2 for second-order serial correlation based on residuals from the first-differenced equation. Due to the presence of heteroscedasticity in our model, a two-step procedure is used to compute the variance covariance matrix based on Windmeijer robust errors. We assess the adequacy of instruments in an over-identified context with a Sargan test of over-identifying restrictions (Sargan, 1958). If we reject the null hypothesis of such test,

[4] We test several other variables but due to insignificant coefficients in all empirical specifications we do not include them in our final empirical models. Among others, we test for the effect of the ratio of long-term debt to total assets, for the minimum efficient scale defined as the log of median employment size in industry *j* and industry growth with respect to the previous year defined as the growth of total employment within particular industry *j*.

we cast doubt on suitability of the instrument set and establish that one or more of the applied instruments do not appear to be uncorrelated with the disturbance process.

In the model of the intensive firm growth, we use the change in firm's total factor productivity as a measure of intensive firm growth. Typically, TFP is estimated as the residual in the production function estimates based on firm-level panel data. Simultaneity bias is usually referred to as the endogeneity of production inputs, caused by a correlation between unobservable productivity shocks and input levels causing the regressors and the error term to be correlated which makes OLS estimates inconsistent. Bias thus occurs when at least part of the TFP is observed by the firm early enough to allow the firm to change its factor input decision. Several methods of controlling for simultaneity bias are proposed in the literature. Olley and Pakes (1996) developed an estimator that uses investment as a proxy for these unobservable productivity shocks. One of the drawbacks of Olley and Pakes' (1996) approach is that there must be a strictly monotonous relationship between the proxy (investment) and output for obtaining the consistent estimates. This means that observations with a zero investment have to be dropped from the sample. Further, Levinsohn and Petrin (2003) point out that an investment is associated with substantial adjustment costs which make the investment very lumpy and not respond smoothly to a productivity shock, thus violating the consistency condition. Therefore, Levinsohn and Petrin (2003) develop a similar two-step estimator which uses intermediate inputs as proxies, arguing that intermediates may respond more smoothly to productivity shocks and may respond more fully to the entire productivity term than investment. We follow the approach of Levinsohn and Petrin (2003) in the estimation of TFP. Using intermediate input proxies instead of investment also allows us to avoid truncating observations with a zero investment.

3. EMPIRICAL RESULTS

Tables 2 and 3 present the results of the extensive and intensive dynamic growth model specifications for the whole sample of manufacturing firm and for each of the three technology-based sub-samples. The null hypothesis of the Wald test that the estimated coefficients of all regressors are all zero is rejected in both models for all of the applied samples. Similarly, Sargan test of over-identifying restrictions confirms that the moment conditions are legitimate since the null hypothesis of the test cannot be rejected. Crucial for dynamic models, based on differenced equations, is the absence of a serial correlation of order 2. In our models the latter is confirmed with the test statistics AR(2). In the case of both the extensive and the intensive growth model a necessity of two or more lags of the dependent variable in the specification was confirmed in order to yield efficient estimates.

Table 2. GMM estimates of firm extensive (employment) growth by technology-intensity groups

Depend. var. (Y):	**Employment growth**	**Employment growth**	**Employment growth**	**Employment growth**
	All firms	**High-tech firms**	**Medium-tech firms**	**Low-tech firms**
Y(-1)	0.935 (55.40)***	0.955 (79.29)***	0.949 (54.13)***	0.980 (60.93)***
Y(-2)	0.024 (1.81)*	0.015 (1.45)	0.004 (0.28)	-0.017 (-1.21)
Y(-3)	-0.022 (-2.58)**		-0.013 (-1.16)	-0.012 (-1.65)
lnWage(-1)	0.031 (0.84)	0.156 (7.32)***	0.171 (4.05)***	0.135 (3.43)***
lnTFP(-1)	0.135 (3.25)***	0.056 (2.76)***	0.068 (1.93)**	0.059 (1.30)
lnKint(-1)	0.080 (6.64)***	0.087 (10.34)***	0.066 (5.78)***	0.084 (6.89)***
fdi(-1)	0.011 (0.23)	-0.179 (-9.29)***	0.018 (0.57)	-0.031 (-0.85)
EXor(-1)	0.153 (2.40)**	0.035 (0.88)	0.183 (3.35)***	0.054 (0.82)
lnAge	-0.162 (-3.65)***	-0.127 (-3.28)***	0.020 (0.37)	-0.258 (-4.49)***
IndMarkup(-1)	-0.042 (-0.13)	0.962 (3.16)***	-0.254 (-0.41)	0.649 (1.74)*
$IndMarkup(-1)^2$	-0.034 (-0.19)	-0.418 (-2.88)***	0.024 (0.07)	-0.492 (-2.05)**
hFDI(-1)	0.041 (-1.45)	0.010 (0.49)	-0.076 (-1.76)*	-0.099 (-2.12)**
IMint(-1)	-0.072 (-1.95)**	-0.069 (-1.83)*	-0.048 (-1.25)	-0.095 (-1.46)
Year dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Technology dummies	Yes	No	No	No
Constant	-0.690 (-2.02)**	-2.530 (-10.33)***	-1.972 (-4.89)***	-1.081 (-3.85)***
No. of obser.	17790	1728	7253	7094
No. of firms	4186	380	1738	1725
Instrumented	lnWage, lnTFP, lnKint, fdi, EXor	lnWage, lnTFP, lnKint, fdi, EXor	lnWage, lnTFP, lnKint, fdi, EXor	lnWage, lnTFP, lnKint, fdi, EXor
(df) Wald $\chi 2$	(41) 15534.60***	(23)41833.22***	(28) 23890.64***	(27) 17664.64***
(df) Sargan $\chi 2$	(198) 186.24	(200) 211.85	(197) 219.75	(195) 199.25
AR(1) z(p)	-11.142 (0.000)	-5.152 (0.000)	-8.934 (0.000)	-7.364 (0.000)
AR(2) z(p)	1.369 (0.171)	-0.533 (0.594)	0.736 (0.462)	1.199 (0.231)

Notes: z-statistics are in parentheses, ***,**,* denote significance at 1%, 5% and 10%, respectively

The coefficient on the first lag of the dependent variable is positive for both models and all sub-samples. In the extensive growth model, this coefficient is above 0.93. This implies that a 1 percent increase in the previous period's firm size leads to at least 0.93 percent increase in the current period's size. This is also in line with the findings of some other empirical studies that report the 0.9 first lag persistence coefficient for employment growth (e.g. Oliveira and Fortunato, 2006) and for growth of sales (Huynh and Petrunia, 2010). One year persistence of intensive growth, measured by the TFP growth turns out to be much smaller regardless of the sample, as the coefficient on the first-lagged dependent variable amounts to around 0.5. Still, the coefficients on the second and the third lag are larger in the case of intensive growth compared to the employment growth, suggesting that although the short term persistence is large in the case of extensive growth, the intensive growth effects preserve longer. Stronger long-term persistence of intensive growth suggests that impact of technology improvement shocks fade away within a 3 year period. Yet, the size of the time persistence coefficients differ among technology classes. The extensive growth persistence is highest in the group of low-tech firms. Contrary to the employment growth the persistence of the productivity growth is highest in firms operating in high-technology regimes. If we presume that higher the growth persistence the lower the speed of convergence among firms, our results imply that the convergence process is more pronounced when firm growth is measured in terms of productivity compared to employment growth. More specifically, the TFP growth persistence is found to be higher for high-tech firms compared to the other two firm technology types indicating that the convergence process in TFP levels is slowest in the group of high-tech firms. This is in line with our expectations since high-tech technology is more difficult to imitate and it is usually more difficult to replicate it due to its legal protection and specialisation.

While age is an important extensive growth determinant for all samples except for the medium-tech firms as suggested by Jovanovic (1982), our results based on whole sample model show no evidence of significant impact of age on the firm's productivity (intensive) growth. However, the significance of age on intensive growth increases with technology sophistication. The impact of age changes from highly significant negative impact in high-tech group of firms to insignificant effect on TFP growth in low-tech firm. Similar pattern is found also for the impact of TFP on the employment growth, where productivity is most important in high-tech group while it is not a significant extensive growth factor for low-tech firms. This is in line with Huergo and Jaumandreu (2004), who report on large differences between investigated industries in the impact of age on productivity growth. The influence of the wage level is significant and positive regardless of the applied technology sample confirming the importance of firm's skill intensity for its employment growth.

Table 3. GMM estimates of intensive (TFP) firm growth by technology-intensity groups

Depend. var. (Y):	**TFP growth**	**TFP growth**	**TFP growth**	**TFP growth**
	All firms	**High-tech firms**	**Medium-tech firms**	**Low-tech firms**
Y(-1)	0.521 (20.11)***	0.579 (30.58)***	0.516 (19.10)***	0.518 (17.23)***
Y(-2)	0.132 (8.86)***	0.070 (5.13)***	0.150 (8.80)***	0.117 (5.94)***
Y(-3)	0.036 (3.21)***	0.109 (7.14)***	0.075 (4.77)***	0.033 (1.88)*
lnEmpl(-1)	0.107 (3.59)***	0.154 (5.71)***	0.044 (1.76)*	0.081 (2.40)**
$lnEmpl^2$(-1)	-0.014 (-3.05)***	-0.021 (-5.35)***	-0.003 (-0.67)	-0.011 (-2.13)**
lnKint(-1)	0.050 (4.19)***	0.037 (4.02)***	0.049 (5.20)***	0.039 (3.25)***
fdi(-1)	-0.029 (-0.96)	0.220 (8.91)***	0.085 (3.07)***	-0.0175 (-3.36)***
EXor(-1)	-0.014 (-0.26)	0.023 (0.53)	-0.075 (-1.82) *	0.024 (0.35)
lnAge	-0.050 (-1.22)	-0.203 (-3.60)***	-0.094 (-1.89)*	0.045 (0.81)
IndMarkup(-1)	-0.589 (-2.13)**	0.808 (1.92)**	-1.226 (-2.48)**	-0.482 (-1.33)
$IndMarkup(-1)^2$	0.210 (1.31)	-0.482 (-2.11)**	0.567 (1.94)**	0.167 (0.74)
hFDI(-1)	0.078 (2.94)***	-0.154 (-7.33)***	0.090 (2.10)**	0.179 (4.16)***
IMint(-1)	-0.074 (-2.18)**	0.034 (0.64)	0.009 (0.23)	-0.107 (-1.46)
Year dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Technology dummies	Yes	No	No	No
Constant	2.180 (3.25)***	1.1788 (3.54)***	1.434 (5.19)***	1.377 (5.54)***
No. of obser.	17605	1317	7198	7012
No. of firms	4134	314	1721	1701
Instrumented	lnEmpl, $lnEmpl^2$, lnKint , fdi, EXor	lnEmpl, $lnEmpl^2$, lnKint , fdi, EXor	lnEmpl, $lnEmpl^2$, lnKint , fdi, EXor	lnEmpl, $lnEmpl^2$, lnKint , fdi, EXor
(df) Wald $\chi 2$	(41) 1312.99***	(23) 5867.32***	(28) 1231.39***	(27) 667.00***
(df) Sargan $\chi 2$	(198) 206.804	(188) 176.83	(197) 185.62	(195) 203.02
AR(1) z(p)	-16.966 (0.000)	-5.946 (0.000)	-10.067 (0.000)	-12.065 (0.000)
AR(2) z(p)	0.882 (0.378)	1.0507 (0.293)	1.139 (0.255)	-0.243 (0.808)

Notes: z-statistics are in parentheses, ***,**,* denote significance at 1%, 5% and 10%, respectively

According to estimates of the intensive growth model, firm size, measured by the number of employees, non-monotonically impacts the productivity growth in the inverted U shape manner. The linear term is always positive indicating that TFP growth rates increase with firm's size, while the negative coefficient on the quadratic term suggests productivity growth eventually levels off and decreases with size. This shows that the ability to innovate is related to economies of scale and that size is an important factor allowing firms to develop specific competences that are critical for productivity growth. Technology sub-sample estimations additionally show that the inverted U shape relationship among size and TFP grow is characteristics of high-tech and low-tech firms, while weak linear link is found for the medium-technology sub-sample.

The theoretically hypothesised relationship between firm growth and its capital intensity is confirmed for both the intensive and extensive growth models in all sub-samples. Our results support the argument that more capital-intensive firms grow faster in both terms which is in line with Olley and Pakes (1996).

Based on the whole sample estimates, foreign firms do not grow differently from the domestic ones ceteris paribus either in terms of employment or in terms of TFP since the coefficient on the fdi_{ijt} dummy variable is not statistically significant. That indicates that in general foreign ownership does not significantly contribute to firm's growth. Nonetheless, the division of firms into technology sub-samples shows that the insignificant impact in the whole sample is a consequence of large differences in the impact of foreign ownership on firm growth. TFP growth of high-tech and medium-tech firms with foreign ownership is significantly higher compared to domestic firms with the magnitude of the effect being larger for firms in high-tech industries. The impact of foreign ownership is negative in low-tech firms. This result contributes to the findings of Damijan et. al (2003) who report positive effect of foreign ownership on TFP growth for Slovenian manufacturing. While the impact of foreign ownership is highly positively significant for TFP growth of high-tech firms, the impact is significantly negative for employment growth of these firms. Considering the fact that in Slovenia that the acquisitions accounts for almost 70% of foreign firm 'entries' in terms of the number of firms and even much more in terms of employment, our result suggests that the strategy of foreign owners in case of acquisitions was to improve performance by reducing the number of employees.

We also find that more export oriented firms tend to grow faster in terms of employment as expected based on theoretical considerations. According to the technology sub-sample estimations, this effect in Slovenian manufacturing is mostly driven by the firms operating in medium-tech industries. At the same time no evidence of exporters' higher TFP growth is found for the manufacturing firms regardless of the sample. The later is in contrast to the learning-by-exporting hypothesis, suggesting that knowledge flows from international buyers and competitors help to improve the post-entry performance of export starters. Similar to our findings, Damijan and Kostevc (2006) failed to find conclusive evidence of learning-by-exporting for Slovenian manufacturing firms suggesting that perceived learning effects may in fact only be a consequence of increased capacity utilization brought about by the opening of an additional market. Also in wider context, a survey of empirical studies on the topic (Wagner, 2007) shows that although exporters are more productive than non-exporters, and more productive firms self-select into export markets, exporting does not necessarily improve productivity.

The results on the impact of domestic competition level measured by the industry level markup size show large differences among different samples. Mostly, the link between firm growth and the industry markup size is of the inverted U shape. This means that although looser competition increases firm possibilities of growth, a threshold markup size exits, which suggests that in the case of high markups firm growth becomes constrained either by new entrants, decrease in demand or the likelihood of the antitrust authority interventions. Interestingly, the opposite relationship between intensive firm growth and the markup size is found for the group of the medium technology intensive firms. The latter is supposedly also reflected in the significance of the negative linear relationship between industry markup and TFP growth in the aggregate sample.

The impact of foreign firm presence within the particular industry (*hFDI*), which measures the net effect of any positive productivity spillovers and the continuous crowding-out effect,

is found to be significant only for TFP growth in the aggregate sample. This suggests that in general foreign firm concentration is more directly linked with intensive than extensive growth. The impact on TFP growth is positive, indicating that positive productivity spillover effects more than offset competition pressure from foreign firm entry via FDI within a particular industry. As expected, the nature of the technology plays an important role for the absorptive capacity of the firm. The positive impact of the intra-industry concentration of foreign firms on firms' intensive growth suggests that significant productivity spillover effects on incumbent firms are present in firms from medium and low technology intensity industries. On the other hand, in the high-tech group, the negative relationship suggests that the competition effect more than outweigh possible positive spillover effect. Since in the extensive growth models TFP is included among regressors and as such takes up the productivity spillover effects, the intra-industry concentration of foreign firms and employment growth can only measure the competition effect. Crowding-out is confirmed for medium and low technology intensity industries. It means that for these two technology groups, the presence of foreign firms within an industry promotes productivity of rival firms while slows down their employment growth.

Table 4. Classification of growth factors in Slovenian manufacturing, 1994-2003

	Extensive growth (employment)	**Intensive growth (productivity)**
Independent of technology	Growth persistence Capital intensity Wage	Growth persistence Capital intensity
Technology specific	TFP Age Foreign ownership Export orientation Domestic competition Concentration of foreign firms	Size Age Foreign ownership Domestic competition Concentration of foreign firms

Regarding the competition effect from increased imports, we find significant negative impact on both employment and TFP growth in the aggregate sample, suggesting that the competition effect prevails. Increased import intensity contributes significantly to increased degree of competition which puts downward pressure on firm growth. Surprisingly, the effect is not significant in any of the sub-samples according to the technological intensity for both extensive and intensive model. According to the descriptive statistics (Table 1) there are considerable differences in import intensity among the three technology group; the highest in high-tech (65%) and the lowest in low-tech industries (38%). If we can assume that there is a considerable correlation between import intensity and the revealed comparative advantages, and hence that on average Slovenian manufacturing possesses the comparative advantages in low-tech and comparative disadvantages in high-tech industries, the negative coefficient from the aggregate sample can be regarded as indirect confirmation that firm growth is higher in industries with revealed comparative advantages. Based on the significant impact of import intensity on growth in the aggregate sample and the insignificant relationship in the subsample we can suspect that the division of industries according to import intensity sufficiently coincides with the division according to technology intensity.

In Table 4 we summarise the above results of the empirical models. We form four groups of growth factors according to their dependence on the technology and type of growth. Growth persistence, capital and skill intensity are found to be general growth determinants irrespectively of the considered technological groups and to coincide with theoretically identified and empirically most frequently confirmed growth factors. Other tested factors proved to be technology specific to a smaller or larger extent. The latter offers an explanation for considerable differences in findings of empirical studies.

4. CONCLUDING REMARKS

In the paper we investigate within the comparable model specifications factors of intensive and extensive firm growth based on the dataset that covers the whole population of manufacturing firms registered in Slovenia in the 1994-2003 period. Extensive firm's growth is measured in terms of employment while intensive growth is defined in terms of total factor productivity. The specificity of factors in terms of the direction and magnitude of their impact is further tested by splitting the sample according to the technology intensity of industry.

Based on our dynamic panel data estimates, significant differences among the factors of intensive and extensive firm growth as well according to their technology category are revealed. Growth persistence, capital and skill intensity are found to be general employment growth determinants irrespectively of the considered technological groups and to coincide with theoretically identified and empirically most frequently confirmed growth factors. Other tested factors proved to be technology specific to a smaller or larger extent. The variability of the set of growth determinant and the direction and the magnitude of their impact is even greater in the case of productivity growth. In fact, the only general determinant of the intensive growth turns out to be firm's capital intensity. Firm growth is time persistent although its strengths and length is different for these two aspects of growth; the short term persistence is larger in the case of extensive growth but the intensive growth effects preserve longer.

BIBLIOGRAPHY

Aitken, B. and Harrison, A. E., (1999): **Do Domestic Firms Benefit from Direct Foreign Investment? Evidence from Venezuela,** ***American Economic Review***, 89: 605-617

Arellano, M. and Bond, S., (1991): **Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations,** ***Review of Economic Studies***, 58: 277-297

Arellano, M. and Bover, O., (1995): **Another look at the instrumental variable estimation of error-components models,** ***Journal of Econometrics***, 68: 29-51

Audretsch, D.B., Klomp, L., Santarelli, E. and Thurik, A.R., (2004): **Gibrat's Law: Are the Services Different?,** ***Review of Industrial Organization***, 24: 301-324

Barrios, S., Görg, H. and Strobl, E., (2005): **Foreign direct investment, competition and industrial development in the host country,** ***European Economic Review***, 49: 1761-1784

Bernard, A. B., Eaton, J., Jensen, B. J., and Kortum, S., (2003): **Plants and Productivity in International Trade,** ***American Economic Review***, 93: 1268-1290

Bernard, A. B., Jensen, B. J. and Schott, P. K., (2003): **Falling Trade Costs, Heterogeneous Firms, and Industry Dynamics,** National Bureau of Economic Research, Working Paper No. 9639.

Bigsten, A. and Gebreeyesus, M., (2007): **The Small, the Young, and the Productive: Determinants of Manufacturing Firm Growth in Ethiopia**, ***Economic Development and Cultural Change***, 55: 813-840

Blundell, R. and Bond, S., (1998): **Initial conditions and moment restrictions in dynamic panel data models,** ***Journal of Econometrics***, 87: 115-143

Choi, B. P., (2010): **The U.S. Property and Liability Insurance Industry: Firm Growth, Size, and Age,** ***Risk Management and Insurance Review***, 13: 207–224

Coad, A. and Rao, R., (2008): **Innovation and firm growth in high-tech sectors: A quantile regression approach,** ***Research Policy***, 37: 633-648

Damijan, J. P., Knell, M., Majcen, B. and Rojec, M., (2003): **Technology Transfer through FDI in Top-10 Transition Countries: How Important are Direct Effects, Horizontal and Vertical Spillovers?**, William Davidson Institute, Working paper No. 549.

Damijan, J.P. and Kostevc, Č.; (2006): **Learning-by-Exporting: Continuous Productivity Improvements or Capacity Utilization Effects? Evidence from Slovenian Firms,** ***Review of World Economics***, 142: 599-614

De Backer, K., and Sleuwaegen, L., (2003): **Does Foreign Direct Investment Crowd out Domestic Entrepreneurship?,** ***Review of Industrial Organization***, 22: 67-84

Domowitz , I., Hubbard, G. R. and Petersen, B.C., (1986), **Business Cycles and The Relationship between Concentration and Price Cost Margins,** ***Rand Journal of Economics***, 17: 1-17

Doms, M., Dunne, D. And Roberts, M. J., (1995): **The Role of Technology Use in the Survival and Growth of Manufacturing Plants,** ***International Journal of Industrial Organization***, 13: 523-545

Dovis, M. and Milgram-Baleix, J., (2009): **Trade, Tariffs and Total Factor Productivity: The Case of Spanish Firms,** ***World Economy***, 32: 575-605

Ericson, R. And Pakes, A., (1995): **Markov-Perfect Industry Dynamics: A Framework for Empirical Work,** ***Review of Economic Studies***, 62: 53-82

Evans, D.S., (1987): **The Relationship between Firm Growth, Size, and Age: Estimates for 100 Manufacturing Industries,** ***Journal of Industrial Economics***, 35: 567-581

Gibrat, R., (1931): **Les Inégalités Économiques**, Paris, Sirey.

Görg, H. and Strobl, E., (2003): **Multinational Companies, Technology Spillovers and Plant Survival, *Scandinavian Journal of Economics***, 105: 581-595

Hadi, A.S., (1994): **A Modification of a Method for the Detection of Outliers in Multivariate Samples, *Journal of the Royal Statistical Society***, 56: 393-396

Hopenhaym, H., (1992): **Entry, Exit and Firm Dynamics in a Long Run Equilibrium, *Econometrica***, 60: 1127-1150

Huergo, E. and Jaumandreu, J., (2004): **Firms' age, process innovation and productivity growth, *International Journal of Industrial Organization***, 22: 541- 559

Huynh, K. P. and Petrunia, R. J., (2010): **Age Effects, Leverage and Firm Growth, *Journal of Economic Dyamics and Control***, 34: 1003-1013

Jovanovic, B., (1982): *Selection* **and the Evolution of Industry, *Econometrica***, 50: 649-670

Kalecki, M., (1954): **Theory of Economic Dynamics: An Essay on Cyclical and Long-Run Changes in Capitalist Economy**, London, Allen&Unwin.

Keller, W. And Yeaple, S., (2003): **Multinational Enterprises, International Trade, and Productivity Growth: Firm-Level Evidence from the United States**, University of Nottingham: GEP Research Paper, No 3.

Klette, T.J. and Griliches Z., (2000): **Empirical Patterns of Firm Growth and R&D Investment: A Quality Ladder Model Interpretation, *Economic Journal***, 110: 363-387

Kosová, R., (2006): **Do Foreign Firms Crowd Out Domestic Firms? The Evidence from the Czech Republic**, School of Business, George Washington University, Working Paper No. 0006.

Levinsohn, J. A. and Petrin, A., (2003): **Estimating Production Functions Using Inputs to Control for Unobservables, *Review of Economic Studies***, 70: 317-341

Lotti, F., Santarelli, E. and Vivarelli, M., (2003): **Does Gibrat's Law hold in the case of young, small firms?, *Journal of Evolutionary Economics***, 14: 213-35

Mata, J. and Portugal, P., (2004): **Patterns of Entry, Post-Entry Growth and Survival, *Small Business Economics***, 22: 283-298

Melitz, M., (2003): **The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity, *Econometrica***, 71: 1695-1726

Oliveira, B. And Fortunato, A., (2006): **Testing Gibrat's law: Empirical Evidence From A Panel of Portuguese Manufacturing Firms, *International Journal of the Economics of Business,*** 13: 65-81

Olley, S. and Pakes, A., (1996): **The dynamics of productivity in the telecommunications equipment industry, *Econometrica***, 64:1263-1297

Sargan, J. D., (1958): **The Estimation of Economic Relationships Using Instrumental Variables,** ***Econometrica*** , 26: 393-415

Smarzynska, J. B., (2004): **Does Foreign Direct Investment Increase the Productivity of Domestic Firms? In Search of Spillovers through Backward Linkages,** ***American Economic Review***, 94: 605-627

Sutton, J., (1997): **Gibrat's Legacy,** ***Journal of Economic Literature***, 35: 40-59

Thornhill, S., (2006): **Knowledge, Innovation and Firm Performance in High- and Low Technology Regimes,** ***Journal of Business Venturing***, 21: 687-703

Wagner, J., (2007): **Exports and Productivity: A Survey of the Evidence from Firm-level Data,** ***World Economy***, 30: 60-82

Yang, C.H. and Huang C.H., (2005): **R&D, Size and Firm Growth in Taiwan's Electronics Industry,** ***Small Business Economics,*** 25: 477-487

Zajc Kejžar, K. And Kumar, A., (2006): **Inward foreign direct investment and industrial restructuring : micro evidence - the Slovenian firms' growth model**, ***The Proceedings of Rijeka Faculty of Economics – Journal of Economics and Business***, 24: 185-210

Zajc Kejžar, K., (2011): **The role of foreign direct investment in the host-country firm selection process: firm-level evidence from Slovenian manufacturing,** ***Review of World Economics***, 147: 169-193

SERBIAN CAPITAL MARKET DURING AND AFTER THE CRISIS – VaR ESTIMATION OF A HYPOTHETICAL PORTFOLIO*

Ognjen Radović
Faculty of Economics
18000 Niš, Serbia
Phone: ++ 381 18 52 86 01; Fax: ++ 381 18 45 23 268
E-mail: ogi@eknfak.ni.ac.rs

Srđan Marinković
Faculty of Economics
18000 Niš, Serbia
Phone: ++ 381 18 52 86 01; Fax: ++ 381 18 45 23 268
E-mail: srdjan.marinkovic@eknfak.ni.ac.rs

Jelena Stanković
Faculty of Economics
18000 Niš, Serbia
Phone: ++ 381 18 52 86 01; Fax: ++ 381 18 45 23 268
E-mail: jelenas@eknfak.ni.ac.rs

Key words: *Value at Risk, Belgrade Stock Exchange, GARCH, Monte Carlo simulation, financial crisis.*

ABSTRACT

Recent global financial crisis brought many changes in financial environment worldwide. Even small local stock markets were hit harshly. The consequences were equally severe in terms of both stock market activity indicators (volume) and prices. The crisis started downward trend in stock indexes, diminished stock liquidity, and increased price volatility.

The paper tries to assess market risk of the selected stocks from Belgrade Stock Exchange. We pooled a number of common shares into the hypothetical portfolio. The portfolio structure (basket) was subject to availability of high frequency data. Namely, some of the shares included even in blue chips index (*BELEX*15) traded with discontinuity, so that the hypothetical portfolio presents a sub sample of *BELEX*15 basket, restricted to limited number of shares that was continuously traded. All shares in the sample are listed on Prime Market or Standard Market of the Belgrade Stock Exchange. Data on daily closing prices are recorded from 20 June 2005 to 31 December 2010. We produce time series of daily rates of return that were used to feed the models of market risk, i.e. various Value at Risk (hereafter *VaR*) models. *VaR* is a commonly used measure of maximum loss on investment portfolio, in a certain arbitrary chosen time horizon. *VaR* helps investors to assess and control risk exposure, or otherwise, to lead portfolio decisions toward an optimal risk-return trade-off. Different *VaR* methods are applied: analytical method, historical simulations, and Monte Carlo simulations.

Standard analytical (parametric) model based on time-invariant volatility delivers no accurate estimation of market risk (rather it overestimates the market risk). The study confirmed that

* *Acknowledgement*: Authors are deeply grateful to Republic of Serbia Ministry of Science for the funds and support that made this research possible through its Research project No. 179015.

the assessment of market risk can be upgraded by combining analytical *VaR* with GARCH(1.1) model of portfolio volatility due to ability of the latter model to deal with time-varying volatility.

1. INTRODUCTION

Value at risk is a rather simple method for assessing and controlling market risk. Assuming that the structure of the portfolio remains the same over the chosen time horizon, this method gives the maximum losses caused by the changes in selected market variables for a given confidence level. It is suggested for using in the financial institutions as a measure of market risk, although it can be used to evaluate many other types of risks. Currently, the provisions of the Basel agreement dealing with risk control in Serbia have been applied only partially. Harmonization of Serbian systems of banking supervision with European system led to the building the regulatory basis for systematic risk management, which started with its implementation on the January 1st 2011.

Emerging stock markets are perspective markets possibly attractive to foreign investors. However, impact of various risk factors at the undeveloped and illiquid financial markets is more significant, what makes an assessment and control of market risk rather difficult. Emerging countries are all significantly lagging behind the most developed countries in many aspects, but particularly in terms of financial legislation, market discipline, insider trading regulation, and disclosure of financial information. Accordingly, the aim of this paper is to assess the relative advantages/disadvantages of various VaR models in the financial market in Serbia, given the features of the economic environment and financial instruments traded on the Belgrade Stock Exchange (BSE), while taking into account the effects of the global financial crisis.

The VaR model is a statistical measure for potential portfolio loss, built upon evaluation of price dynamics of securities that make up the structure of the portfolio. Recent analysis of the Belgrade Stock Exchange indexes (BELEX15 and BELEX*line*) have shown that time series of returns on specific indexes have typical econometric characteristics of financial time series (Palić, 2007). Studies in the region have confirmed the inefficiency of emerging financial markets and obstacles to implementation of the VaR methodology to assess market risk (Žiković, 2007). Previous studies of the assessment of market risk using VaR method on the Belgrade Stock Exchange showed different results. Assessments of market risk using VaR analytical method that are performed by Obadović and Obadović (2009) shows that the application of analytical VaR method for measuring risk for portfolio of shares traded at the BSE is not absolutely justified. The example has shown that this model is acceptable, except for a confidence level of 99 percents, but the authors criticize his shortcomings concerning the assumptions on which the model is based. On the contrary, Radivojević, Lazić and Cvijanović (2009) conclude that the application of the analytical model is justified especially for extremely high confidence level, while for the lower confidence levels it shows no acceptance. The analytical model can be a good starting point for assessing market risk; however, one should not rely completely on the results obtained from this model. Results may be acceptable in the longer term, if the risks that the investor is exposed to are not significant relative to total invested capital, or his personal attitude towards risk. Where the risk exposure increases, or when positions become more complex, more precise value of VaR is obtained by applying more sophisticated models (Koenig, 2004). Studies of the application of VaR models used in developed capital markets have shown that these models are not best suited for

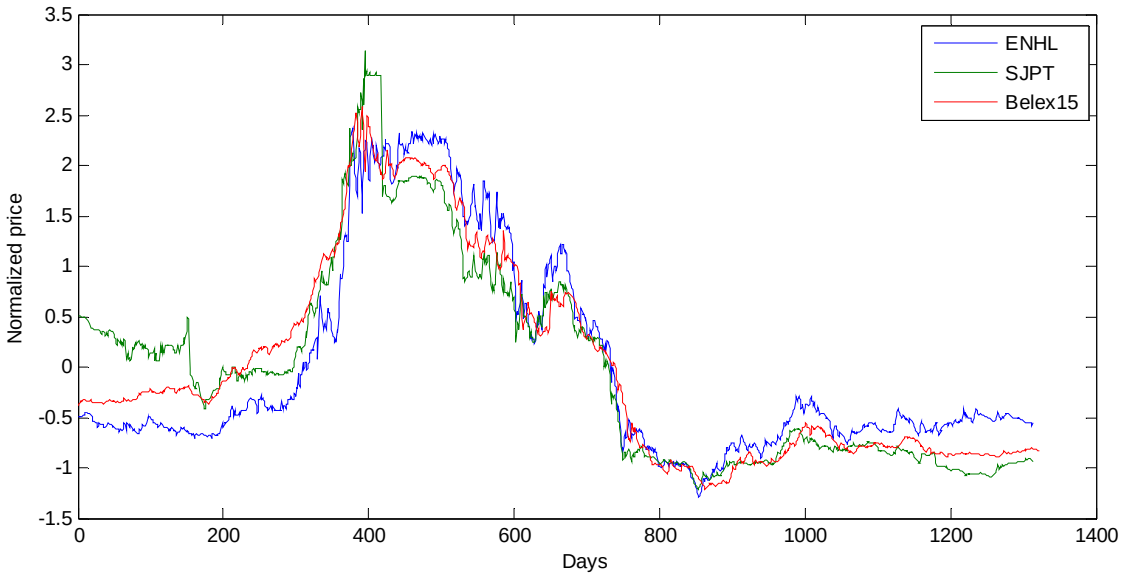
measuring risk in financial markets in developing countries. Gencay and Selcuk, (2004) in a sample of nine emerging markets show that asymmetric distribution of returns and "fat tails" are best fitted by the Generalized Pareto Distribution and Extreme Value Theory, which are indispensable elements of risk management using VaR methodology. Some other applications of VaR models in the markets in the region confirmed the previous conclusion (Žiković, 2007a, Aktan and Žiković, 2009) and particularly emphasized the convenience of use of EVT models.

2. STOCK MARKET IN SERBIA

2.1. Institutional details

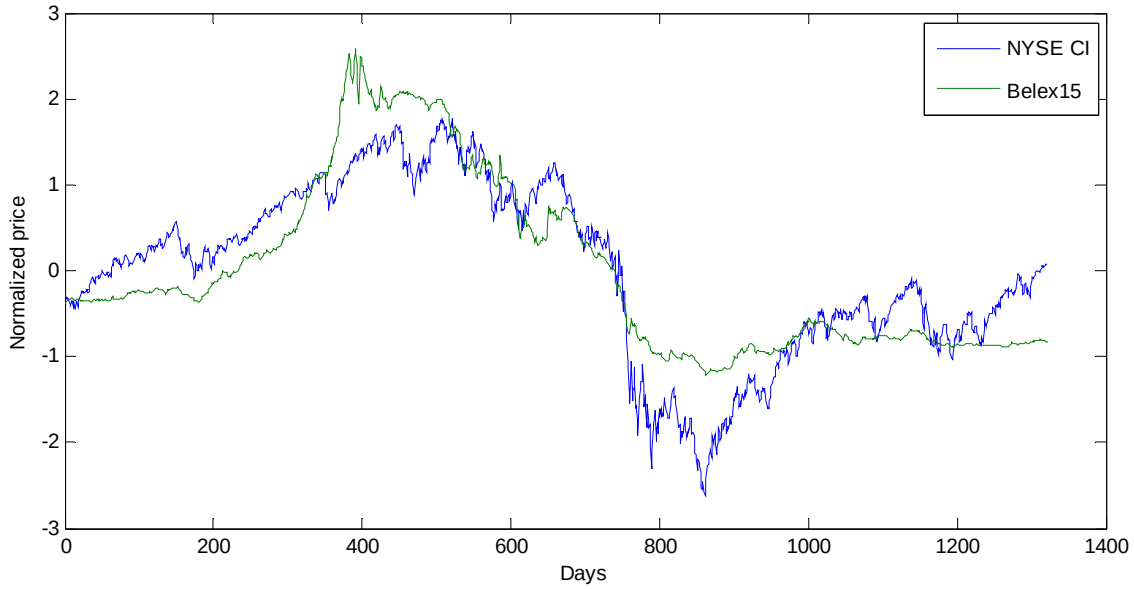
Statistical analysis of financial time series on many emerging stock markets suffers from severe obstacles: a) rather short history of operation and b) trading discontinuity in the stock markets. Belgrade Stock Exchange surely fits into that framework. On the Serbian stock market only seven companies are listed on the *Prime Market* and *Standard Market*. Since the time series of returns of individual stocks are short and prone to time variant volatility, it is not practical to use them in market risk assessment. In addition, there is a number of trading days with no realized trading of particular stock. This makes the time series unsuitable for traditional analysis. As it can be seen from the analysis of price or return series for the stocks of Soja Protein Ltd, Becej (SJPT) and Energoprojekt holding Ltd Beograd (ENHL), which are within the period continuously traded with the least inactive trading days, normalized prices of considered stocks followed the global trend on the market (Figure 1). Lack of liquid stocks to form an optimal equity portfolio is the main reason to use stock index (BELEX15) in testing the performance of selected VaR models. The data are from the available database of Belgrade Stock Exchange for the period from 4th of October 2005 to 31st December 2010.

Figure 1. Graph of normalized prices of selected stocks (SJPT, ENHL) and stock index (Belex 15) from Belgrade Stock Exchange during the period from 4.10.2005. to 31.12.2010.



Source: Belgrade Stock Exchange

Figure 2. Graph of normalized prices of selected stock index (Belex 15 and NYSE CI) during the period from 4.10.2005. to 31.12.2010.



Some recent studies of emerging stock markets show that the stock markets of candidate states for EU membership show significant correlation with the stock markets of the EU countries and USA, comparison to others. By analyzing the stock market of Turkey, for the period from 1993 to 2007, Kiymaz and College concluded that Turkey's efforts toward EU membership has led to greater correlation of this market with the EU markets, but also with Japan and the United States. Research conducted in Croatia (Erjavec and Cota, 2007; Sajter and Ćorić, 2009) has shown that although the economic links between the US and Croatia are at a low level, investors in the Croatian capital market rely mainly on flow of information obtained from the US capital markets. Therefore, we made comparative statistics of BELEX15, CROBEX and NYSE CI. Since Serbia and Croatia are neighboring states that share the same goal to enter European Union, in this paper we have statistically analyzed CROBEX, and compare it to BELEX15, without making any reliable conclusions regarding correlation between these two stock markets. With statistical analysis of NYSE CI we showed how global movements influence the stock market of Serbia.

2.2. Data and descriptive statistics

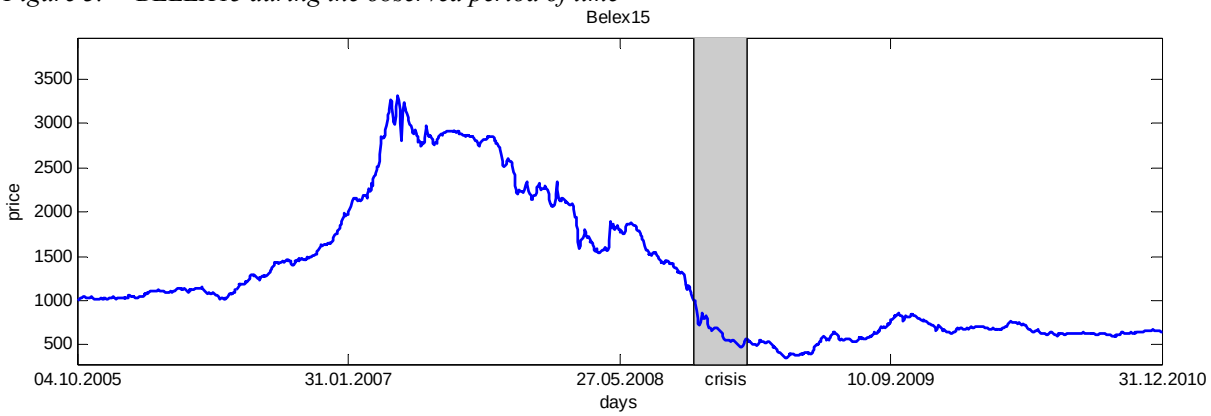
This analysis covers evolution of stock market return around the time of financial crisis. The first step to follow is to decide on when the crisis occurred. It is not easy task decide on the time of occurrence. The financial turmoil we investigate has features of both currency type and banking type of disturbance. Thus, this episode belongs to so-called *twin* type of crisis. It is exceptionally important to note that terminal pattern of currency and banking crises differs. Unlike currency crises, in which international reserves are lost abruptly and/or exchange rate change is severe enough to break the previous trend, banking crises are often protracted affairs, which tend to come in waves, so that the peak of the banking crises is seldom reached at the first sign of outbreak. However, out focus here is twin crisis phenomenon. It begins with bank run and withdrawals. At the onset the crisis was that of liquidity type, i.e. comes from the reduction of bank resources (liability side of balance sheet). Deterioration of asset quality and clustering of bankruptcies in non-financial sector was not part of overall milieu. Probably, rapidly deteriorating economy in next wave will amplify the

shock on distressed banking and external sector, and bring different type (solvency) of problems. Some analysis show that most of the fundamentals worsen together but with the peak shifting around (Cf. Marinković and Radović, 2011). Although silent phase of the crisis begins at least six months before, the authorities postponed prompt resolution measures till depositors rush culminated. Therefore, we placed the "peak" of the crisis from October 2008, when it happens, to December the same year, when the turmoil starts loosing its severity, shifts from acute to chronic, and changes its nature.

In order to analyze financial crisis' impact on stock market, time series of stock return are broken into three segments: (1) period before the peak of local financial crisis (from 4th October 2005 to 30th September 2008), (2) the period of the most intense financial disturbance (from 1th October 2008 to 31th December 2008) and (3) the post-peak period (from 5th January 2009 to 31th December 2010) (Figure 3). Data are adjusted for holidays and days with no trading volume recorded, so that the series are of total length of 1,322 data points.

Although the direct flow of funds linkage between the Belgrade Stock Exchange and the New York Stock Exchange is missing, the movement of prices does have a globally common direction (Figure 2). Studies on the correlation of returns of different markets show that markets eventually become more connected especially the US and the EU financial markets. The main source of information for all other markets is NYSE, and due to the rapid flow of information, the largest European capital markets react very quickly to any change in the US stock market (Cerny and Koblas, 2008). The largest capital markets in Europe are highly correlated. London Stock Exchange is the largest market in Europe that significantly affects the other major markets, such as French and German, while smaller markets, such as Belgian, Danish and Italian have no impact on other markets (Friedman and Schachmurove, 1997).

Figure 3. BELEX15 during the observed period of time



For each of considered periods statistical characteristics of logarithmic returns of selected financial time series are analyzed (Table 1).

Table 1. Descriptive statistics of logarithmic returns of selected financial time series

	Mean	Minimum	Maximum	Standard deviation	Skewness	Kurtosis
Before the crisis peak						
Belex15	0.00001	-0.07682	0.12158	0.01477	0.68657	15.71979
ENHL	0.00004	-0.12198	0.18162	0.02941	0.64526	7.53002
SJPT	-0.00084	-0.22314	0.13121	0.02781	-0.97507	15.97576
NYSE CI	0.00009	-0.03710	0.03894	0.01006	-0.34524	4.67648
Crobex	-0.00062	-0.04840	0.05858	0.01130	0.38988	5.93542
During the peak						
Belex15	-0.00877	-0.10861	0.12034	0.03598	0.06332	5.57557
ENHL	-0.00984	-0.10563	0.09480	0.04592	-0.00107	2.74538
SJPT	-0.00740	-0.10536	0.09531	0.03805	-0.44689	3.97610
NYSE CI	-0.00384	-0.10232	0.11526	0.04455	0.05883	2.92469
Crobex	0.00860	-0.14779	0.10764	0.04113	-0.57122	4.96657
After the crisis peak						
Belex15	0.00035	-0.05644	0.07478	0.01558	0.52599	5.01241
ENHL	0.00092	-0.08338	0.09585	0.02676	0.23870	4.65834
SJPT	0.00001	-0.08367	0.09451	0.02236	-0.06945	5.67799
NYSE CI	0.00059	-0.06310	0.07065	0.01591	-0.18377	5.31253
Crobex	-0.00035	-0.08563	0.07020	0.01544	-0.26241	7.32815

During the period before the crisis reached its peak, the average daily return of BELEX15 is very low (0.001 %), but standard deviation is high (1.47 %). In the same period, however, CROBEX recorded a negative average daily return (-0.062 %), and very high standard deviation (1.13 %). The global financial crisis has affected the return of shares in this region, so the return on BELEX15 in this period was negative (-0.877 %), and the stock market risk measured by standard deviation of return increased (3.598 %). In the period after the local crisis peak, the Serbian capital market in comparison to Croatian had been recovering more quickly. The average daily return on BELEX15 is 0.035 %, while CROBEX still recorded a negative return -0.035 %. The market risk increased, but it was significantly lower compared to the period of crisis and in line with developments on the NYSE.

The values for skewness and kurtosis indicates that the distribution of logarithmic returns of the observed indices significantly different from the normal distribution (Table 1).

The first Pearson coefficient (α_3) is the most used measure of skewness, or asymmetry. The shape of the observed distribution of the index return has the characteristics of moderate asymmetrical layout ($-0.5<\alpha_3<0.5$). In the case of BELEX5 in the pre-crisis and post-crisis period, asymmetry of distribution has higher values. Distribution is also drifted on the right, which indicates some large positive shocks during the considered periods. On the contrary, the distribution of returns on NYSE CI index in our study period characterised moderate negative skewness, which should indicate the crashes and declining prices and returns on the stocks of NYSE. CROBEX in the period before the crisis had a positive skewness of return distribution, which in times of crisis became negative and remained moderately negative after the crisis, which indicates a slower recovery of the Croatian stock market.

The second Pearson coefficient (α_4) is measure of the kurtosis of the probability distribution of a real value random variable. Observed time series of stock indices are characterized by elongated shape (high peak), which may be caused by large fluctuations in share price due to

the occurrence of extreme events, both positive and negative, and because of the already mentioned lack of time series; a large number of trading days when the stocks were not traded. Discrepancies are particularly noticeable in BELEX15 index, in the period before the crisis, but in the later time periods of the value of the kurtosis decreased.

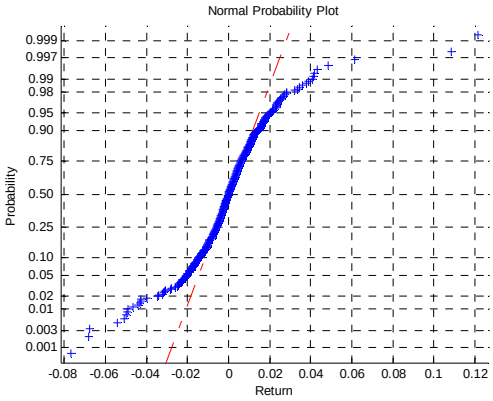
Jarque-Bera and Kolmogorov-Smirnov test of normality for the analysis of market indices confirm the conclusions that can be drawn from measure of skewness and kurtosis of the distribution. According to the results of these tests (Table 2), the probability that the empirical distribution of returns of these indexes is normal can be rejected with a probability of 95 percents. Results obtained during the financial crisis must be taken with caution because of the lenght of the data series.

Table 2. Normality tests of logarithmic returns distribution of selected financial time series

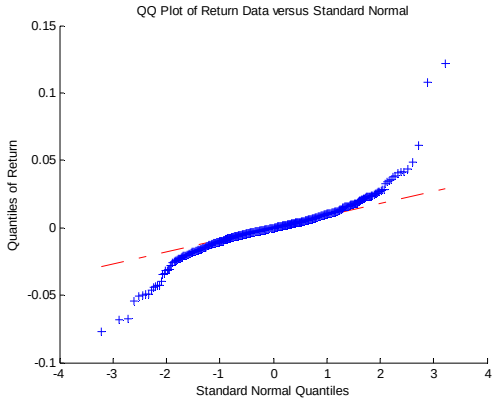
	Jarque-Bera (5%)	p-value	Kolmogorov-Smirnov (5%)	p-value
Before the crisis peak				
Belex15	5114.95676 (5.90367)	0.00000	0.47733 (0.04936)	0.00000
ENHL	685.00742 (5.90253)	0.00000	0.45934 (0.04966)	0.00000
SJPT	5315.85154 (5.90253)	0.00000	0.46133 (0.04966)	0.00000
NYSE CI	101.22321 (5.90227)	0.00000	0.48520 (0.04973)	0.00000
Crobex	281.35375 (5.90136)	0.00000	0.48290 (0.04996)	0.00000
Intense phase				
Belex15	18.00927 (5.17954)	0.00460	0.45781 (0.16568)	0.00000
ENHL	0.17560* (5.17954)	0.50000	0.46224 (0.16568)	0.00000
SJPT	4.74389* (5.17954)	0.05766	0.46203 (0.16568)	0.00000
NYSE CI	0.06099* (5.27445)	0.50000	0.45925 (0.15443)	0.00000
Crobex	15.94871 (5.26612)	0.00601	0.45714 (0.15545)	0.00000
After the crisis peak				
Belex15	108.28529 (5.85917)	0.00000	0.48045 (0.06015)	0.00000
ENHL	62.53815 (5.85917)	0.00000	0.46677 (0.06015)	0.00000
SJPT	151.00952 (5.85917)	0.00000	0.46692 (0.06015)	0.00000
NYSE CI	114.91185 (5.85890)	0.00000	0.47736 (0.06021)	0.00000
Crobex	393.63153 (5.85729)	0.00000	0.47639 (0.06057)	0.00000

A preliminary overview information about the type of distribution of log-returns can be obtained from various graphical methods. The most commonly used graphical method in statistical analysis as such is a quantile-quantile (QQ) plot. This visual tool examines whether the specific distribution of the data time series corresponds to a normal distribution, while the QQ plot compares the distribution of two sets of data. If the series has a normal distribution, it can be expected that the points on the graph would lie along a straight line. Other forms of distribution lead to deviation and bending lines on the graph. Figures 4 and 5 show that log-returns of selected time series deviate from the normal distribution. From the graphs it can be clearly conluded that extreme events occur much more frequently than expected by a normal distribution, because we identified the „fat tails".

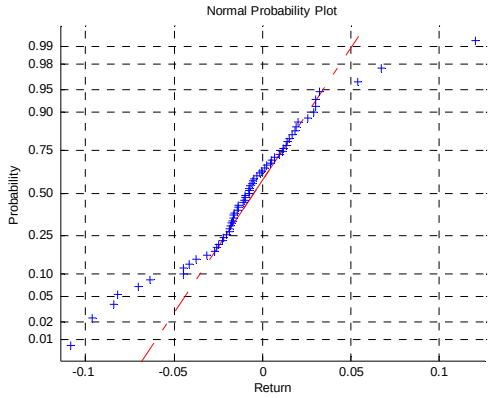
Figure 4 – 5. Normal probability plot of Belex 15 and Q-Q plot of Belex 15



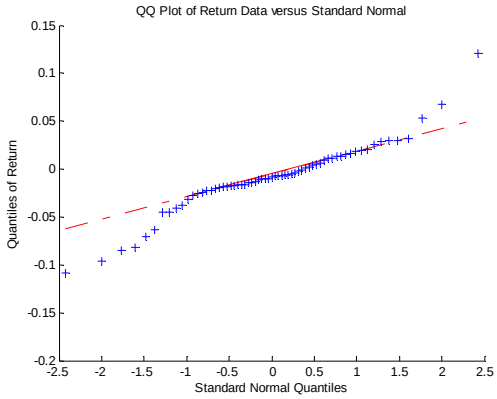
a) Belex15 before the crisis peak



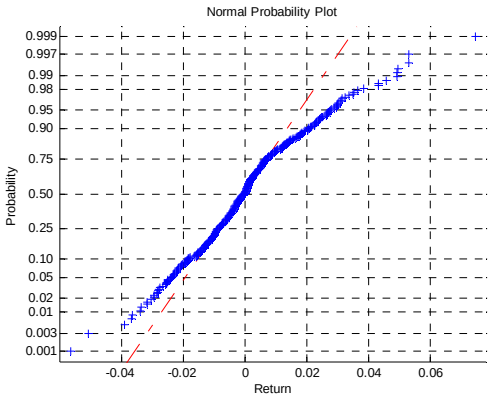
a) Belex15 before the crisis peak



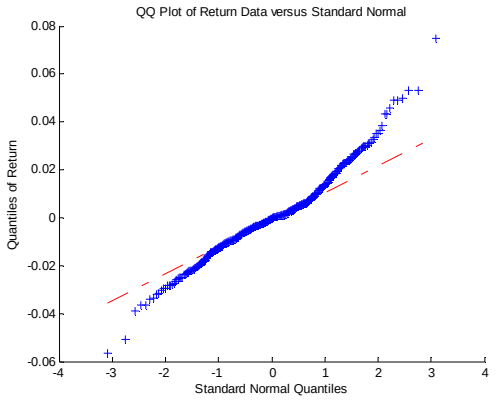
b) Belex15 during the peak



b) Belex15 during the peak



c) Belex15 after the crisis peak



c) Belex15 after the crisis peak

One of the main characteristics of financial time series is the absence of autocorrelation. Autocorrelation or serial correlation of returns means that the return in a time unit depends on the value of return in the time prior to or appear later in the series. For liquid financial markets, price movements do not show significant autocorrelation: autocorrelation function of price changes decreases to zero in a very short period of time.

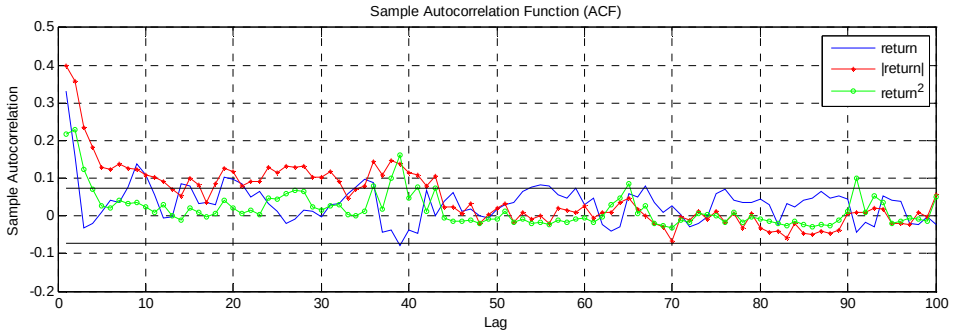
The results of the Ljung-Box test, shown in Table 3, reject the null hypothesis of autocorrelation and points to a positive correlation between logarithmic returns of the observed indices. However, since the distribution of the log-returns has not been precisely defined, positive correlation in one period may not be a significant indicator of their future development.

Table 3. The results of the Ljung-Box Q-statistic of normalized logarithmic returns, its squares and absolute values of selected financial time series (Lag = 10, CV = critical value CV=18.3070, level of confidence 5%)

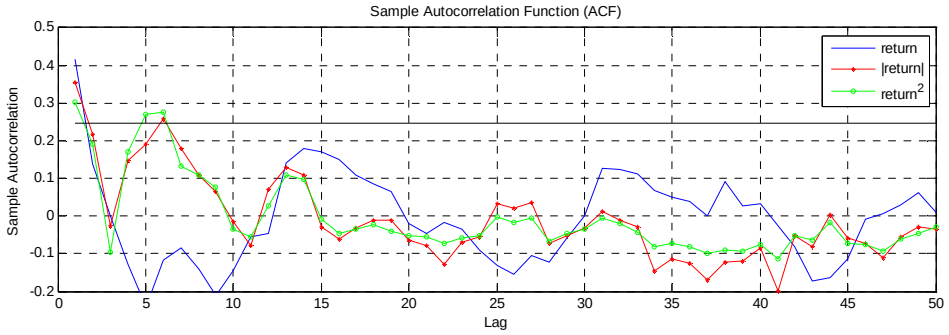
	Ljung-Box Q-test (CV=18.3070)					
	r		*|r|*		r^2	
	Test statistics	p-value	Test statistics	p-value	Test statistics	p-value
	Before the crisis peak					
Belex15	134.210	0.00000	355.42	0.00000	94.431	0.00000
ENHL	14.245*	0.16211	196.49	0.00000	113.550	0.00000
SJPT	10.611*	0.38864	161.30	0.00000	17.236*	0.06929
NYSE CI	23.747	0.00830	253.79	0.00000	152.260	0.00000
Crobex	39.473	0.00000	210.66	0.00000	135.200	0.00000
	Intense phase					
Belex15	26.585	0.00303	24.928	0.005483	21.414	0.01839
ENHL	16.163*	0.00000	76.903	0.00000	76.758	0.00000
SJPT	18.425	0.048203	54.468	0.00000	47.077	0.00000
NYSE CI	12.735*	0.23887	20.974	0.021279	15.550*	0.11327
Crobex	6.6018*	0.76243	28.913	0.001287	24.392	0.00663
	After the crisis peak					
Belex15	89.444	0.00000	326.660	0.00000	162.130	0.00000
ENHL	60.157	0.00000	228.900	0.00000	273.000	0.00000
SJPT	47.728	0.00000	202.010	0.00000	131.810	0.00000
NYSE CI	8.201*	0.60920	171.520	0.00000	137.260	0.00000
Crobex	20.597	0.02409	268.770	0.00000	95.712	0.00000

Graphical representation of autocorrelation function of the absolute values of return and squared return of BELEX15 index (Figure 6) clearly shows the existence of significant level of autocorrelation of squared returns and absolute returns' values. Contrary, returns were not significantly auto-correlated. Auto-correlated squared returns and absolute value of return is particularly strong in the post-crisis period. Returns remain highly correlated even after allowing fifty day lag, which indicates so called "long memory" effect. However, during the peak the return data on the chosen market portfolio from Belgrade Stock Exchange shows random walk (Figure 6.b.), which should be taken with caution because of rather small data sample.

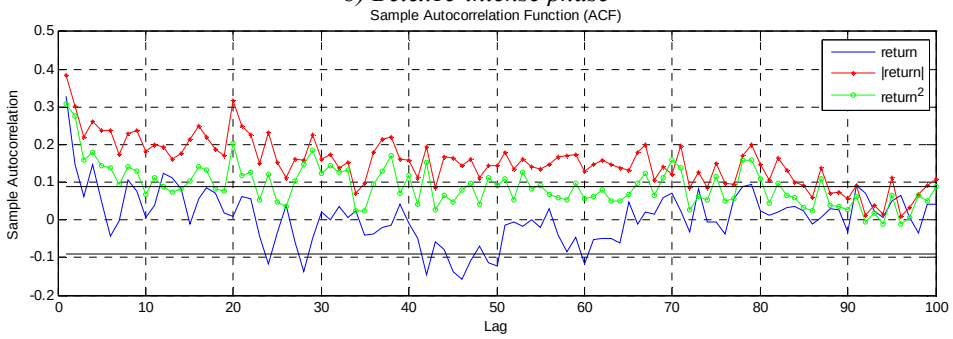
Figure 6. Autocorrelation function (ACF) of normalized logarithmic returns, absolute and squared returns of selected financial time series (Lag = 100, 5% significance level).



a) Belex15 before



b) Belex15 intense phase



c) Belex15 after the crisis peak

Return volatility is characterized by conditional heteroskedasticity, which means time-variant measure of volatility that the standard deviation of returns is not constant in time, but depends on the available information on returns in this period. In addition, the volatility of financial time series shows the tendency to group the data, which means that a small change usually follows also a small change, and a big one is followed also by big change.

The results obtained by the Ljung-Box test and ARCH test of volatility of normalized logarithmic returns of selected financial time series (Table 4) indicate return autocorrelation and heteroscedasticity, what makes these series inadequate for the implementation of many VaR models. These characteristics are, however, common to many emerging markets (Žiković, 2007).

Table 4. The results of ARCH volatility tests of normalized logarithmic returns of selected financial time series (lag = 10)

	ARCH (CV=18.3070)	
	Test statistics	p-value
	Before the crisis	
Belex15	63.333	0.00000
ENHL	76.956	0.00000
SJPT	15.097*	0.12855
NYSE CI	74.548	0.00000
Crobex	81.397	0.00000
	crisis	
Belex15	24.356	0.00671
ENHL	16.326*	0.09067
SJPT	22.394	0.01322
NYSE CI	12.625*	0.24537
Crobex	16.569*	0.084465
	After the crisis	
Belex15	73.695	0.00000
ENHL	111.93	0.00000
SJPT	65.789	0.00000
NYSE CI	80.779	0.00000
Crobex	46.081	0.00000

Previously conducted tests on time series of BELEX15 index showed the following:

- Distribution of returns is generally moderately skewed with high peak and „fat tails"; which is why it can not be assumed normaly distributed;
- There is positive serial correlation of returns, as evidenced by testing the null hypothesis of autocorrelation by Ljung-Box Q-test;
- considered financial time series features heteroscedasticity, as evidenced by ARCH test.

The transformation of the empirical returns of the observed market portfolio to meet the assumption of independent and identically distributed returns (IID) is obtained by ARMA-GARCH model. ARMA-GARCH model successfully captured the dynamics of stock indexes from EU new member and candidate states and produced standardised innovations that proved to be independently and identically distributed (Žiković, 2007). Regarding the observed volatility modelling, the achieved results show that GARCH representation will be necessary to capture adequately the dynamics of data generating processes of analysed indexes. GARCH coefficients of the selected financial time series are presented in Table 5.

Table 5. GARCH (1, 1) coefficients of the selected financial time series

	C	K	GARCH	ARCH
	Before the crisis peak			
Belex15	0.0002242	1.5789e-005	0.51302	0.48698
ENHL	-0.0014281	3.7231e-005	0.82202	0.17798
SJPT	-0.0006754	6.4998e-005	0.47601	0.52399
NYSE CI	0.0007897	6.9825e-007	0.92020	0.07979
Crobex	-0.0008063	3.6872e-005	0.35391	0.40969
	After the crisis peak			
Belex15	-0.0001265	5.8902e-006	0.74120	0.25880
ENHL	-0.0010704	1.0827e-005	0.80348	0.19652
SJPT	-0.0003629	5.2446e-005	0.56411	0.40379
NYSE CI	0.0013740	1.4923e-006	0.91042	0.08881
Crobex	2.051e-005	1.7468e-006	0.89697	0.10303

As it can be seen from table above (5), some of tested indexes including BELEX15 and CROBEX show unexpectedly low persistence in volatility in the period before the peak of financial crisis. However, in the period after the crisis peak, all observed indexes show very high volatility, because the value of GARCH indexes are very high and in the range of the NYSE CI, if this comparison can be considered adequate regarding the length of time series and financial market conditions. The estimated GARCH parameters of stock indexes from Belgrade Stock Exchange and Croatian Stock Exchange indicate the need of their usage in VaR models application to considered indexes because simpler conditional volatility models, such as EWMA underestimate the level of market risk.

3. RESEARCH METHODOLOGY

Let r_t represents the daily logarithmic return of the stock index in the holding period t. If returns are normally distributed in the specific period of time t, the dynamics of r_t can be expressed as follows:

$$r_t = \mu_t + \sigma_t Z_\alpha \qquad (1)$$

where μ_t stands for mean, σ_t for standard deviation and Z_α is the lower α percentile of the standard normal distribution, which is IID with zero mean, unit variance and marginal distribution function $F_z(z)$. By assuming normal distribution, a simple analytic formula of VaR can be derived:

$$VaR_{t,\alpha} = -Z_\alpha \sigma_t + \mu_t \quad (2)$$

Estimating VaR at a given probability using the normal distribution is easy task, once we have estimated mean and standard deviation. Nevertheless, analytical VaR approaches can also be unreliable for several reasons: (PRM Handbook, 2008)

- Market value sensitivities often are not stable as market conditions change. Since VaR is often based on fairly rare, and hence fairly large changes in market conditions, even modest instability of the value sensitivities can result in major distortions in the VaR estimate.
- Analytic VaR is particularly inappropriate when there are discontinuous payoffs in the portfolio.

Since we try to estimate the risk on the typical emerging financial market as Serbian market surely is, we need to consider other VaR models, because statistical analysis show that distribution of returns of BELEX15 do not follow normal Gaussian distribution. In order to achieve that, we should choose a particular model for the dynamics of mean and volatility.

3.1 Monte Carlo simulation

One of the possible improvements of estimation of market risk is using simulation methods. Simulation methods is appropriate in the cases when distribution of returns exhibit jumps or certain types of heavy tails that do not follow normal distribution. The most used approach in these circumstances is Monte Carlo simulation. This is very powerful method that can be applicable to such kind of "complex" problems. This approach starts with definition of the problem and identification of risk factors and the way they affect portfolio. Then, on the previous assumption, we simulate a large number of possible outcomes. Each simulation leads to the possible distribution of the profit and loss. After enough number of simulations we can produce a simulated distribution for profit and loss of our portfolio and easily find value of VaR for a given probability and given holding period as a lower percentage of this distribution.

Monte Carlo simulation has many advantages over analytical approaches to calculating VaR: (PRM Handbook, 2008)

- It can capture a wider range of market behaviour;
- It can deal effectively with nonlinear and path dependent payoffs, including the payoffs to very complicated financial instruments;
- It can capture risk that arises from scenarios that do not involve extreme market moves;
- Conversely, it can provide detailed insight into the impact of extreme scenarios that lie well out in the tails of the distributions, beyond the usual VaR cutoff;
- It lends itself easily to evaluating specific scenarios that are deemed worrisome based on geopolitical or other hard-to-quantify considerations.

3.2. Historical simulation

Historical simulation VaR model is another approach. This model excludes the assumption of known theoretical type of returns' distribution. It is based on the assumption that recent empirical distribution is adequate base to estimate risk in the near future. Generating empirical data on prices and returns and defining an empirical distribution of the profit and loss can be done in a historical window of the last *h*-days, but portfolios can also be valued under a number of different historical time windows (i.e. various values for *h*), which typically range from six months to two years (Dimitrakopoulos et al., 2010). Just as true with all VaR models, the historical simulation based models make use of the sliding window technique to derive recursive VaR forecasts. It is worth noting that the sliding window technique is used by all of the employed VaR models and updates the estimation sample regularly by incorporating new information reflected in each sample of the return series. It can therefore be argued that this technique takes into account implicitly structural changes, such as mean and volatility shifts, or changes in the distributional properties of the examined markets.

In this paper we used Historical simulation for 50 days (HS50), 100 days (HS100) and 250 days (HS250). One of the most important features of basic historical simulation is the way it weights past observations. Basic historical simulation distribution is defined in a way that gives any observation the same weight. This weighting structure creates the potential for ghost effects – we can have a VaR that is unduly high (low) because of a short period of high (low) volatility, and this VaR will continue to be high (low) until *n* days or so have passed, and the observations have fallen out of the sample period. At that point, the VaR will fall (rise) again, but the fall (rise) in VaR is only a ghost effect created by the weighting structure and the length of sample period used (PRM handbook, 2008).

3.3. Hybrid Historical Simulation (HHS)

To solve the issue we can suitably weight our observation by using weighted estimator of returns. The simulation that is based on this assumption is called hybrid historical simulation. The Hybrid Historical Simulation (HHS) is based on nonparametric inferences made through an exponentially weighted estimator of returns (Cf. Boudoukh et al., 1998). According to HHS, VaR is derived form empirical data from *h* period, but it is assumed that recent returns are of greater significance for estimating future returns from later ones, so we assigne weights to the most recent *h* returns $\{r_{t-n}\}_{n=0}^{h-1}$, according to the following weighting scheme (Dimitrakopoulos et al., 2010):

$$\left\{\left[\frac{(1-\lambda)}{(1-\lambda^h)}\right]\lambda^{n-1}\right\}_{n=1}^{h} \tag{3}$$

where λ is a decay parameter, that present the importance of the *h* past observations for the estimation of risk capital. The returns are then ordered in ascending order and the 100(1− α)% VaR is obtained by accumulating the weights until α is reached (Dimitrakopoulos et al., 2010). In this paper we used Hybrid historical simulation for λ=0.97 and 0.99.

3.4. GARCH(1,1)

Since we concluded that returns are higly volatile and that GARCH model have to be used in modeling volatility, we will also imply GARCH models for volatility dinamics. Many different models for volatility dynamics have been proposed in econometric literature including models from the ARCH/GARCH family (Bollerslev, 1992). In this paper we used GARCH(1,1) to estimate conditional mean and variance of the returns on stock index assuming that distribution is normal. Assumed GARCH (1,1) process can be expressed as follows:

$$y_t = C + \varepsilon_t$$
$$\sigma_t^2 = K + G_1\sigma_{t-1}^2 + A_1\varepsilon_{t-1}^2 \quad (4)$$

Expected returns (conditional mean) y_t are sum of constant and an uncorrelated white noise disturbance ε_t. This model is often used to estimate the conditional mean in financial time series, because the most return series do not require the usage of an ARMA model. Nevertheless, in our paper we use GARCH(1,1) in combination with ARMA(1,1) and without ARMA(1,1), i.e. we use ARMA(0,0) in combination with GARCH(1,1).

Expected variance of the returns σ_t^2 is a sum of constant and weighted average of last period's forcaste and last period's squared disturbance. Regarding ARCH tests that proved autocorrelation and heteroskedacity of returns on Belex 15, usage of GARCH modeling is adequate in our case. Value of VaR for a given probability and given holding period is calculated as a lower percentage of distribution generated from modeling conditional mean and conditional variance using GARCH (1,1)-RM and ARMA(1,1)-GARCH(1,1)-RM, where RM stands for parametric Risk Metrics VaR model under assumption of normal (Gaussian) distribution of returns.

4. RESULTS AND DISCUSSION

Different VaR models are applied to selected financial time series only in the period before and after the crisis in order to compare results and get a conclusion about financial crisis impact on the stock movement. The results on average VaR values at 90, 95 and 99 percents confidence level are presented in table 6. As expected, due to unusual market movements, historical simulation gives the highest values of average percentage of reserved capital before the crisis. In the period before the crisis, applying different models led to significantly different rate of reserved capital, especially at 99 percents confidence level. Because of the inadequate time series VaR models estimated risk at different levels. If we consider level of risk capital as a buffer capital that could have been invested to higher return assets, overestimating the risk can be very expensive.

Table 6. Average VaR values at 90, 95 and 99% confidence levels, for VaR models.

	Before the crisis			After the crisis		
	90%	95%	99%	90%	95%	99%
GARCH(1.1)-RM	1.79%	2.35%	3.42%	1.27%	1.62%	2.28%
ARMA(1.1)-GARCH(1.1)-RM	1.55%	2.07%	3.04%	1.27%	1.66%	2.51%
Monte Carlo	1.19%	1.59%	2.36%	2.01%	2.62%	3.73%
Historical simulation	0.95%	1.27%	2.51%	1.86%	2.45%	3.39%
Parametric	1.19%	1.61%	2.39%	2.03%	2.63%	3.76%
Historical simulation (H=50)	1.59%	2.55%	4.45%	1.27%	1.77%	2.50%
Historical simulation (H=100)	1.11%	1.74%	4.28%	1.30%	1.92%	2.82%
Historical simulation (H=200)	0.98%	1.39%	3.41%	1.42%	2.14%	3.13%
HHS (λ=0.97)	1.57%	2.51%	4.38%	1.25%	1.74%	2.45%
HHS (λ=0.99)	1.58%	2.53%	4.40%	1.25%	1.75%	2.46%

To identify VaR models that should be acceptable to the regulators, financial institutions use various tests for backtesting the achieved results. In this paper we used Kupiec test at 5% significance level. For both periods, VaR values are estimated by setting a fixed window length and making a one day ahead forecast. Backtesting was implemented in last 100 days of observed periods by comparing achieved results with real data. The results of the overall acceptance, according to Kupiec test are presented in table 7.

Table 7. Kupiec test backtesting results at 90, 95 and 99 % confidence levels

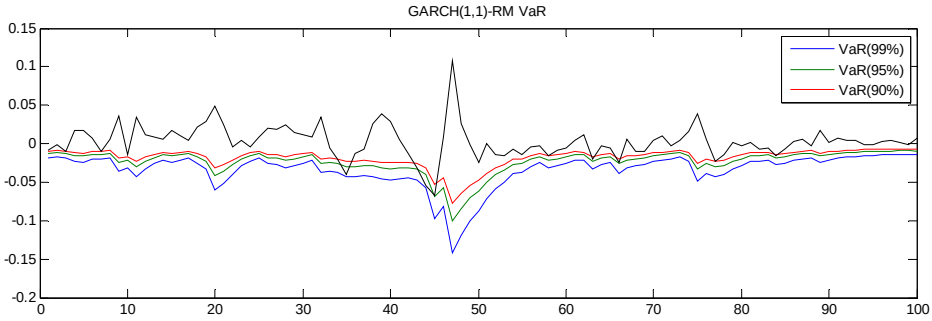
	Before the crisis			After the crisis		
	90%	95%	99%	90%	95%	99%
GARCH(1.1)-RM	+ (10)	+ (2)	+ (0)	+ (5)	+ (0)	+ (0)
ARMA(1.1)-GARCH(1.1)-RM	+ (8)	+ (2)	+ (0)	+ (0)	+ (0)	+ (0)
Monte Carlo	- (18)	- (11)	- (5)	+ (2)	+ (0)	+ (0)
Historical simulation	- (20)	- (18)	- (5)	+ (3)	+ (0)	+ (0)
Parametric	- (20)	- (11)	- (5)	+ (2)	+ (0)	+ (0)
Historical simulation (H=50)	+ (13)	+ (8)	- (5)	+ (6)	+ (3)	+ (0)
Historical simulation (H=100)	- (19)	- (10)	- (4)	+ (6)	+ (3)	+ (0)
Historical simulation (H=200)	- (20)	- (15)	- (5)	+ (4)	+ (1)	+ (0)
HHS (λ=0.97)	+ (13)	+ (8)	+ (5)	+ (7)	+ (3)	+ (0)
HHS (λ=0.99)	+ (13)	+ (8)	+ (5)	+ (7)	+ (3)	+ (0)

As it comes from the data (Table 7) in the period before the crisis tested VaR models performed differently. Although they show relatively high level of risk, especially the ones with 99 percents significance level, none of the classical models can be accepted according to the number of real loss excesses. Historical simulation, Monte Carlo simulation and parametric model failed the test with very large number of fails and they can be considered as the worst performers for the Belgrade Stock Exchange in the period before the crisis. It is obvious that lack of stability on the Serbian stock market demands special treatment in VaR models. Attempt to improve risk estimation by using historical simulation for shorter time

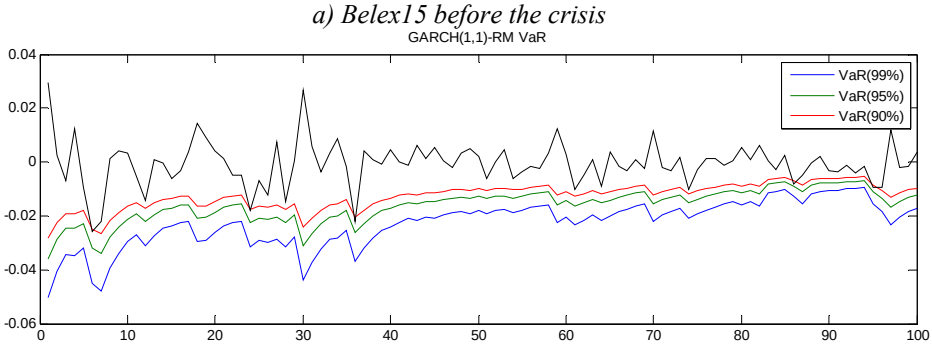
series (H=50, H=100, H=200) in order to perceive better the movements on the stock market, also failed the test. Only historical simulation H=50 could be accepted but for the lower levels of significance. For the 99% of significance, required by regulatory bodies, this model failed. Hybrid historical simulation, which treated the historical returns with different significance, showed acceptable results. Both HHS with λ=0.97 and 0.99 performed well at Kupiec test, and althought implying these models require higher rates of reserved capital, it is obvious that these models are acceptable for every level of significance.

However, the best performers in the period before the crisis are GARCH(1.1)-RM and ARMA(1.1)-GARCH(1.1)-RM VaR models. As it can also be seen from the figures 7 and 8, these models captured the best noticed volatility of returns on the Belgrade Stock Exchange in the period before the crisis. Both models have the smallest number of failures but ARMA(1.1)-GARCH(1.1)-RM estimated risk at the lower level in comparison to GARCH(1.1)-RM. Therefore, we conclude that the most apropriate model for risk estimation in the period before the crisis is ARMA(1.1)-GARCH(1.1)-RM.

Figure 7. GARCH(1.1)-RM Estimates vs Observed Data



a) Belex15 before the crisis

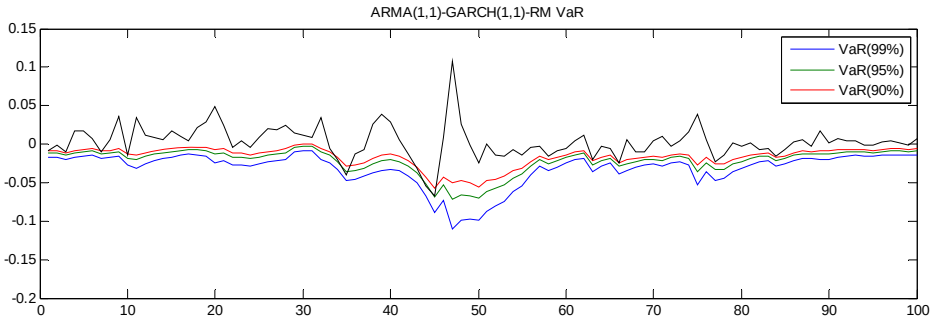


b) Belex15 after the crisis

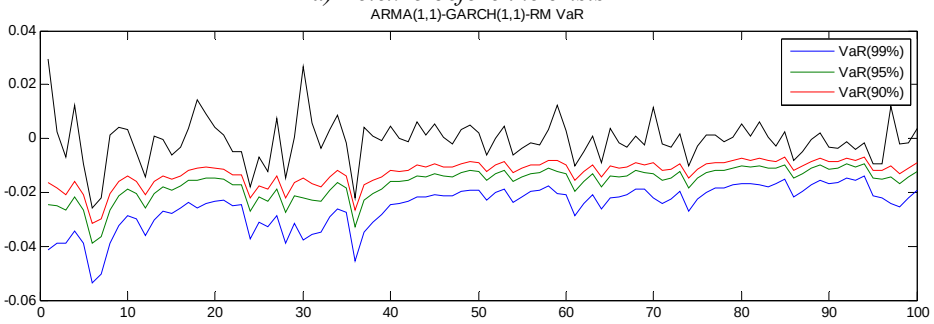
In the period after the crisis, according to the Kupiec test, all suggested models can be accepted but they show very different levels of risk. Classical models – Historical simulation, Monte Carlo simulation and parametric VaR model, show higher level of risk in comparison to the results before the crisis but also the lower level of failures. Higher level of risk can be observed as a consequence of extreme movements on the market during the crisis and their influence on the market afterwards. On the other hand, historical simulation (H=50, H=100 and H=200) showed lower level of risk and acceptance at all significance level, as same as HHS with λ=0.97 and 0.99. Nevertheless, the best performers in this period regarding the number of failures and the level of risk are GARCH(1.1)-RM and ARMA(1.1)-GARCH(1.1)-RM VaR models. According to Kupiec test ARMA(1.1)-GARCH(1.1)-RM has neither the one failure, but GARCH(1.1)-RM has lower estimated risk, so we concluded that the best

VaR model for the Belgrade Stock Exchange among the implied and tested ones is GARCH(1.1)-RM VaR model.

Figure 8. ARMA(1,1)-GARCH(1,1)-RM Estimates vs Observed Data



a) Belex15 before the crisis



b) Belex15 after the crisis

Regarding the presented results, it can be concluded that GARCH VaR models are the most assertive ones. They capture the returns volatility in the best way and are more reactive to the market movements in comparison to other models, what enables better harmonization of estimated risk capital with effective risk. In the periods of high volatility these model estimate risk at higher level, what reduces the accepted risk, and opposite, in the periods of lower volatility estimated level of risk capital will be lower.

BIBLIOGRAPHY

Alexander, C., (2008): **Market Risk Analysis, Volume IV: Value at Risk Models**, John Wiley & Sons, Inc.

Andjelić, G., V. Djaković. and S. Radišić (2010): **Application of VaR in emerging markets: A case of selected Central and Eastern European Countries**, ***African Journal of Business Management***, 4 (17): 3666 – 3680.

Bollerslev, T., (1986): **Generalized Autoregressive Conditional Heteroskedasticity, *Journal of Econometrics***, 31: 307 – 327.

Bollerslev, T., (1992): **ARCH Modeling in Finance: A Review of the Theory and Empirical Evidence**, ***Journal of Econometrics***, 52 (1-2): 5 – 59.

Boudoukh, J., M. Richardson, and R. Whitelaw (1998): **The Best of Both Worlds: A hybrid Approach to Calculating Value at Risk**, ***Risk***, 11 (5): 64 – 67.

Cerny, A. and M. Koblas (2008): **Stock Market Integration and the Speed of Information Transmission**, ***Czech Journal of Economics and Finance***, 58 (1-2): 2 – 20.

Dimitrakopoulos, N., M. Kavussanos, and S. Spyrou (2010) **Value at risk models for volatile emerging markets equity portfolios**, ***The Quarterly Review of Economics and Finance***, 50: 515 – 526.

Djaković, V., G. Andjelić, and J. Borocki (2011): **Performance of extreme value theory in emerging markets: An empirical treatment**, ***African Journal of Business Management***, 5 (2): 340 – 369.

Erjavec, N. and B. Cota (2007): **Modelling Stock Market Volatility in Croatia**, ***Ekonomska istraživanja***, 20 (1): 1 – 7.

Friedman, J. and Y. Schachmurove (1997): **Co-movements of Major European Community Stock Markets: a Vector Autoregression Analysis**, ***Global Finance Journal***, 8 (Z): 257 – 277.

Gencay, R. and F. Selcuk (2004): **Extreme value theory and Value-at-Risk: Relative performance in emerging markets**, ***International Journal of Forecasting***, 20: 287 – 303.

Gencay, R. and F. Selcuk (2004): **Extreme value theory and Value-at-Risk: Relative performance in emerging markets**, ***International Journal of Forecasting***, 20: 287 – 303.

Gencay, R., F. Selcuk, and A. Ulugulyagci (2003) **High volatility. thick tails and extreme value theory in value-at-risk estimation**, ***Insurance, Mathematics and Economics***, 33: 337 – 356.

Jorion, P., (1996): **Value at Risk: The New Benchmark for Controlling Market Risk**, Chicago: Irwin.

Jorion, P., (2001): **Value at Risk. The New Benchmark for Managing Financial Risk**, 2nd edition, New York: McGraw Hill.

Koenig, R., (2004): **Volume I: Finance Theory. Financial Instruments and Markets**, Wilmington, DE: PRMIA Publications.

Koenig, R., (2004): **Volume II: Mathematical Foundations of Risk Measurement**, Wilmington, DE: PRMIA Publications.

Koenig, R., (2004): **Volume III: Risk Management Practices**, Wilmington, DE: PRMIA Publications.

Marinković, S. and O. Radović (2011): **The Recent Serbian Financial Crisis – The Study on Terminal Pattern of Fundamentals**, in Z. Arandjelović and D. Martellato, eds**:** ***Experiences in Overcoming the Global Economic Crisis – The Cases of Italy and Serbia***, Niš: Ekonomski fakultet, pp. 33 – 54.

Obadović, M. and M. Obadović (2009): **An analytical method of estinmating Value-at-Risk on the Belgrade Stock Exchange**, ***Economic Annals***, 54 (183): 119 – 138.

Palić, M., (2007) **Implementation of time series models in analysis of financial markets: Modelling the behaviour of Belgrade stock exchange indexes**, ***Quantitative Economics and Finance***, 135 – 145.

PRM Handbook (2008): **The Professional Risk Manager's Handbook**, Edited by Carol Alexander and Elizabeth Sheedy.

Radivojević, N., J. Lazić, and J. Cvijanović (2010): **Aplikativnost istorijske simulacije vrednosti pri riziku na tržištu kapitala Srbije**, ***Industrija***, 38 (3): 19 – 29.

Sajter, D. and T. Ćorić (2009): **(I)rationality of Investors on Croatian Stock Market a Explaining the Impact of American Indices on Croatian Stock Market**, Faculty of Economics and Business, University of Zagreb, EFZG Working Papers Series.

Žiković, S. and B. Aktan (2009): **Global financial crisis and VaR performance in emerging markets: A case of EU candidate states – Turkey and Croatia**, ***Journal of Economics and Business***, 27 (1): 149 – 170.

Žiković, S., (2006): **Applying Hybrid Approach to Calculating VaR in Croatia**, in ***International Conference 'From Transition to Sustainable Development: The Path to European Integration', Proceedings***, Faculty of Economics Sarajevo, Sarajevo.

Žiković, S., (2007a): **Testing Popular VaR Models in EU New Member and Candidate States**, ***Journal of Economics and Business***, 25: 325 – 346.

Žiković, S., (2007b): **Measuring Market Risk in EU New Member States**, in ***13th Dubrovnik Economic Conference, Proceedings***. Croatian National Bank, Dubrovnik, Croatia, June 26-27., 2007.

BRAIN DRAIN OF SLOVENIAN YOUNG SKILLED PROFESSIONALS: AN IMAGINARY OR REAL THREAT?

Tjaša Redek
Faculty of Economics, University of Ljubljana
Kardeljeva ploščad 17, 1000 Ljubljana, Slovenia
Phone: ++ 386 1 5892 400; Fax: ++ 386 1 5892 698
E-mail: tjasa.redek@ef.uni-lj.si

Irena Ograjenšek
Faculty of Economics, University of Ljubljana
Kardeljeva ploščad 17, 1000 Ljubljana, Slovenia
Phone: ++ 386 1 5892 400; Fax: ++ 386 1 5892 698
E-mail: irena.ograjensek@ef.uni-lj.si

Jože Sambt
Faculty of Economics, University of Ljubljana
Kardeljeva ploščad 17, 1000 Ljubljana, Slovenia
Phone: ++ 386 1 5892 400; Fax: ++ 386 1 5892 698
E-mail: joze.sambt@ef.uni-lj.si

Katarina Katja Mihelič
Faculty of Economics, University of Ljubljana
Kardeljeva ploščad 17, 1000 Ljubljana, Slovenia
Phone: ++ 386 1 5892 400; Fax: ++ 386 1 5892 698
E-mail: katja.mihelic@ef.uni-lj.si

Polona Domadenik
Faculty of Economics, University of Ljubljana
Kardeljeva ploščad 17, 1000 Ljubljana, Slovenia
Phone: ++ 386 1 5892 400; Fax: ++ 386 1 5892 698
E-mail: polona.domadenik@ef.uni-lj.si

Key words: *R&D, economic growth, brain drain, researchers, Slovenia, survey*

ABSTRACT

Economic growth and development depend more and more on technological advancements achieved primarily through intangible capital and knowledge. Therefore, investments into education of the young skilled professionals and their gainful inclusion into the productive force are of key importance for future economic growth.

Brain drain, as the literature usually labels the emigration of highly skilled resources, is primarily triggered by better job and material opportunities abroad, in the comparatively more developed economies. While brain exchange can be beneficial to the domestic economy due to the learning and spillover effects, brain drain poses a real danger to the development process, especially on the account of developing and transitional economies being often too

preoccupied with their pressing political and economic challenges to notice the lost long-term potential for sustainable economic growth.

The paper explores the issue of brain drain among a highly specific group of young skilled professionals in Slovenia: those young researchers who have been included in the national Young Researchers Funding Scheme. The key research question is whether Slovenia de facto invests in knowledge to facilitate its future growth or does it simply raise a cadre of highly qualified young people who, upon graduation, decide to pursue a career path abroad? Using qualitative methodology on a sample of the past and current participants in the national Young Researchers Funding Scheme we search for the answer by examining the education and career paths of the young Slovenian researchers, their domestic and foreign educational and work experience, as well as the pull and push factors influencing their decision to study and/or work abroad.

1. THE CONCEPT OF BRAIN DRAIN AND THE FRAMEWORK OF OUR RESEARCH

The concept of brain drain is used in the literature as a synonym for the emigration of highly skilled professionals. This phenomenon was relatively rare prior to Second World War, but accelerating technological progress, changes in the production process with the increased role of human capital and also political and social changes increased the share of highly skilled migrants. The analysis of brain drain and its economic impacts is therefore highly relevant from development perspective of 'origin' countries.

This paper explores the issue of brain drain among a highly specific group of young skilled professionals in Slovenia: those young researchers who have been included in the national Young Researchers Funding Scheme. The key research question is whether Slovenia de facto invests in knowledge to facilitate its future growth or does it simply raise a cadre of highly qualified young people who, upon graduation, decide to pursue a career path abroad? Using qualitative methodology on a sample of the past and current participants in the national Young Researchers Funding Scheme we search for the answer by examining the education and career paths of the young Slovenian researchers, their domestic and foreign educational and work experience, as well as the pull and push factors influencing their decision to study and/or work abroad.

2. BRAIN DRAIN, HUMAN CAPITAL AND ECONOMIC DEVELOPMENT

2.1. The definition of brain drain

Migration, both internal and international, is an old phenomenon, historically related to relative and absolute deprivation. According to Stark and Taylor (1989) it is primarily international migration that improves the relative income position of households and decreases their relative deprivation. Also, households normally 'choose' to send those with most likelihood for success to tackle this demanding task.

Although historically migration woke the interest of economists already in the mercantilist age, the concept of brain drain became more pronounced only in the past forty years. LaHaye

(1993) for example explains that 'export of skilled labour' was not allowed, not even to colonies, because it might have had caused additional competition, undesired by the countries striving for higher export prices and low imports. Later on, the importance of brain drain and brain gain, but especially the importance of human capital, were acknowledged by the likes of Petty, Smith, Roscher, Say and others. Pety (in Vinokur, 2006) claims that if domestically inferior conditions lead to lower productivity of an Irishman, why shouldn't he migrate to England? That would increase his productivity and his pay. On the other hand, England would also have the benefit of a higher GDP. Thus, England should not battle the Irish, but should rather stimulate their 'import' given how beneficial it could be for the English economy.

The rise of the marginalist economic thought led to the loss of interest in macroeconomic problems until the Great Depression stimulated the opposite: re-emergence of growth and development theory. According to Brandi (N.A.) emigration of highly skilled people was relatively rare prior to World War II. After it, however, the change in development patterns with increased role of technology and knowledge, as well as social and political changes increased the number of highly skilled professionals seeking better opportunities abroad. The concept of brain drain thus became more attractive in the second half of the 20th century. The interest in brain drain was additionally raised by the development economics focusing in that time on the relationship between the developed North and the less developed South (Giannoccolo, 2006). Among other elements, the development economics also examined the impact of brain drain on economic development of the poor. Nonetheless, the term 'brain drain' was first officially used in the publication *Emmigration of Scientists from the United Kingdom*, prepared by the British Royal Society in 1963 (Brandi, NA).

.

In the past four decades the concept got developed and analyzed from the viewpoint of various differing broader theoretical considerations. In 1950s the focus was on education and welfare and the analysis of brain drain referred mainly to developed countries. Since 1960s economic theory started to assign great importance to human capital in terms of economic growth. Therefore, brain drain became of interest also in less developed countries. The analysis today focuses primarily on the relationship between human capital and technological progress. Both brain drain and brain gain are an important consideration, one for developing and the other for developed countries.

Table 1: Brain drain analysis through history*

Decade	1950s	1960-1970s	1980s	1990-2000s
Human capital and education	Broader social aspects of education	Education increases HC; HC a specific production factor	HC a very important element for economic growth	HC and its impact on technological progress
BRAIN DRAIN ANALYSIS				
Topics	Welfare	International trade – labour market – public goods – taxes	HC and economic growth in developed as well as less developed countries; other macroeconomic aspects	Innovation, technology and growth; various microeconomic aspects
Countries	UK, Western Europe, Canada, US	Developing and developed countries	Undeveloped and developing countries	Developed and developing countries
Motivation for migration	Political and social	Inefficient markets, lack of employment possibilities	Higher productivity and wages of skilled in developed countries	Individuals' motivation (income, social causes, taxation, …)
Impacts	Negative impact on welfare, social structure and population	Negative impact on the economy and its development (short term: tax, employment …)	Negative impact on the economy and its development (long term, divergence)	Negative and positive impacts (*brain gain*)
Solutions	International organizations	Cooperation among economies, taxes on brain drain	Incentives to return home (employment possibilities)	Incentives to return home and also incentives for *brain gain*

* HC denotes human capital.

Source: Giannoccolo, 2006, p 3.

Baruch et al. (2007) claim that migration can be explained only by incorporating a broad set of factors on an individual, organizational and national level. Economic, social and legal aspects are important when an individual is deciding whether to stay abroad or return home, but the decision is always made by the individual and depends primarily on his or her ability to improve living conditions or to find new career opportunities.

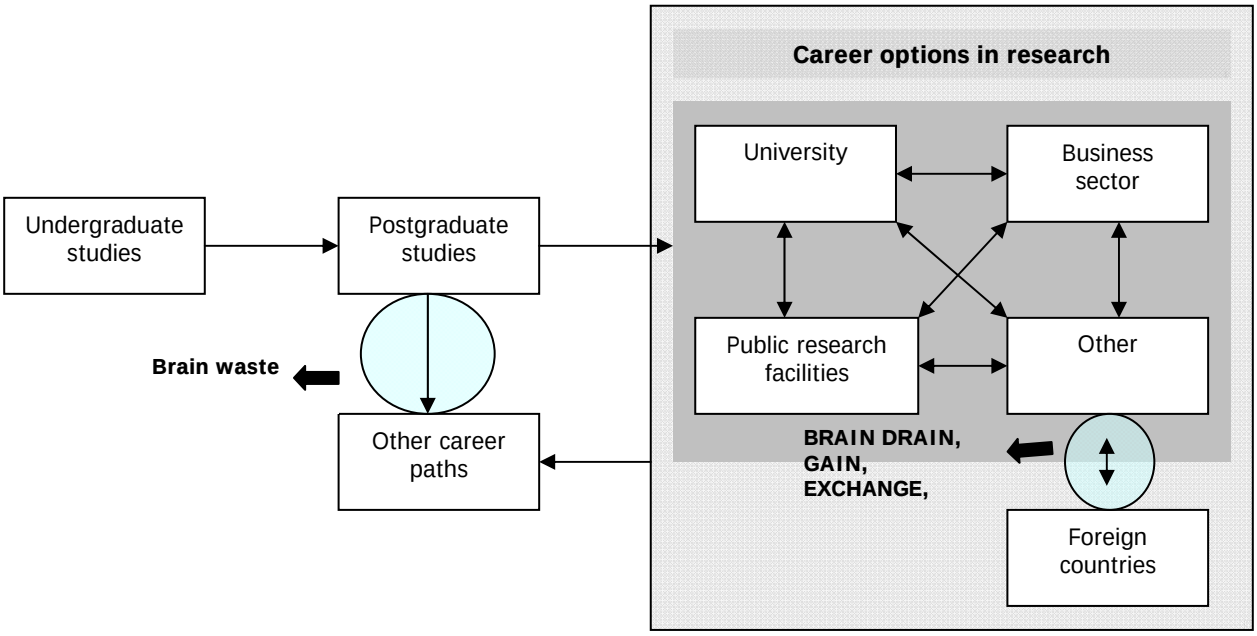
Brain drain is caused by two broader groups of elements: push and pull factors. Push factors normally refer to poor conditions in the home economy (for example unemployment, low wages, lack of career development opportunities, political conflict and other), while good or at least neutral conditions in the potential host economy can work as pull factors (for detailed migration theory analysis refer to Massey et al., 1998).

2.2. Brain drain among academics and researchers

Brain drain among academics and researchers is becoming more prominent in the literature, given the importance of these profiles from the perspective of new knowledge creation, technological advances and human capital stock creation/enlargement in the economy. Losing these highly skilled professionals is a double loss for any economy – first, normally the economy invested a significant amount of resources into their education and training and

second, it loses their creative potential and output. This, in the longer run, leads to lower competitiveness and growth.

*Figure 1. Career paths of an individual researcher**



Source: Understanding SET research career pathways – Literature review, 2006, p. 6.
* The following terms: brain drain, gain, and exchange were added to the figure by the authors of this article.

Figure 1 presents possible career paths of a postgraduate student after finishing his or her PhD studies. The individual can decide to pursue his or her career in the research sphere or elsewhere, possibly even in a public administration, which leads to a completely different than originally anticipated career focus. In this case - in case of exit from the realm of research - it would make sense to speak about **brain waste** (in form of irrational use of human potential of such individuals who are normally significantly too skilled for the requirements of typical non-creative jobs, for example those involving average public administration tasks). However, an individual can also continue his or her career in research. If so, then employment is possible at the university, in other public research institutions, in a company (provided his or her skills are required), or in pursuit of a career of an independent researcher and/or consultant. Often, one also considers a research career abroad. If the leave of the home country is permanent, this is a case of **brain drain**, the undesired result. For the host state, **brain gain** is the result. Less problematic than brain drain from the viewpoint of the home country (i.e. country of origin) are the options **brain exchange** and **brain circulation**.

The causes of brain drain among researchers are similar to those discussed earlier in the paper. They can also be divided into push and pull ones, although Kazlauskiene and Rinkevičius (2006, p. 30) claim that pull factors are more important for highly skilled. Tansel and Guengoer (2003) analyze the desire of Turkish students to return home after studying abroad in s standard pull/push framework. Among pull factors, they focus on higher income, better career opportunities, better work environment, more job openings for a specific profile, better social and cultural environment, proximity of important research and innovation centres, the desires of partner to return home or stay abroad, better educational possibilities for children, need to finish work in progress (projects). Push factors, that are relevant, are

besides the opposites of those listed in the previous sentence as pull factors in the host country also the lack of financial resources to start own company, bureaucracy and inefficiency, political pressure, lack of social security, economic instability and uncertainty.

Schiff (2008) analyzes brain drain among highly educated individuals. He claims that the decision of an individual is influenced by a number of economic and other elements, both pull factors in the potential host, and push factors in the domestic economy, as well as cultural and geographic distance. The empirical model uses as explanatory variables for emigration GDP per capita, geographical distance, ethnic variety in domestic economy, socio-political environment in home economy and the size of a country as a proxy for its openness (a small country should normally be more open). The results show that it is the small countries that are more prone to losing human potential. Two explanations are possible: (1) smaller countries have smaller labour markets and offer less prosperous opportunities for highly skilled and (2) smaller countries are more open.

Kurka et al. (2008) analyze the mobility of academics and researchers in Austria. Table 2 systematically summarizes all relevant factors. Besides the often mentioned factors of income and promotion, authors add other relevant factors such as good working conditions or motivation to work with highly renowned scientists in the chosen area of specialization. Another important push element is the potential to return home later and have better job opportunities. Mediating factors are also added. These are elements that are neither push or pull factors, but affect the decision nonetheless. Among these timing, lifestyle and application procedure are mentioned.

Table 2. Push and pull factors and other relevant elements pertaining to researchers' mobility

	Push factors	***Pull factors***
Causes	Recommendations and experience of friends Improved opportunities for future career at home (foreign experience is valued) Escape from lack of career opportunities at home	Career opportunities abroad A one-time job opportunity abroad The advantages of higher income and other benefits abroad New experience and adventures Work with best scientists at most prestigious institutions Top research conditions and infrastructure Different working environment and atmosphere Desire to see new places, experience new culture Improve foreign language skills
Mediating factors	Right time in life Quality and standard of the 'western lifestyle' Bureaucratic obstacles when applying	
Obstacles	Leaving family and friends Leaving home environment Leaving domestic social security system (when one is better than in foreign country)	Immigration laws Availability of work for a partner/spouse Poor foreign language skills Fear of the unknown
	Prevent leaving home economy	Prevent entering potential host economy

Adapted after Bernhard Kurka, Michaela Trippl and Gunther Maier, 2008, p. 10.

In sum, similar push and pull factors are at work both for the brain drain of the skilled and non-skilled although the magnitude of their influence might be different.

3. SLOVENIAN ECONOMIC DEVELOPMENT AND THE ROLE OF HUMAN CAPITAL

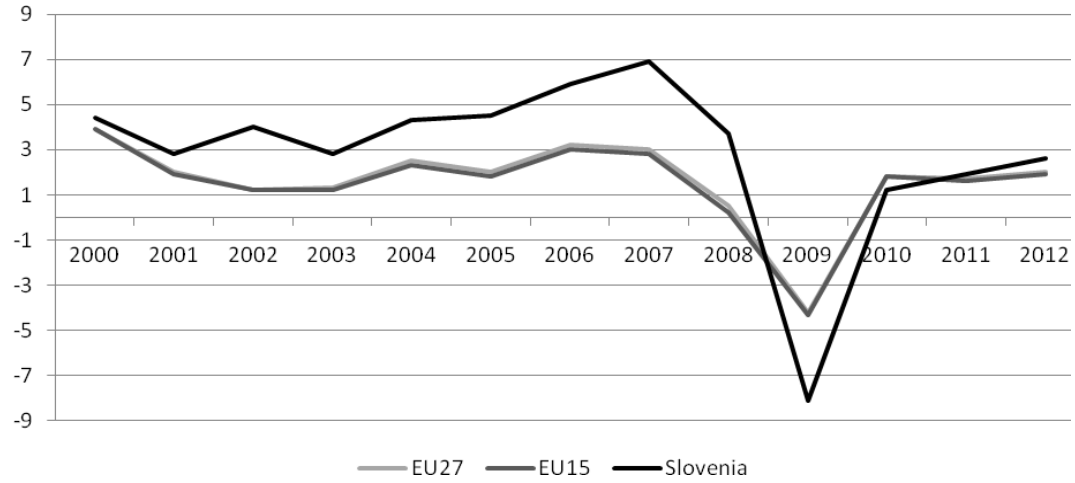
3.1. Economic development and human capital in Slovenia

Slovenian economic growth and development have been positive in the period of transition. Today, Slovenia is a member of the EU and its GDP per capita in purchasing power parity reached 88% of the EU-27 average in 2009 (91% in 2008).

A relatively stable and strong economic growth plummeted with the financial and economic crisis of 2007, which hit Slovenia in the fall of 2008 (see Figure 2).

After the Baltic states and Finland, Slovenia was the fourth state in the EU hit hardest by the crisis in 2009 with a decline of 8.1%. In such circumstances, with numerous problems of the Slovenian economic development revealed, we believe that human capital could have a huge impact on the future economic performance of our country.

*Figure 2. Real economic growth in Slovenia and EU 15 and 17, 2000-2012, in %**



*Data for 2010-2012 are forecasts.
Source: Eurostat, 2011.

Research on the contributions of various elements to economic performance, including an empirical study of the situation in Slovenia conducted by Prašnikar (ed., 2010), emphasises the role of intangible capital for economic growth. Latest research on contributions to growth conducted by Corrado et al. (2006), Van Ark et al. (2009), and Fukao et al. (2007) showed that economic growth in developed countries largely depends on the contributions of the so-called intangible capital and can contribute up to one third to productivity growth. According to Corrado (2006) intangible capital is defined as: (1) IT - computerized information (software and databases), (2) innovative property (investments in R&D, licences, industrial property rights, product development and design), and (3) economic competencies (brand equity, firm specific human capital and organizational structure). Prašnikar et al. (2010) expand the concept of intangible capital to include informational capital (important for small open economies), social capital (essential in time of crisis), and eco capital (important primarily in the last decade). Intangible capital thus largely depend on human capital and human potential.

Unfortunately, historical developments in Slovenia as an economy in transition did not play in favour of human capital and human potential development (Domadenik and Prašnikar, 2010). In the first four years after the declaration of independence in 1991 Slovenian companies practically had no debt. In the period 1995–2003 Slovenia was catching up successfully with the developed economies on the basis of tangible and intangible investments. However, in the period 2004–2008 the huge increases in financial investments prevented Slovenian firms from investing in tangible and intangible capital with the same magnitude as before. Less than half of increases in financial indebtedness in this period were used to finance regular business activities. The bulk was spent on ownership consolidation through secondary privatization, firms' take-over activities (primarily in the Western Balkans) and speculative land purchases.

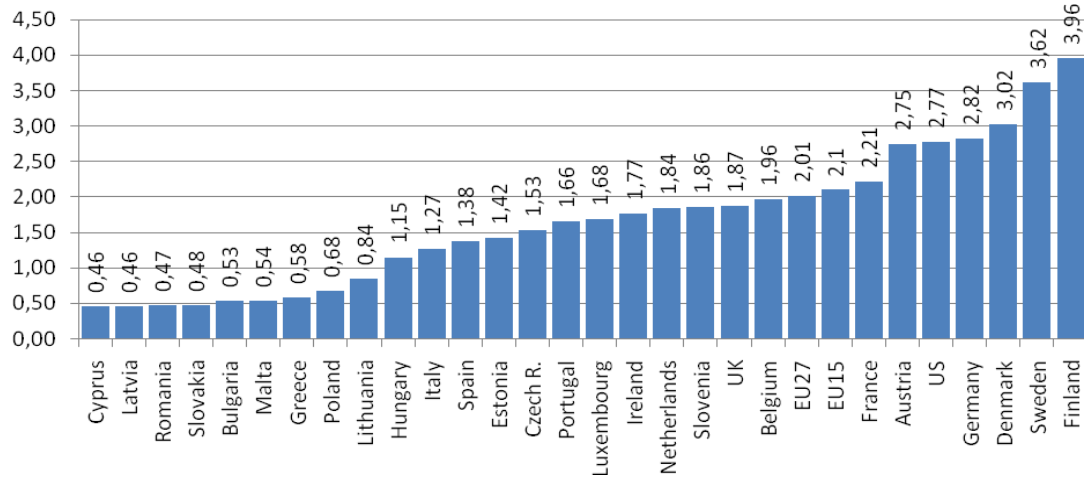
In the aftermath of the global economic crisis, Slovenia's government and business communities need to acknowledge the fact that the leap from the group of developing into the group of the developed countries can only be made by changing the pattern of growth to more knowledge-intensive industries, i.e. sectors with the higher value added. This leap depends to a great extent on the research potential of the Slovenian economy. In this context, brain gain and brain drain are becoming highly relevant topics.

3.2. Research and development activity in Slovenia

In March 2000 the EU set a target to become, by 2010, the most competitive and dynamic world economy, the development of which will depend on knowledge and will take place according to the principles of sustainability (Lisbon Agenda, 2004). At the moment, the target has not yet been achieved. In fact, the EU is significantly lagging behind the US in terms of R&D activity (Eurostat, 2011), while Slovenia is in many aspects lagging behind the EU averages.

One of the most advertised targets of the Lisbon agenda, actually added in 2002 in Barcelona, is the 3% of GDP for R&D expenditure. Figure 3 shows that the majority of countries lag behind the desired target, while Slovenia, with its 1.86% of GDP, is also lagging behind the EU-27 and EU-15 averages.

*Figure 3. R&D expenditure as % of GDP in the EU countries in 2009**



* Data for Greece for 2007, data for US for 2008.
Source: Eurostat, 2011.

In 2008 the EU-27 had 2.2 million people classified as researchers (without technicians and other supporting personnel), while Slovenia had a total of 10,124 researchers. This number represents a significant increase from 2004, when the number of researchers in all sectors combined was 5,428 (Eurostat, 2011).

Table 3 reveals that Slovenia is also lagging behind in terms of the share of researchers as a percentage of the total number of employed. On average in the developed EU-15 the share of researchers is 1.1% of total number of employed, while in Slovenia, it is 1.02%. This by itself is not too big of a difference. However, the difference becomes highly significant if the benchmark is Finland (2.18%), one of the most innovative and knowledge-oriented economies in the EU, which is often used as a role model for Slovenia.

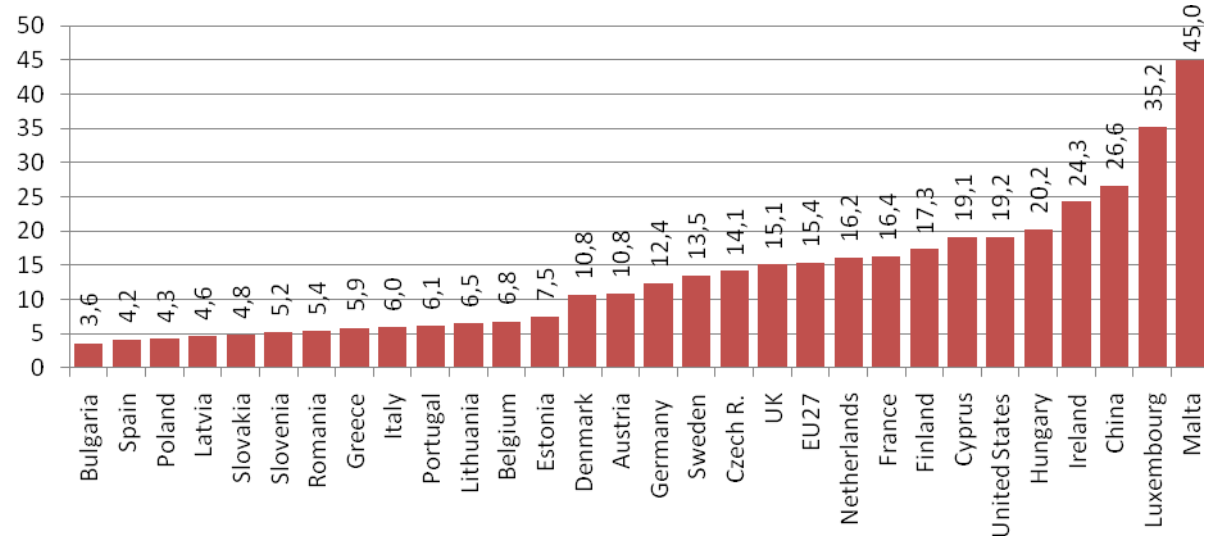
*Table 3. Researchers as percentage of total employment (headcount) in 2008 in the EU in different sectors**

	All sectors	Business enterprise sector	Government sector	Higher education sector	Private non-profit sector
EU27	1.01	0.37	0.1	0.53	0.01
EU15	1.11	0.43	0.1	0.57	0.01
Belgium	-	-	-	-	-
Austria	-	-	-	-	-
Bulgaria	0.4	0.05	0.19	0.16	0
Cyprus	0.41	0.1	0.06	0.23	0.02
Czech Republic	0.88	0.31	0.19	0.38	0
Denmark	1.7	1.03	0.06	0.6	0.01
Estonia	1.1	0.3	0.11	0.66	0.02
Finland	2.18	1.12	0.22	0.82	0.02
France	1.12	0.57	0.11	0.42	0.02
Germany	-	-	0.14	0.51	-
Greece	-	-	-	-	-
Hungary	0.87	0.24	0.15	0.48	-
Ireland	1	0.42	0.03	0.55	-
Italy	0.62	0.19	0.09	0.32	0.03
Latvia	0.66	0.07	0.09	0.5	-
Lithuania	0.89	0.1	0.11	0.68	-
Luxembourg	-	-	-	0.18	-
Malta	0.68	0.17	0.03	0.48	0
Netherlands	-	0.37	0.09	-	-
Poland	0.62	0.08	0.09	0.45	0
Portugal	1.44	0.35	0.09	0.89	0.12
Romania	0.33	0.07	0.07	0.19	0
Slovakia	0.81	0.09	0.13	0.59	0
Slovenia	1.02	0.35	0.25	0.42	0
Spain	1.07	0.31	0.16	0.6	0
Sweden	-	-	-	-	-
United Kingdom	-	0.3	0.03	-	0.02

* (-) indicates 'not available'
Source: Eurostat, 20111.

In Slovenia, the relatively high shares of highly skilled professionals and researchers are less successfully used in the economy, if judging from the basic statistics. For example, the share of high tech exports in total exports in Slovenia in 2008 was only 5.2%, which was one of the lowest shares in the EU. On average, for EU-27 the share was slightly over 15% (Figure 4).

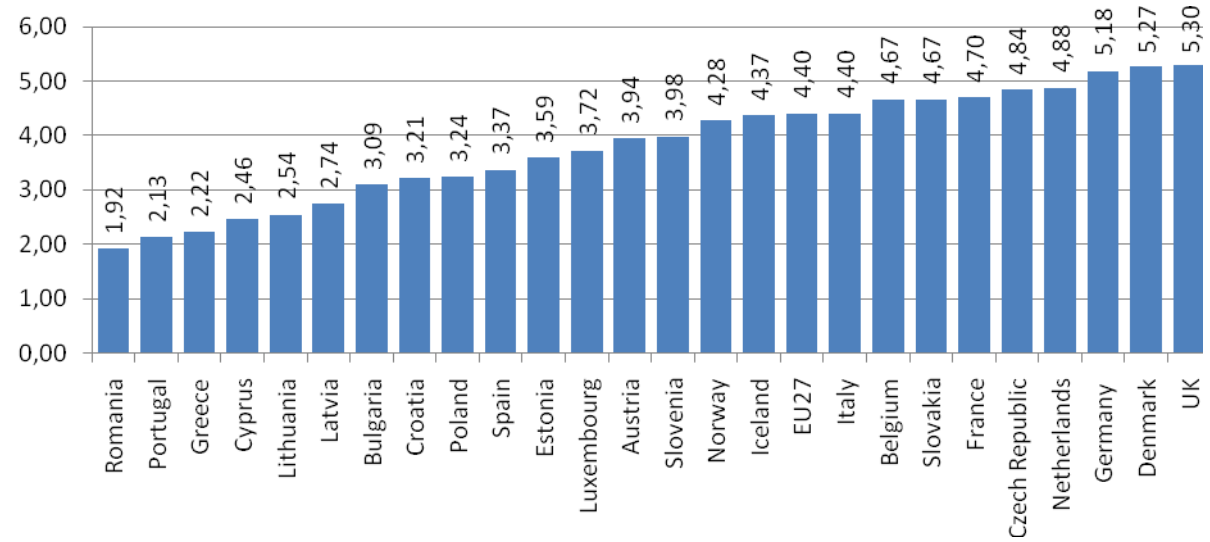
Figure 4. Share of high-tech exports in total exports in 2008 in the EU, US and China, %



Source: Eurostat, 2011.

Slovenia also lags behind the EU-27 average in the share of total employment in high-tech sectors (see Figure 5), which could explain the poor results in the high-tech exports, but not in total.

Figure 5. Share of employment in high-tech sectors (high-technology manufacturing and knowledge-intensive high-technology services) as % of total employment in 2007



Source: Eurostat, 2011.

The share of high-tech employment in total employment is also below the EU average, but not so significantly. The discrepancy between the extremely poor performance in high-tech exports and high-tech employment could be attributed to: (1) export orientation of Slovenian high-tech industries, (2) poor productivity of high-tech employees, (3) lagging behind in competitiveness of high-tech industries, and (4) lack of restructuring efforts leading to poor export performance.

In any case, the simple statistics indicate that Slovenia is underperforming in R&D and knowledge-intensive industry development. Consequently, it might not be taking full advantages of its potential. This is why it is important to analyze the human capital of young researchers and the problems that they are facing on their career paths. In addition, research on brain drain provides a number of interesting insights that shed further light on these macroeconomic results.

4. BRAIN DRAIN AMONG THE YOUNG RESEARCHERS IN SLOVENIA

4.1 Methodology

When researching brain drain among the young researchers in Slovenia the key research question is whether Slovenia de facto invests in knowledge to facilitate its future growth or does it simply raise a cadre of highly qualified young people who, upon graduation, decide to pursue a career path abroad?

To find the relevant answers, we used qualitative methodology in form of focus groups and individual in-depth interviews. Both helped us to examine the education and career paths of

the young Slovenian researchers, their domestic and foreign educational and work experience, as well as the pull and push factors influencing their decision to study and/or work abroad.

The target population consisted of the current and former participants (graduates) of the national *Young Researchers Programme (YRP)* and *Young Researchers for the Economy Programme (YREP)* launched in 1985. Both programmes are financed by the government and in both programmes young researchers are nurtured throughout the process of obtaining their master and/or PhD titles.

In the framework of the YRP programme, the contract binds the young researcher, the host institution (academic or pure research one) and the government. In case of the YREP programme, there are two host institutions – the academic or pure research one and the company.

Up until 2008 the total of 5,060 young researchers successfully concluded the programme (with a yearly average of 220). Annually, about 1,200 young researchers actively participate in the programme. Our total population thus consisted of some 7,000 units. With the focus groups and individual interviews we managed to account for 1% of the total population, carefully balancing the ratios current participants/graduates and natural sciences/social sciences/humanities in the sample selection process.

4.2. Summary of results and future research challenges

Following from our qualitative research, the answer to our key research question is negative. While young researchers regardless of their background (natural sciences, social sciences and humanities) all acknowledge the importance of spending some time abroad to gather new experiences and obtain new research insights, they prefer short-term exchange programmes to a (quazi-)permanent exit. One of the reasons for such a state of affairs is best illustrated with words of one of our interviewees: “Once you shut the door behind you it never ever reopens, regardless of the quality of one’s scientific references accumulated abroad.” In other words, in Slovenia it is very difficult to renegotiate the entry into the academic and research community once one leaves it and that leave has been communicated as being of a permanent nature.

When analysing pull and push factors, quality of life in Slovenia was recognized as a major pull factor; especially in combination with the needs and wishes of young researchers’ partner and children.

Among strong motivators to stay are also credibility, strong research orientation, international involvement and guidance of the thesis supervisor, as well as young researcher’s level of integration into an existing project group.

Among the push factors, we surprisingly identified gender and age issues: gender of young researchers and age of the thesis supervisor play an important role. Young female researchers often feel they would find it less difficult to gain acknowledgment of their scientific efforts abroad and might decide to pursue that path. And, according to our investigation, the age of the thesis supervisor might have a negative impact on both quality of research and research results dissemination.

To sum up, at least in the short term, there is no reason to anticipate a major brain drain among the group of young researchers. Consequently, the Slovenian research potential is not endangered by brain drain. What worries us, however, is the fact that so many graduates of the YRP and YREP programme exit the scientific sphere and look for jobs in the public sector, as local or national government officials. Along with the overall satisfaction with the structure and implementation of both programmes, quality of administrative and scientific supervision, as well as career planning, this is the issue that calls for additional in-depth investigation.

BIBLIOGRAPHY

Understanding Set Research Career Pathways - Literature Review (2006) The Allen Consulting Group, http://www.dest.gov.au/NR/rdonlyres/9D08C042-FCE9-4677-A27F-368D90741511/23687/LitRevSETcareerpaths.pdf [Accessed 9.4.2007]

Baruch, Y.; Budhwar, P. S. and Khatri, N. (2007): **Brain Drain: Inclination to Stay Abroad after Studies, *Journal of World Business***, *42*(1): 99-112.

Brandi, C. M. (2001) **The Evolution in Theories of the Brain Drain and the Migration of Skilled Personnel**, http://www.irpps.cnr.it/sito/download/the%20evolution%20study.pdf [Accessed 7.4.2007]

Corrado, C., Hulten, C., & Sichel, D. (2006): **Intangible Capital and Economic Growth**. NBER Working Paper N. 11948.

Eurostat. **Online Database**, Eurostat, http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1090,30070682,1090_33076576&_dad=portal&_schema=PORTAL [Accessed 23.4.2011]

Fukao, K., Hamagata, S., Miyagawa, T. & Tonogi, K. (2007): **Intangible Investment in Japan: Measurement and Contribution to Economic Growth**, Rieti Discussion Paper, 07-E-034.

Giannoccolo, P. (2006): **Brain Drain. A Survey of the Literature**, Department of Statistics, University of Milano - Bicocca and Department of Economics, University of Bologna, http://www.statistica.unimib.it/utenti/WorkingPapers/WorkingPapers/20060302.pdf [Accessed 9.4.2009]

Kazlauskiene, A. and Rinkevičius, L. (2006): **Lithuanian Brain Drain: Push and Pull Factors, *Engineering Economics***, *1*(46):27-37.

Kurka, B.; Trippl, M. and Maier, G. (2008) **Understanding Scientific Mobility: Characteristics, Location Decisions, and Knowledge Circulation. A Case Study of Internationally Mobile Austrian Scientists and Researchers**, DYNREG Working Papers: Daynamic Regions in a Knowledge-driven Global Economy. Lessons and policy implications for the EU.

LaHaye, L. (1993): **Mercantilism**, *The concise enyclopedia of economics.*

Massey, D. S.; Arango, J.; Hugo, G.; Kouaouchi, A.; Pellegrino, A. and Taylor, J. (1998): **Worlds in Motion: Understanding International Migration at the End of Millenium.** Oxford University Press.

Prašnikar, J. (ur.) (2010): **The role of intangible assets in exiting the crisis.** 1st printing. Ljubljana: Časnik Finance.

Prašnikar, J. and Domadenik, P. *(*2010): **The role of investment in the process of restructuring in Slovenia in the period of 1996-2000,** Presented at International Scientific Conference "The Challenges of Economic Science and Practice in the 21th Century", at Faculty of Economics, Niš, October 14, 2010. Niš: Faculty of Economics.

Rajkovič, T., and Prašnikar, J. (2009): **Technological, marketing and complementary competencies driving innovative performance of Slovenian manufacturing firms.** ***Organizacija (Kranj)***, 42: 77-86

Schiff, M. (2008): **Brain Drain and Its Determinants: A Major Issue for Small States**, *IZA Disscussion Paper No. 3398,* http://ftp.iza.org/dp3398.pdf [Accessed 5.4.2009]

Stark, O. and Taylor, J. E. (1989) **Relative Deprivation and International Migration,** ***Demography***, *26*(1): 1-14.

Tansel, A. and Guengoer, N. D. (2003): **Brain Drain from Turkey: Survey Evidence of Student Non-Return,** ***Career Development International***, *8*(2): 52-69.

Van Ark, B., Hao, J., Corrado, C., & Hulten, C. (2009): **Measuring intangible capital and its contribution to economic growth in Europe**. EIB Papers 3/2009, European Investment Bank: economic and financial studies.

Vinokur, A. (2006): **Brain Migration Revisited,** ***Globalization, Societies and Education***, *4*(1): 7-24.

PUBLIC POLICY AND DEVELOPMENT OF CLEAN ELECTRICITY GENERATION IN THE SEE TRANSITION ECONOMIES

Dubravko Sabolić and Milivoj Andrić
HEP-Transmission System Operator, Llc.
Kupska 4, HR-10000 Zagreb, Croatia
Phone: ++38516322317; Fax: ++38516170442
E-mail: dubravko.sabolic@hep.hr

Key words: *Public policy, Electricity sector, Development, Transition economies, Generation investments, Green electricity production*

ABSTRACT

This work concentrates on economic factors that determine today's situation and future prospects in upgrading the existing electricity systems in the SEE transition countries (but not necessary only in them) with new generation units, especially the renewable ones, such as:

- what is the current situation in electricity sector reform and privatisation in the SEE transition countries;
- what are the main features of public policies in these countries and what are the economic levers that are functionally disabled by them;
- what is the merit of the electricity system size and why small systems limit the competitiveness of generation units;
- what is the nature of externalities in joint system operation of certain system services over larger control areas;
- why the integration in international electricity markets is an important factor in generators' competitiveness;
- the role of public policy in development of large renewable sources and their integration into existing systems;
- what are the toughest challenges for the electricity system economics in the process of rather a quick transition towards a greener electricity production.

1. INTRODUCTION

Electricity market transformation is a process that in many western countries has been going on long enough to show economic effects on the society. On the contrary, in many transition economies, like e.g. the South-East Europe (SEE), it is something rather new. I will first compare "canonic" goals of the reform, using e.g. Joskow (2003), with what actually has happened in the SEE region (e.g. Pollitt (2007) and Sabolić, Grčić (2010)), which is a good way to begin with a study of how public policies in electricity industry transform into economic effects. I will identify the type of pricing policy that seems to be deeply rooted in the SEE region's practical policies. Although many authors believe that there are large subsidies that keep electricity companies going on, I argue that this is not the truth. Rather, companies are frequently being politically influenced to keep their prices *as low as possible for as long as possible*, and in the long run they seem to be regulated almost perfectly, but

only on the level of prices that can recover merely short-run costs. Finally, I will describe *transmission mechanisms* that connect pricing policies of the kind described above with virtually every market failure.

The key political force that drives electricity sector reform in the South East Europe (SEE) countries is the Energy Community Treaty (Energy Community, 2006), signed by the European Community (EC), Albania, Bulgaria, Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, Romania, Serbia, and The United Nations Interim Administration Mission in Kosovo. It entered into force on 1 July 2006. Its primary goal is to implant the standard EU reform process, as set by relevant EU energy legislation and competition law, into the SEE region (Energy Community, 2008).

There is a common belief that the primary goals in restructuring the electricity sector are somewhat different in developed than in developing countries. The main motivation in developed world is to increase economic efficiency of the industry. Developing countries would have to reform the sector first to increase availability and security of supply (Pollitt, 2007). However, the SEE countries already committed to apply market oriented rules through the Energy Community Treaty.

In Joskow (2003) there is a comprehensive list of standard measures that have to be adopted in order to have the reform successfully done. They are stated briefly here, with obligatory legal provisions imposed by the Treaty indicated in parentheses where applicable:

- privatisation of state-owned utilities (not mandatory under the Treaty);
- horizontal integration of network and transmission operations to meet the "natural" geographic scope of wholesale markets (which can be drawn from the Article 42 under Title IV of the Treaty);
- creation of public wholesale markets;
- promotion of a fair third-party access to the networks, and a transparent market-based congestion management (the former is mandatory by virtue of Article 20 of the 2003/54/EC directive (European Community, 2003a), while the latter is obligatory by virtue of Article 11 of the Treaty, extending the Regulation (EC) No 1228/2003 (European Community, 2003b) to the contracting parties);
- unbundling of retail tariffs to provide a transparent information to retail customers on costs structure (Article 3 of the 2003/54/EC directive);
- designating the last resort supplier, which may be the distribution company (Article 3 of the 2003/54/EC).

SEETEC (2006) seems to be the most thorough report on both legal and factual situation regarding electricity markets in SEE countries. According to it, various stakeholders (regulators, transmission system operators, traders, generation companies, suppliers and industrial users) have identified several obstacles to trade divided basically in three major groups:

- Issues linked to implementation of the *acquis* (cross border allocation of capacities, ITC (Inter-TSO Clearing) mechanism, access to national networks and transmission system operators' (TSO) role);
- Lack of competition in generation and supply (concentration and vertical foreclosure,

operability of national market rules);
- SEE-specific issues (tariffs, licensing, regional harmonisation).

In Sabolić, Grčić (2010) it has been shown that:

- SEE countries in transition have mostly reformed their electricity legislation, but still significant problems in implementation of the market rules and principles remain unresolved;
- virtually all unresolved issues can be clearly attributed to rigid retail price controls that have been kept throughout the region;
- thus, the only possible way to finish the reform of the electricity sector in these countries successfully is to allow all market participants to do business under normal conditions, which seems to be rather difficult for the governments of SEE countries.

It was argued, too, that evident problems in implementation of the EU energy *acquis*, the governments of SEE countries face so many difficulties in transforming the society as a whole, that they cannot stay entirely focused on the reform of just one sector, ignoring other political and social tensions associated with development of societies in transition. Thus, apparently some efficient *political* strategies would need to be created to foster the energy industry reform.

2. THE PROBLEM

Looking back at the basic theoretical principles from Joskow (2003) listed above, there is a failure in almost every aspect of the SEE electricity market reform (Sabolić, Grčić, 2010):

- As regards privatisation of state-owned utilities, this was not requested by the Energy Community Treaty, so that privatisation was not a very common feature of the SEE reform, although several countries like Macedonia, Albania or Montenegro have recently privatised parts of their electricity systems. However, the economic effects of these foreign acquisitions are not clear, yet. Thus, they were omitted from this analysis. *There have not been major direct foreign investments* in new production facilities, indicating clearly that potential investors could not see an interest to invest substantial amounts of capital. When negotiating the Treaty, the SEE governments obviously found it very important to avoid taking obligation of privatization. Consequently, the Treaty does not contain any such obligation. In this way, most of the governments retained a possibility to influence day-to-day business decisions of the electricity companies, especially with regard to retail prices.

- Horizontal integration of network and transmission operations to meet the "natural" geographic scope of wholesale markets was mostly in place around the SEE even before the reform started. A common model throughout the region was a vertically integrated utility company with both network and system operations included (often within the same division). Thus, formally, there was no problem in integrating network and system operation. However, the real problem that still persists is how effectively regulated system operators are unbundled from competitive parts (generation and supply). Regarding this issue, sometimes it may not be very clear whether generation/supply is subsidized from transmission revenues or vice versa (i.e.

it is not always possible to say firmly whether parent companies take away money from TSOs or poor it into them).

- Creation of public wholesale markets was not successful. The only SEE country with some wholesale market which is actually working is Romania.

- Promotion of a fair third-party access to the networks, and a transparent market-based congestion management, are clearly still missing. Practically only Croatia and Romania perform a few forms of bilaterally co-ordinated market-based explicit capacity allocations.

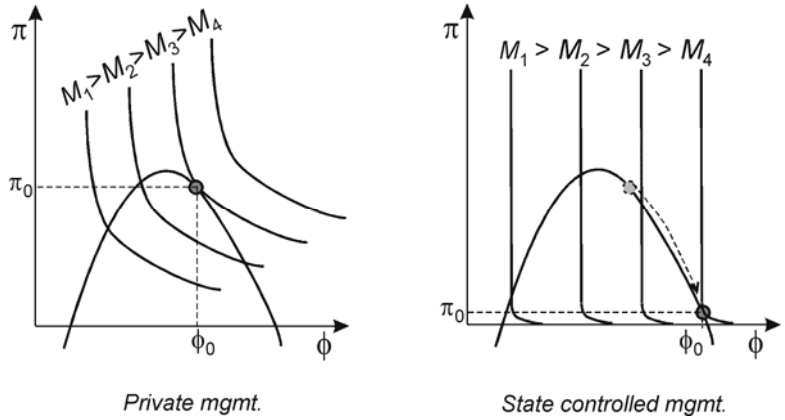
- Unbundling of retail tariffs to provide transparent information to retail customers on costs structure has been mostly performed. But then, this has nothing to do with cost reflectivity of established tariff structures (especially when it comes to network tariffs).

- Designating the last resort supplier, which may be the distribution company, was not a particular problem for the SEE countries, since in fact *the whole society* is usually "protected" (mostly by keeping low prices to almost everybody).

In a number of the SEE countries governments have virtually stopped the pace of reform of the electricity sector, still trying to make an impression that everything is going fine by rapid transposition of the EU energy as foreseen by the Energy Community Treaty. One may ask how can I argue this without an experimental research that would include documents with relevant decisions of public bodies, and other relevant information?

I believe *the least* one can be sure of is that electricity trading has an inherently international nature. There is not any particular kind of governmental action that would be really necessary to *establish* free cross-border trading of electricity. On the contrary, *preventing* companies from pursuing their economic interests in electricity exchange (or exchange of almost anything else, for that matter) *has to be* arranged by an explicit or implicit governmental policy. Even in the communism era there were some forms of electricity trading that were mostly reduced to technically necessary exchanges. A general market liberalization after the fall of the old system would have necessary led to the development of trading relations between interested agents, once the markets were freed. Thus, I assume that an assertion that governments in a free society do not have to *legally allow* any kind of economic activity, because there is a general constitutional freedom to do business, is self-evident, so I will not try to prove it in any way. This inevitably leads to a conclusion that in any normal industry sector governments may assume either of the two roles:

Figure 1. A government utility maximization model related to electricity prices.



Source: Author.

- to *prevent* development of free trade (for their own reasons that certainly should be viewed in the context of real politics in a given country and its international environment);
- to *norm the rules of trade* in order to create an additional layer of social infrastructure that would hopefully facilitate free trading and support fair market conduct.

Of course, *both* of the above come from the government's need to maximize its "political support" in a given political context, which can be viewed in a framework of Peltzman's theory of regulation (Peltzman, 1976).

Say for instance that the government can influence the final prices of electricity (at least some of them, such as those for socially sensitive customers), either through regulatory body, antitrust authority, or directly. The public generally dislikes high prices of non-elastic goods. Therefore, the higher the "approved price", the lower the political support provided from the electorate to the incumbent government. Define ϕ as "reversed price": $\phi = P - p$, where p is the "approved price" and P is an arbitrary constant (for example, P can be a "maximum price", the lowest value for which is sure it cannot be exceeded in any case). Define then π as profit. Let M be a political support function which the government wants to maximize. It can be modeled as a function of price and profit. However, for purpose of this example it is more convenient to model it as a function of reversed price and profit: $M = f(\phi,\pi)$. Suppose M is a utility function obeying the law of decreasing marginal utility, meaning that both of its first partial derivatives are non-negative, while both of its second partial derivatives are non-positive. Then, the curves of constant M are convex and they have a character of indifference curves. Fig. 1 shows how government maximizes its political utility in two substantially different cases. When utility companies are ran by independent private management (left diagram), the equilibrium point (ϕ_0,π_0) is the result of trade-off between interests of indulging general public, which awards lower price (higher ϕ) with their votes, and a private utility corporation, which is willing to award higher campaign donations when it can extract higher profits. The parabola represents a usual profit function with one maximum.

The right-hand diagram shows the situation where utility is ran by managers who are directly dependent on government officials. The difference is in the shape of constant M curves: the government can count on company's financial support regardless on profit. To put it simply, the managers just have to obey. An exception can be assumed for very low profit levels, where spending on political donations would possibly push the company into economic

losses, which in turn would be punished by the general public (for government's apparent incompetence). For this reason the curves are not just vertical lines, but show little curvature near the bottom of diagram. It is rather obvious that the government has a clear incentive to keep prices low, just near almost-zero profit level. Thus, in the presented imaginary short-run model, the government easily becomes captured by general public, which of course is consistent with an conclusion drawn from descriptive empirical data in (Sabolić, Grčić, 2010), that the SEE governments tend to *keep prices as low as possible for as long as possible*, but at the same time they cannot afford to push utilities into economic losses and subsidize them from state budgets. For the sake of brevity I will call this kind of policy ALAP.

3. THE CONSEQUENCES

3.1. Lack of domestic investments

The ALAP policy is anything but new in the SEE region. It was there even before the transition started. For some reason (which I will never understand completely) electricity has been deemed a sort of "human right" like free usage of water or air. While in the former communist block, in which electrification had even had an *ideological* dimension ("*Communism is the rule of soviets plus electrification of the whole country*", as Lenin declared in 1920, see Wikipedia (2011), this may be understandable, it is not very clear to me why in many "western" societies people developed similar emotions towards electricity, see e.g. Tully (2006).

Under powerful ideological influence a number of communist states of Europe succeeded to build electricity infrastructure for initial industrialization. However, at certain points in the history these countries stopped electrification and surrendered to a popular policy of low electricity prices. It would need a serious multidisciplinary research, far beyond an intended scope of this article, to learn why this has happened.

It is rather self understood why low prices prevent domestic players from investments. They simply cannot produce new value as they have no profits in the long run. In addition, prices of primary energy sources (oil, gas, coal) have been rising since quite a while, increasing the variable costs of electricity generation. Companies in the SEE, being under heavy political influence, were often not allowed to reduce other operating costs e.g. by restructuring, improving management, and laying off excess work force. Then, without government subsidies, utilities' managements had nothing else to do but cut the investments and carry on using the existing generating plants and transmission/distribution networks. Sometimes, to keep alive an impression that everything is fine, the companies had to change accounting policies (like lowering amortization rates, (Sabolić, Grčić, 2010)), essentially to *avoid reporting*, still in a legally correct way, of what otherwise would be regarded as economic losses. It is interesting that some of the SEE utilities during last ten or so years have succeeded to keep the book value of equity (assets minus liabilities) virtually constant (Sabolić, Grčić, 2010), which means they were not able to produce new value in the long run. This again seems to be consistent with the logic of ALAP pricing policy.

Because electricity consumption grows in time, an obvious consequence of ALAP policy is gradual decrease of generation adequacy, which leads to increased electricity imports, which usually increases operating costs of the utilities. On the input side a utility is exposed to normal international markets for fuels and electricity, which cannot be influenced at all

neither by the company itself, nor by its domestic government. On the output side the government *can* conduct a rigid pricing policy combined with other limitations, as described above. At one point this scheme has to break down, forcing the government to allow for retail price correction *as minimal as possible*, just enough to enable the company to recover operating costs and still to keep some control over possible political damage. The equilibrium point is reached when political costs of running apparently unsuccessful state-owned firms that incur economic losses exceeds the costs of allowing minimal price corrections.

3.2. Lack of foreign direct investments

In the SEE region there has not been much foreign direct investments (FDIs) in electricity generation since the transition started (SEETEC, 2006). The main mode of privatization was buying shares in existing companies that supply most of the consumers. Thus, distribution and/or retail companies were often goals of foreign investors.

Although most of the problems with attracting FDIs have roots in general legal and economic conditions in each country (e.g. lack of land records, legal uncertainties, lengthy administrative and/or judicial procedures, red tape, corruption, unfavorable tax policies, inadequate antitrust and regulatory policy, etc.), the ALAP pricing does not help electricity generation FDIs, either.

Suppose a utility supplying a market of the size of 50 TWh[1] a year has to import so much electricity (say, 30% of domestic consumption) that it could finance one base power plant of about 600 MW[2] a year with that money alone (with current prices in the region, this is not unrealistic at all). This plant would be able to serve almost 10% of electricity consumption with one month of maintenance a year. Three such plants, equalling the value of just three years of import, would bring the country close to equilibrium. At first glance, every economic logic speaks in favour of rushing into an investment that would replace electricity imports in the longer run, that is if "bringing the country close to equilibrium" brings expected returns to those who invest their capital, too.

First of all, long-term investors seek for low-risk projects. A large power plant is a risky investment even in countries with clear legal and market conditions. In the transition countries it may seem easier to buy retail market access by acquiring the distribution company, or the largest retailer, if such exists. This would not make sense unless the company agrees with the government liberalization of retail prices. Or, alternatively, the company can agree with the government to keep retail prices low and to receive a direct state subvention to compensate

[1] TWh is a short for terawatt-hour, which equals one thousand of gigawatt-hours (GWh) or one million of megawatt-hours (MWh). These are all units for large quantities of electrical energy. To produce 1 TWh of electricity, a generator would have to work at the power of 114,155 MW for a whole year (8.760 hours). These days (Feb. 2011), an average price of this amount of electrical energy can be approximately 1 million MWh × × 50 €/MWh = 50 million €. See also footnote 2.

[2] MW is a short for megawatt, or one million watts. Watt (W) is a unit for power. Power is the rate at which energy is produced or used (spent), or the rate of energy flow. Consequently, if the energy is for example flowing at an average rate of P megawatts during a period of t hours, the total energy flow can be calculated as $P \times t$ megawatt-hours (MWh). For example, if an electricity plant delivers electricity into the network at a constant power of 250 MW, during one whole day it produces 250 MW × 24 h = 6.000 MWh of electrical energy. For reader's orientation, a normal average price for "in-band" energy (i.e. the one which is delivered at constant power all the time, often called "base-load" energy) can be about 50 €/MWh these days. (Of course, this figure changes with time, tracking the primary energy prices, at least in the long run.) Thus, one-day economic value of base load energy produced at 250 MW may be about 300.000 €, which corresponds to 109,5 million € a year (250 MW × 8.760 h/y × 50 €/MWh). Clearly, in electricity business large numbers are often encountered.

for the difference between the approved and economic retail price. Apparently, state subsidies may occur only when the government loses control of retail part of the system, usually after privatization by foreign corporations. Otherwise it would be able to continue with ALAP strategy and avoid subsidies to the companies it owns. Nevertheless, nobody rational would acquire a retail company unless allowed to collect at least fair *income* from the business (either directly from customers, or partially from state subsidies). This alone can create sufficient financial incentives to invest in longer-run projects, like large power plants intended to produce electricity primarily for domestic consumption provided that there are no other significant market distortions left. So, if the biggest national retailer is still available for initial privatization, and if there is an ALAP policy in place, electricity generation FDIs are not likely to occur first. They will most likely wait for normalization of *retail market conditions* instead, and one of the ways to make it happen is to privatize retail market.

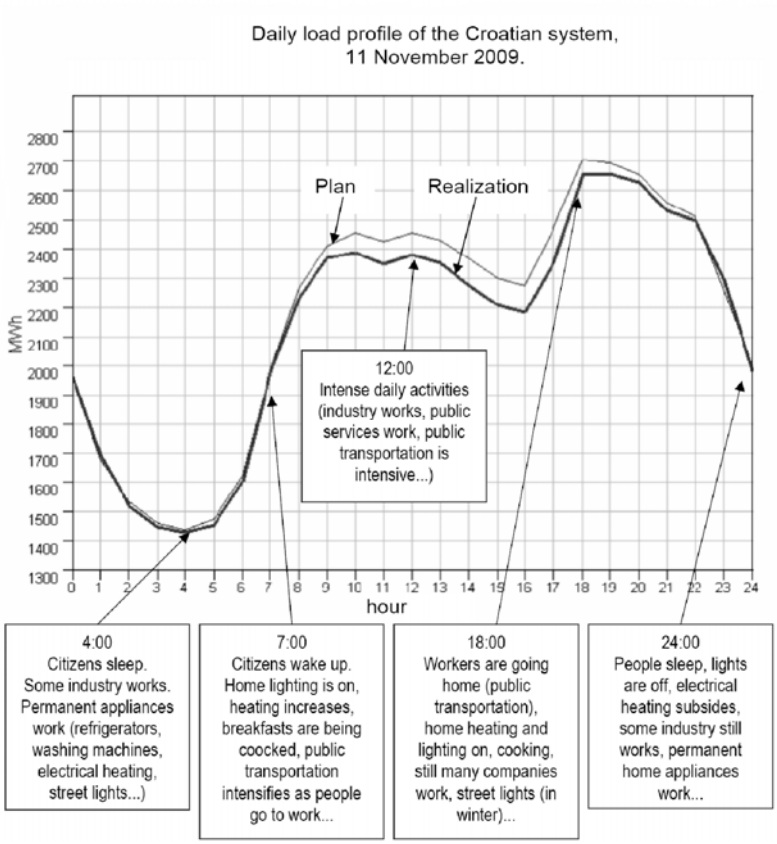
Retail part of the system is crucially important for retail customers (from the smallest to the biggest one) are those who are supposed to pay the total costs of the system because *they* are at the end of the value chain. A usual policy misconception in many SEE countries lies in a belief that it may be sufficient to liberalize and norm the wholesale electricity trade and still keep the retail part tightly controlled. Nothing can possibly be more misleading than that. There can be no normal electricity market without a normal retail market conditions. ALAP (as well as probably any other distorting policy one can imagine) prevents market from normal development; one of the obvious consequences is the lack of FDIs in electricity generation.

3.3. Avoiding market integration

The ALAP pricing is possible only if the country's electricity sector is separated from external electricity markets. The larger the degree of separation, the better. Integration with neighboring markets would inevitably lead to an adoption of somebody else's rules of the game, narrowing the maneuver space for the domestic government to set them how it wants. But, to allow integration is by itself a clear sign of political will to abandon unnecessary state intervention. A big exception would be if two or more states decided to integrate their systems under old non-market rules, but I am not sure if this would be possible at all because, as we all know from Tolstoy, "*Happy families are all alike; every unhappy family is unhappy in its own way.*" Market rules in countries with functional and economically viable electricity markets are founded on quite similar principles and thus compatible with relatively small adjustments. However, the rules of the game in countries where states plan and run electricity markets are often uniquely distorted, each in their own way. It is hardly imaginable someone could adjust them all to function together properly. And of course, the question is what would be the point of this endeavor.

It is important to note that an ALAP country cannot isolate its electricity market absolutely. Because ALAP policy inevitably leads to import dependence, governments must allow for substantial imports of electricity far beyond the scope of purely technical exchanges between network operators. In this way domestic utilities must enter into rather "normal" trade relations with foreign partners. To compensate for the lack of investments in generation, utilities are usually allowed to invest in substantial interconnection capacities with

Figure 2. A typical electricity system daily load profile with a sketch of factors that, among others, cause such load variations.



Source: HEP-Transmission System Operator, Llc., and author.

neighboring systems because it is way cheaper to build e.g. a 100 km interconnector with 2.000 MVA capacity (which would ideally enable a secure additional import of, say, about 1.000 MWh/h) than only a very small power plant of 100 MW in any technology one might think of. This is one of the main reasons why utilities in ALAP countries tend to secure their import capabilities by investing in transmission interconnections more than what is usual in countries where there are normal pricing signals for generation investments (Sabolić, Grčić, 2010).

As regards interconnection capacities, the ALAP states are usually prone to keep them away from market-based allocations because they regard them as their investment in security of supply, fearing that traders might buy the capacities and use them for their own transactions which would not necessarily be terminated inside the domestic territory. However, it is easily deductible that this is just another manifestation of ALAP logic. Should government allow for cross-border capacity market allocations, domestic utility, which has to serve domestic population with cheap and constantly available electricity, would all of a sudden have to compete for import capacities with other traders. In this way the capacity payments would *de facto* add to import electricity prices, making them effectively more expensive, in spite of the fact that the utility has already paid for this capacity by investing in it. This is why the ALAP states often do not surrender easily when it comes to cross-border electricity trade liberalization and unbundling of transmission system operators. Although there are several understandable points in their arguments, I would say that there is always at least a small amount of irrationality and unnecessary fear, which may come from a lack of experience with new circumstances in liberalized markets. Apparently, as countries are engaged in market

reform processes longer and longer, they gradually learn of advantages of transparent cross-border trade.

3.4. System operation externalities

Electricity system operation shows certain externalities: the more control areas participate in mutual operational mechanisms the lower the unit costs of providing system services, and vice versa. As described above, ALAP policy leads to "electricity isolationism" which in turn leads to a reluctance to take part in mutual usage of certain system services although economic logic would suggest opposite. This is a kind of paradox: to make ALAP pricing possible, the governments maintain separation from neighboring markets. However, due to this separation system services become more expensive, and what is more important, generation investments may as well become *less competitive*. Therefore, a part of costs incurred by system operator's defection from participating in wider area system operation are being shifted to somebody else (either suppliers or generators), with an increase in final electricity price as a consequence.

One of the main problems in small systems is the night load minimum (e.g. Croatian system with about 3.100 MW of peak load can be considered small). For a typical daily load profile see Fig. 2. At least all coal-fired and nuclear plants (if any) have to fit into this range. Moreover, recent strong political and legislative trends give advantage in network access to renewable sources. Thus, in quite a few countries large wind farms already have preferential treatment as compared to fossil fuel and nuclear plants. In such circumstances it is not hard to imagine a situation where a larger new plant (say, 500 MW coal-fired, or 1.000 MW nuclear) would simply not have enough space to be "squeezed" into a tight generation schedule unless shipping a large percentage of produced electricity abroad, especially during the night. The problem is, should you have an excess energy that you *have to* get rid of, and should nobody need this energy (e.g. during the night minimum), your price may fall very low. You might even be forced to *pay* somebody to take away your energy, as sometimes happens on spot markets when there is an excessive wind energy on the grid. If you wanted to hedge your position and planned to make long-term shipping contracts to the users outside the domestic control area, you would probably have to take into account the risk of cross-border capacity prices, which would make you less competitive on foreign markets.

Further, there occurs a question of system reserves, especially the tertiary reserve. A system operator has an obligation to keep available as much tertiary reserve capacity as big the largest generator inside its control area is. Suppose an investor wants to build a new 1.000 MW nuclear plant with a single generator in a control area with e.g. 3.100 MW peak load. Let the largest existing generator in such a system have 300 MW of installed power. Thus, local system operator has to keep 300 MW of tertiary reserve. After new nuclear plant is built, the operator would have to get additional 700 MW of tertiary reserve. (And of course, because the system is small the plant itself would have to look for a buyer for majority of energy it produces, say about 700 MWh/h in band). For example, the price of one megawatt of imported tertiary reserve Slovenian operator ELES has been paying during last several years ranged from about 17 k€ to 62 k€ (see www.eles.si). The lot was only 145 MW big. Under the same conditions 700 MW would cost from about 12 M€ to 44 M€ a year more than before. However, unit prices for such a big lot would certainly be even higher. Sooner or later the TSO and regulator would pop up with an idea to introduce a sort of *G*-component of the transmission tariff aimed at penalizing big generators which incur them additional substantial costs.

It is self understood that in a bigger system it would be much easier and cheaper to obtain larger sums of tertiary reserve *and* the problem of the generator unit size would not be that drastic as in small systems. These are the reasons why it is economically better for system operators *themselves* to be a part of a larger system. Generators would benefit, too, because diseconomies of running in a small system would naturally decrease. However, imagine a country which government does not allow its TSO to participate in wider regional system operation schemes for political reasons (which ever they might be). This is all very fine, but would it be willing to bear the costs that such a policy incurs to the system operator in the first step, to private generator companies in the second, and of course, to the citizens in the final stage of the play? Or better to say, would these political goals outweigh the increased electricity supply costs?

Of course, the answer to this question depends on a concrete situation in a concrete country. I guess most of the readers would automatically blame the government in such a case, but the issue can be much more complicated than that. Sometimes we all forget that governments do not deal with electricity sector *only* but with a vast number of other parts, layers, and ingredients of society and relations inside and around it, too. There are very many unknowns here. So, I will just stop and conclude that, when talking about *electricity sector only*, it is economically better to be integrated in wider system operation areas. By that I am not saying that there cannot be other important reasons that can influence governments in deciding which policy option, with regard to *this particular detail*, they would eventually pick.

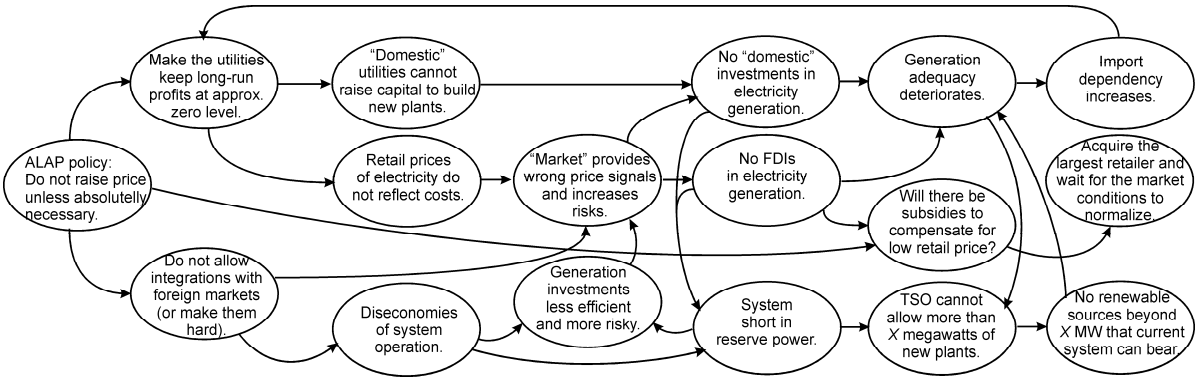
3.5. Inability to adopt larger quantities of renewable sources

During the last decade there has been a rush of new renewable generation plants that have to be connected to an existing electricity system. This is a consequence of recent developments in technology which enabled building of generation units of substantial production capacity. We all witness everyday political messages aimed at fostering adoption of renewable sources of electricity, and the efficiency of electricity usage. Out of quite a many problems facing today's system operators regarding these new trends, I will focus on problems with large wind farms integration into the system operated under ALAP pricing policy.

To be clear, it is *not possible* to extend intermittent source (like wind) penetration unless abandoning the ALAP policy. Every system has available certain amount of secondary regulation reserves. They are essential in wind integration business. However, in the old times the systems were not built with having in mind so large share of intermittent installed capacity. Thus, it is quite possible to introduce new wind farms up to a certain modest total installed power, which is limited by currently available secondary regulation. Imagine a system that can adopt about 400 MW of new wind plants without major upgrades. Suppose than that there is a political will and a commitment to build a lot more: about 1.200 MW during next 10 years or so. This can be achieved in one of the following ways, or their combination:

- tripling existing secondary reserve capacities by building new plants in hydro or gas technology (provided that there is an effective natural gas market and infrastructure);
- importing secondary reserve (provided that *there is* such a product available in neighboring countries and that technicalities are easy to solve).

Figure 3. A sketch of transmission mechanisms by which an ALAP policy leads to failures in electricity market, as analyzed in Section 3.



Source: Author.

It is self evident that in an ALAP environment this is not possible at all because, as already explained, there can be no substantial investments in classical sources and the local market has to stay away from foreign ones. Even adoption of wind plants within the technical limits of the system *will increase* system costs for there *will be* additional engagement of system reserves needed to compensate for wind generation intermittency.

3.6. Influence on electricity-intensive industries

In ALAP countries a quite frequent policy feature is to try and keep electricity prices low for *all* customers, if possible. Therefore, factories that use much of electricity in their production process may get used to unrealistically low prices. This in turn removes natural incentives for cuttings of other operating costs, like excess labor or any irrational spending. The number of electricity-intensive industries is not very big: in most industries a share of electricity in total operating costs is from bellow one percent to a few percents at the most. However, in metal production, like aluminum, lead, zinc, tin, pig iron, steel, and ferro-alloys, as well as in some other industries such as cement or paper production, etc., the electricity share in total costs may be from ten to over twenty-five percents.

Effects of low industrial electricity prices on such companies, although at first glance quite favorable, may be detrimental in the long run because they are almost always a consequence of some systematic market distortion kept for a long time. In such a way, realistically, those companies are being indirectly subsidized, so if and when the time to switch to market-based economy finally came, they would not be capable of standing foreign competitors that have been exposed to normal pricing signals all the time. In other words, the electricity-intensive companies that have been pampered with low electricity prices may easily get "lazy" and gradually disregard the importance of other costs while enjoying too cheap electricity.

3.7. Recapitulation of transmission mechanisms by which ALAP policy turns into market failures

In this section a policy of keeping the electricity prices *as low as possible for as long as possible* (ALAP) was defined and analyzed, with special emphasis on the SEE countries since

the ALAP policy is frequently met in them. Fig. 3 summarizes transmission mechanisms by which such a policy influences outcomes of market processes, i.e. why exactly it causes electricity market failures described above. A general conclusion is that in ALAP environment functioning of an economically viable electricity market is distorted in every respect and thus it is not possible as such. By concluding this I am not saying anything about rightness or wrongness of government's reasons that lead to the choice of ALAP-like policies. I am just saying that by abandoning ALAP policies governments can create conditions in which free electricity markets may function in a (much) more efficient way. In the long run the customers would finally benefit as they would enjoy a secure electricity delivery at market prices.

4. POLICY-RELATED PROBLEMS SPECIFIC FOR GREEN ELECTRICITY

Energy mix problem in electricity generation becomes more and more important throughout the World for two main reasons: emissions of carbon dioxide, CO_2, should be lowered because of global warming concerns, and fossil fuels need to be replaced by alternative available energy sources in next few decades for the fossil fuel reserves are limited. In electricity generation these two goals are to be achieved by two kinds of actions: implementing new generation plants that use renewable energy sources like wind, solar or geothermal power, and making industry and living less energy-intensive by all sorts of energy efficiency improvements, for instance investments in better thermal isolation of homes, fostering development of distributed generation aimed at lowering energy losses in networks (at some expense in generation efficiency, though), producing better electrical appliances and machines that would spend less energy for the same functionality they perform, etc.

It is not possible to organize such huge changes in economic behaviour of people on a collective basis unless formulating and enforcing appropriate political measures. For example, at the present virtually all renewable source technologies except for hydro power plant technology (which is old and well developed) are much less effective and efficient, as compared to "classical" technologies like coal or gas fired, or nuclear plants. In other words, typical long run incremental cost of producing one megawatt-hour is substantially higher in renewable source plants than in big classical ones. Thus, why would anybody invest in them just like that?

On the other side of the system, it is usually cheaper to produce any imaginable kind of electricity consuming product without implementing additional technical solutions for reduction of electricity spending. Thus, why would for example a producer of audio equipment spend his/her money on technical solutions that would make its audio components use a few watt-hours less a day? Besides, why would a few watt-hours matter at all? The answer is: it would not matter at all if there were not virtually gazillions of pieces of electrical and electronic equipment of all kinds around the World, that all spend a few watt-hours a day more than they easily could. Again, there is no point in an individual action; a broad action is what is needed, and this is not possible if one leaved individuals to be guided by Smith's invisible hand. Governments have to step in.

Today about fourteen percents of primary energy within the EU area comes from renewables. The European Community adopted a policy of reaching twenty percents of total energy consumption from renewable sources until 2020. This policy has been turned into law: the Renewables directive (European Community, 2009) sets out this goal as a firm obligation for

the EU and also specifies individual national targets which took into account specifics of each member state.

By reading this directive and other policy stuff from multiple governmental and non-governmental sources one can encounter in the media, one can easily get an impression that policies are now more or less clearly articulated: the society *wants* green energy because people *want* to live in a cleaner environment and they *do not want* to be too dependent on petrol and coal once the reserves are near exhaustion and prices surge to the sky. But, my cynical question is: *do they want to pay for this*? It seems not. There is no need to run massive polls just to find out what *the people* think about it. One just needs to look at all these policy statements and accompanied legal acts, because what politicians speak and write is what they assume (in most occasions correctly) the people want to hear. So, everyone talks more or less about *state subsidies* in one form or the other, that would attract investors in (still uncompetitive) renewable sources of electricity. No one talks about real economics relevant for adoption of substantial quantities of new renewable generators into an existing system within relatively short time. While acknowledging a need to create strong political driving force for the process of "greening" the electricity system starts successfully, one should probably think of the self-evident need to create a sustainable system for the long run. In other words, the fact that today's technology does not allow for full competitiveness of renewable sources as compared to classical ones does not automatically remove the need to gradually create a situation in which renewable sources would be able to compete in normal free electricity markets without state guidance. This may not be achievable at once, but in time it will be.

I want to say and argue in the following subsections that renewable sources *must* eventually become an integral part of free electricity markets, and they *must* be subjected to the same market forces and price incentives. This is a precondition for the transition from fossil fuel-dominated system to a green one. I fear that governments will gradually introduce a great deal of market distortions by sustaining unreasonable subsidy schemes for a long time. Although I cannot dispute the need for a state intervention in the beginning of the process, there is a question of how well it has been thought through and are the mechanisms for government's pull-out in place or at least envisaged.

4.1. Why the renewable sources are not (yet) competitive?

In electricity system traditional generating technologies are often seen two-ways: capitally intensive ones like e.g. hydro, nuclear or coal-fired, have large fixed costs and low variable costs, while capitally less intensive ones, notably combined-cycle gas turbine (CCGT) technology, exhibit lower fixed costs and quite higher variable costs. Fixed costs are associated with construction of the plant, while variable ones are related mostly to the prices of primary energy used. Self-sustainable electricity system needs both: high-fixed-low-variable cost plants have to cover so called base load, the quantity which is never subsided in an ever-changing consumption profile of a particular system. For example, in Croatian electricity system, which is rather small, the total load never falls bellow some 1.200 MW, and this minimum happens usually in the forth hour of the day. However, during a twenty-four-hour day the total load can reach twice as much and more, and there are at least two time periods when the load changes very rapidly with time. (Return to Fig. 2 for a daily load profile in a typical electricity system.) To cover such a changing consumption pattern the system needs power plants that are rather flexible in going on and off, or changing their working power in rather a swift manner. For such needs both hydro and gas-fired plants are

good enough, while coal-fired and nuclear plants can be very inflexible as regards ability to change working power quickly.

Now, where do renewable sources belong to? I will refer mostly to wind farms because this is the technology which, among all other renewable ones, enables building of the largest individual units at the present, with an exception of large hydro plants, which can be really very huge. In today's literature large hydro plants are often omitted from the discussions on green electricity sources. There are two good reasons for that: most of the hydro potential available (at least in developed and near-developed western countries) are already in use, and the technology itself is almost ancient an very well known, so there is not much to develop in that area.

As regards wind farm technology, at the present individual generator units in the range of 3 MW are commonly used. There are breakthroughs towards 5 MW per unit, which are intended mostly for use in large off-shore windmill arrays. Regarding the upfront capital costs, the wind farms are still considerably more expensive per installed megawatt than any kind of classical generating plant. Moreover, they incur tremendous external costs to the electricity systems their selves, which are being readily omitted from considerations. I believe this happens mostly because politicians and supporters of green electricity have a need to make costs associated with renewable plants appear lower and thus more competitive to other technologies. These costs have both the capital and operating component. Regarding capital costs, adoption of substantial new wind plants requires very big investments in classical generators which can *regulate* the wind generation. These generators are presently not here – they still have to be built. Of course, there is an operating cost component of obtaining regulation services from the plants that can provide them during normal real-time operation.

The term *regulation* has to be additionally explained, since it is of technical nature and, again, it is unavoidable in renewable energy economics. In any system at any time the energy produced in all presently active generating plants (including wind) *has to be exactly equal* to the energy consumed by all users connected to the same system and lost in physically imperfect transmission and distribution networks. Imagine now a system with considerable amount of installed wind generation capacity. Say for example that all wind plants serving the system work at the moment with total electrical power of 1.000 MW. Suppose than that in just an hour, due to a sudden weather change, the wind intensity in the area falls so much that 500 MW of production from the wind plants is lost. Of course, electricity users will not be aware of this fact, and even if they were, they would not care a bit. Since 500 MW of power is suddenly lost, and at the same time 500 MW of load *is not lost*, someone has to find the missing power from other sources than wind and put it to the network. This is a task of the *transmission system operator* (TSO). It has to balance the system quite quickly and it does this by engaging free generation capacities from other, "classical" sources, flexible enough to raise their working power for a total of 500 missing megawatts rather quickly.

1.000 MW of installed power can easily be found even in rather small systems like e.g. Croatian. Losing 500 MW within an hour requires an average engagement of about 125 MW of secondary reserve power[3] in four consecutive 15-minute intervals, provided that the power

[3] So-called "secondary regulation reserve" within an electricity system takes care of non-expected misbalances between consumption and generation plus net import by acting automatically, within several minutes (up to fifteen). Since it is scarce, for there are not so many power plants that can provide large shifts in operating power in just minutes, the TSO always looks for the so-called "tertiary reserve" to take over and release the secondary one. Tertiary reserve is usually activated by command of the system dispatcher. However, due to technological

drop is evenly distributed within the hour in question. After the secondary reserve quickly balances the system, the tertiary reserve may take over, so the secondary regulation would be set free again, but not before 1h 15min after the power drop had begun. Meanwhile, all other parts of the system need to be regulated, too. Thus, the secondary reserve limitation may be very limiting factor which depends among other things on how fast the tertiary reserve is able to take over. Both secondary and tertiary reserves are, by the way, quite expensive for the system operator.

The trouble does not end here. The wind statistics can be quite challenging for the system. For instance in Croatia the wind velocity variations on an one-hour scale are not that bad, but on the 10-minute time horizon they are substantial. Since on the 10-minute horizon only secondary reserve can be engaged, it is clear that secondary reserve criterion can set the overall system limitation regarding accepting of new wind plants into the system. Indeed, an internal study of Croatian TSO showed that, given the wind statistics in the areas with substantial wind potentials, the requirement for secondary reserve power needed to regulate the wind plants only can be as high as 30 percents of installed wind farm capacities.[4] In other words, if Croatia wants to achieve the politically set goal of 1.200 MW of installed wind plants until 2020, it has to make sure that about 400 MW of installed secondary regulation capacities are available by that time, too.

Technology-wise, this can be done only with a help of hydro power plants with accumulations and with gas-fired power plants. However, both have their limitations. As regards hydro plants, if their accumulations were filled up to the hilt, they often would not be able to produce more power than they already do as they would often be required to run the water all the time so to avoid floods. In such a case they may only lower the production by spilling the water past the turbines, but they may not raise it. Regarding the gas-fired plants, they can change working power almost as easily, but to do that, they have to be connected to a gas pipe-line which is a part of a balanced gas transmission system. In other words, to make use of gas-fired plants for wind regulation, there *must be* an effective gas transmission system as well as an effective gas balancing market. While seemingly the windmills would be regulated by gas-fired electrical plants, in the reality they would be regulated by the gas system. If there were no possibility to physically regulate gas transmission system, the gas plants would not be able to regulate wind production. It is that simple. In many countries there *is not* an efficient pipe-line grid plus an efficient gas market. Unfortunately, the both are necessarily needed.

And, I want to stress again, often *there are no* hydro or gas plants sufficient to regulate ambitiously planned windmill investments. This is especially true for countries with ALAP policy in place. The new regulation facilities have to be built, but, as I argued in the Section 3., there cannot be sustainable investments in ALAP countries. So, to enable "greenification" of a country's electricity system, the country itself must by necessity abandon the ALAP policy.

reasons, it may take some time for the tertiary reserve to become available (usually 15 minutes up to an hour or even more after the order is placed). Both kinds of reserves (together with primary regulation, which is almost instantaneous, but rather small and, what is more, not relevant for regulation of wind farms on the system level) make the electricity system actually controllable in the sense of preservation of load-generation balance at all times. This is grounded on system capacity reserves that are withdrawn from the energy markets just to sit and wait ready to be called up whenever needed.

[4] This came from a draft study made for the Croatian Transmission System Operator, which is not (yet) publicly available, so it is not listed among the references. Moreover, I do not need to go into detailed numbers to make my point here.

The renewable technologies are not only more expensive to build than the classical ones, but they incur large external costs to the system, too. Of course, the system costs are to be borne by the system operator, but it recovers the costs by charging the grid users, which are in fact final electricity consumers in most of the cases. The trouble is that citizens (i.e. body political) are not aware of this and no one tells them, either. Everybody thinks since wind is for free the wind-produced electricity must be awfully cheap. Well, it is not.

The main question is how to make renewable sources competitive in electricity markets so that they become a normal ingredient of energy mix. I believe that the answer does not lie in state subsidies, although I can understand many subsidizing schemes governments all around the Globe have put in place to speed up the process of adoption of new renewable sources. All these schemes should be phased out in relatively short time, but there is an inherent drawback because of which I believe that many governments would rather stick to subsidies, yet another form of ALAP policy: the prices of electricity should go up, and it is probably too hard for any politician to explain people why they have to pay more for electricity produced from seemingly costless sources like wind or sunshine.

The reasons why coal and gas-fired units are still much cheaper that e.g. windmills are: more mature technologies, and systematically avoided externality costs the fossil fuel plants incur to the environment. In recent years the carbon dioxide emission annual limitations have emerged in quite a few corners of the World due to international agreements (the Kyoto protocol being the most famous one) and subsequent national law and policies (see Stoft, 2008, esp. Part 4). Since emission rights are becoming a *scarce resource*, naturally the trading with them is developing in parallel. One can visit for example a web site of European electricity exchange EEX (www.eex.com), situated in Leipzig, Germany, with trading platforms for electricity (spot and futures), natural gas (spot and futures), emission rights (spot and futures) and coal (futures).

The emission right costs will become an add-on to operational costs of fossil fuel plants and this will bring renewable sources nearer to a level of competitiveness. However, the fossil fuel technologies will not stop with development, either. New means to capture an emitted carbon dioxide and sequestrate it into underground reservoirs such as exhausted oil wells, gas fields, or saline formations etc., will be available rather soon for wider commercial use. The electricity production plants equipped with CCS systems (Carbon Capture & Sequestration) would probably be able to remove up to ninety percents of produced carbon dioxide, however, the CCS process is energy-intensive and it would need additional twenty-five to forty percents of primary energy, thus lowering the overall effectiveness of the whole endeavour considerably. Another factor that could lower the efficiency of the CCS systems even more is leakage of CO_2 from underground reservoirs, which is still quite an unknown territory. Nevertheless, the CCS technology would increase the cost of production of electricity in fossil fuel-fired plants by about twenty to ninety percents (IPCC, 2005). This cost increase will be distributed in both capital and operating expense categories. Of course, an alternative for a plant owner is to buy enough emission rights so to avoid big investments in CCS.

These two markets (that is, emission right market and CCS technology market) would eventually find a natural equilibrium. However, this will obviously lead to electricity production cost increase. At the same time, as renewable source technologies advance, typical production costs will decrease and renewable sources *will become competitive* to the classical ones; however, the *prices of electricity will inevitably go up*. The price increase will have to

reflect realistic costs of environment externalities – the ones which have been ignored all the time at the expense of the planet's ecological systems.

Thus, when communicating green policies to the people, the governmental and international institutions would probably have to explain that there *are* considerable costs associated with this endeavour, which were neglected up to now. If today's people fail to agree on a wide basis to cover them (and frankly, I do not see how anyone could persuade the *populus* to that), they will merely shift them to the future generations, which is *the* most notable feature of any variation of ALAP policy.

The question of competitiveness of renewable sources is not by any means simple nor one-dimensional. In Joskow (2010) the author argues that the currently used methods of comparison, the levelised cost being the most frequent one, do not produce realistic results in comparing classical with renewable technologies, and make the green technologies look more attractive in an economic sense than they realistically are. The levelised cost methods sum all the capital and operating costs during the plant's life cycle and divide it by the quantity of energy it will produce in this time span. The idea of the calculation is to enable comparison between total long-run production cost per unit of generated electricity. Joskow shows that, since such studies have an underlying assumption that the economic value of the energy produced in all types of plants is the same, the results are misleading.

Electricity can take a number o marketable forms, so one cannot speak about the electricity as a single product. Instead, one can think of separate energy and reserve power markets such as base-load, peak-load, night base load, day base load, spinning reserve, secondary regulation, tertiary reserve, island operation, black start, etc. (for more information see Stoft, 2000). In this context, as an approximation Joskow identifies two main groups of generating plants: dispatchable and non-dispatchable. While dispatchable plants can easily adjust their generation power to a desired level that is derived from economic dispatching and system security criteria, the non-dispatchable cannot. In other words, dispatchable generators can work (and make money) when ever needed, while the others cannot. If by a political force the non-dispatchable sources were given a legally established precedence in network access, they would incur and bear additional costs of system regulation that has to be employed in order to preserve generation-load balance in the real time. In any case, the energy produced in non-dispatchable generators has significantly lower economic value. For this reason, more accurate models for comparison of concurrent electricity generation projects will have to be developed. Regarding only the renewable electricity technologies, geothermal plants are the nearest to the goal of being competitive with coal, combined-cycle natural gas, or nuclear plants, and this is because of their inherent dispatchable character. Wind farm technology is probably next in line, while solar thermal and especially solar photovoltaic technologies will have to wait longer to become truly competitive (Joskow, 2010).

To summarize, the economic factors that will certainly help renewable technologies to become competitive in time even without state subsidies are as follows:

- the hydro potentials will eventually become mostly used, so there will be no significant potentials for further construction of hydro plants; as power consumption will inevitably increase, these natural resources will gradually become more and more scarce;

- the prices of fossil fuels (oil, natural gas, coal) will inevitably be increasing for their reserves will gradually come to their ends (though, coal reserves will probably last quite longer than oil and gas);

- the carbon emission reductions will become tighter in time as a consequence of increased political determination to significantly slow down the pace of human-induced global warming; therefore, the prices of carbon emission rights (or their tradable financial derivatives, to be more precise) will also keep increasing;

- in order to combat increasing carbon emission prices the companies might start investing in carbon capture and sequestration technologies (should they become truly efficient with affordable prices); this will be just another manifestation of carbon emission reduction costs which will additionally burden both capital and operating costs (since SSC technologies increase fuel consumption, which in turn may also contribute to further fuel costs increases, too).

From today's standpoint it is hard to tell when the above listed costs will become significant enough to draw true normalized costs of renewable and classical electricity sources nearer to each other. However, one should note that it is not a drop in renewable plant costs that will happen – rather, it is an increase in classical plant costs. To be correct, technological developments still have a potential to somewhat decrease true normalized costs of renewable sources, but future increases in fossil fuel-fired plant costs will prove to significantly prevail over them.

4.2. An example of practical problems with state subsidies and market distortions

In this section I will describe some pretty realistic obstacles that public bodies can easily put in front of renewable electricity investments without even a slightest trace of bad intentions. The path to Hell is paved with good intentions, though. The following examples were taken from the real life, however *nomina sunt odiosa*.

Suppose a government has created a substantial subsidy scheme for wind farm investments. Let the subsidy be a classical one: an eligible producer is given certain feed-in tariff per kilowatt-hour produced, which is substantially higher than normal market clearing price. The difference is paid by final customers who are by virtue of law all obliged to pay certain amount of money per kilowatt-hour consumed. This creates a fund for wind farm investment subsidization. Such a scheme is encountered quite often, in many countries that adopted some kind of green energy policy. Now, suppose the same government wants to make the entry conditions even more favourable for the investors by giving them an opportunity to pay ten percents of the feed-in tariff they received to the system operator for the balancing purposes, resolving all the balancing issues they might experience in this way. This can really sound very attractive to the investors, especially if the feed-in tariff was plentiful enough[5].

[5] An interesting question is how to assess whether a feed-in tariff is "plentiful". Suppose the national energy strategy sets a goal of about 1.200 MW installed power, which is to be realized in about twelve years. Suppose further that at the present the system can bear only 400 MW and the remaining 800 MW will have to wait for substantial increases in system reserve capacities which can be attained only with large investments in generation part of the system. Now, if under such circumstances individual investors have registered with the relevant state body more than 6.000 MW of new projects, they must had seen a good opportunity for profits, or something had gone terribly wrong with them all.

Now suppose there is an investor with an idea to build at the same time a wind farm plus a gas-fired plant that would stabilize the total output of the two enough for them to become one single easily dispatchable "balancing group", which normally would not require system reserves to be held for it almost at all. In other words, the owner of the both plants would provide regulation services for his/her wind farm on his/her own. In *normal market conditions* such a construct clearly has a potential of being profitable because the owner would not have to pay for regulation and balancing services to the system operator. If a feasibility study showed the true normalized cost of the gas-fired plant was lower than expected market prices (in the longer run), the owner would quite possibly start the project of gas-fired plant construction. Moreover, *in normal market conditions* the owner would be able to sell excess energy from such a production process to the spot market, which would bring him/her additional profits.

The trouble with this seemingly reasonable approach is that potential investors are faced with a financial disadvantage to apply such business models. If they can solve all of their problems with regulation and balancing merely by paying ten percents of the feed-in tariff they receive, why bother with risky long term investments? So, to sum up, a well-intentioned government creates this peculiar subsidy[6] that actually removes all possible incentives from the wind farm investors to invest in regulation capacities of their own, or at least in innovative wind prediction measurement and software tools that would help them to become more predictable and thus "more dispatchable". In other words, with such a myopic measure in place all possible synergies of parallel construction of a wind farm and a gas plant which would regulate its production and sell the excess energy to the spot market are cut off with a surgical precision.

There are another examples that can clearly show this is an ill-posed regulatory measure. Say an investor would like to build a reversible hydro plant with a pumped storage. The idea would be to create a power plant that would stabilize otherwise intermittent wind farm production using this hydro plant with an accumulation lake. Moreover, when there is an excess of energy from wind (especially when wind is high during the night minimum load, see Fig. 2), it can be usefully utilized for pumping the water back to the accumulation lake and reuse it later when winds are low or more generally, when spot price of electricity is high. Such projects have large synergies between wind farms and pumped storages, but then again, why bother with a hard work and risk of investment, when a cheap subsidy is available.

What is an inevitable consequence of keeping such a measure in place for a longer period of time? Since there are no incentives for potential investors to put their money into either wind prediction systems or self-regulation, the existing regulation reserves are being used sub-optimally, so the capacity of new wind farms the system can accept is more limited than it would otherwise be. If a general policy approach in the state in question is ALAP, than normally no one would invest in new classical generation capacities, so the system reserves would become more and more scarce and thus expensive. This is just another paradox of ALAP-like policies: a policy measure (ten percents of feed-in tariff for regulation and balancing) is devised with a proclaimed goal of fostering entry of new renewable sources, yet this very measure actually *makes the entry harder* because it prevents the system regulation reserves to be developed in an economically sustainable way. In this case the system reserves should be regarded a necessary infrastructure without which the greenification of the electricity system is not possible.

[6] It really is a subsidy because the wind farm owner is relieved from a significant portion of regulation and balancing costs which he/she would otherwise have to pay for.

Of course, the main question one should ask here is *why* does this happen? Why some governments design subsidy schemes which effectively immobilize any possible market mechanisms that otherwise could maybe even work?

My guess (call it an educated guess if you like) is that in former communist countries there is still a deeply rooted culture of state supports and wide socialization of certain costs. Thus it has been quite easy and publicly acceptable to prescribe various subsidy schemes by which relatively modest money amounts would be taken from practically every one in the long run in the name of some "higher causes". That is why there has not been any political problems with introducing this sort of para-fiscal obligations levied on the widest public. Regarding the ten percent rule for elegantly getting rid of regulation and balancing problems, no one really cared because there were no directly observable costs for electricity consumers, and this was a trouble (both financial and technical) for somebody else (the system operator). And of course, it looked politically correct.

5. CONCLUSIONS

In this article a policy of keeping the electricity prices *as low as possible for as long as possible* (ALAP) was defined and analyzed, with special emphasis on the SEE countries since the ALAP policy is frequently met in them. Fig. 3 summarizes transmission mechanisms by which such a policy influences outcomes of market processes, i.e. why exactly it causes electricity market failures described in this work. A general conclusion is that in ALAP environment functioning of an economically viable electricity market is distorted in every respect and thus it is not possible as such. By concluding that I am not saying anything about rightness or wrongness of government's reasons that lead to the choice of ALAP-like policies.

As regards adoption of renewable sources, especially wind farms, there are a number of policy-related problems which can significantly impede the pace of transition from fossil-fuel dominated electricity system to the one in which a substantial part of electricity would be produced in non-polluting power plants. The fact is that the political and general awareness of global warming and other environmental issues related to energy production precedes the technology developments that would make at least some types of renewable source technologies economically competitive with classical polluting electricity generation ones. For that reason many governments have decided to introduce non-market subsidies for renewable source projects. However, it is necessary that these subsidies do not last indefinitely. The renewable sources should as soon as possible become "normal" parts of electricity generation mix, meaning that they must become truly competitive with other technologies in order to ensure a self-sustainable system development. This competitiveness will be based on the one hand on lowering of renewable plant costs and on the other on increasing costs of fossil fuels and technologies for cleaning the exhaust gases emitted from such plants. In this sensitive process it is very important that governments do not introduce heavy economic imbalances by creating inappropriate subsidy schemes which, although well-intentioned, may lead to absurd economic signals and thus endanger the prospects for achieving the stage at which the whole electricity system, together with the renewable sources, would grow able for a long term self-sustained development.

BIBLIOGRAPHY

Energy Community (2006) **Treaty Establishing the Energy Community**, http://www.energy-community.org/portal/page/portal/ENC_HOME/ENERGY_COMMUNITY/Legal/Treaty [Accessed 27.1.2011]

Energy Community (2008) **Facts and Figures**, http://www.energy-community.org/portal/page/portal/ENC_HOME/ENERGY_COMMUNITY/Facts%20and%20Figures [Accessed 27.1.2011]

European Community, (2003a): **Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity**, ***Official Journal of the European Union***, L176 of 15 July 2003: 37 – 56

European Community, (2003b): **Regulation 1228/2003/EC of the European Parliament and of the Council of 26 June 2003 on conditions for access to the network for cross-border exchanges in electricity**, ***Official Journal of the European Union***, L176 of 15 July 2003: 1 – 10

European Community, (2009): **Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC**, ***Official Journal of the European Union***, L140 of 5 June 2009: 16 – 62

IPCC, (2005): **IPCC Special Report on Carbon Dioxide Capture and Storage, Prepared by Working Group III of the Intergovernmental Panel on Climate Change,** Cambridge University Press

Joskow, P.L., (2003): **Electricity Sector Restructuring and Competition: Lessons Learned**, ***Cuadernos de economía***, 40: 548 – 558

Joskow, P.L. (2010), **Comparing the Costs of Intermittent and Dispatchable Electricity Generating Technologies**, Center for Energy and Environmental Policy Research, MIT, Discussion Paper, No. 10-13, Sept. 2010.

Peltzman, S., (1976): **Toward a more general theory of regulation**, ***Journal of Law and Economics***, 19: 211 – 240

Pollitt, M. (2007) **Evaluating the evidence on electricity reform: lessons for the South East Europe (SEE) market**, http://www.dspace.cam.ac.uk/bitstream/1810/195425/1/0756&EPRG0725.pdf [Accessed 27.1.2011]

Sabolić, D., Grčić, B., (2010): **Electricity Sector Reform in South-East European Countries in Transition**, ***Post-Communist Economies***, 22: 367 – 385

SEETEC (2006) **Study of the obstacles to trade and compatibility of market rules, Final report**, http://www.energy-community.org/pls/portal/docs/61856.PDF [Accessed 27.1.2011]

Stoft, S., (2000): **Power System Economics: Designing Markets for System,** Wiley-Interscience & IEEE

Stoft, S., (2008): **Carbonomics: How to Fix the Climate and Charge It to OPEC,** Steven Stoft

Tully, S., (2006): **The Human Right to Access Electricity**, ***The Electricity Journal***, 19: 30 – 39

Wikipedia (2011) **GOELRO Plan**, http://en.wikipedia.org/wiki/GOELRO_plan [Accessed 27.1.2011]

COMPETITIVENESS OF TRANSITION ECONOMIES: EVIDENCE FROM THE DYNAMIC SHIFT-SHARE ANALYSIS

Silajdzic Sabina
School of Economics and Business University of Sarajevo/Lecturer
Trg Oslobođenja 1,
71000 Sarajevo, Bosnia and Herzegovina
Phone: ++ 387 (0) 61 199 174; Fax: ++ 387 (0)33 275 994
E-mail: s.silajdzic@staffs.ac.uk

Iraj Hashi
Staffordshire University/Professor
Leek Road 1, (Brindley),
ST4 2DP, Stoke-On-Trent, United Kingdom
Phone: ++ 44 77 32 58 05 09 Fax: ++ 44 1782 294 907
E-mail: i.hashi@staffs.ac.uk

Key words: *Dynamic shift-share analysis, Trade, Competitiveness, Technology, Transition Economies*

ABSTRACT

Following the increasing integration of the transition economies (TEs) into the European and global structures it is important to analyse how this phenomenon has affected the competitiveness and technological development of these countries. In particular, whether there has there been a shift towards the more value added and technology sophisticated manufacturing exports in recent years and what explains such a shift? In this paper we apply dynamic shift-share analysis to investigate the competitive position of individual TEs against that of other transition economies in the period 1999-2009. Specifically, we decompose export growth increment into three main components: general demand component, structural effect and competitive gain component. We analyse the evolution of competitive gain component of individual transition economies, with particular emphasis on the more technology intensive industries. The study uses 3-digit NACE-rev.2 industry data and the OCED taxonomy to classify industries into four technology groups. The results suggest that while some transition economies have embarked on the course of successful technological 'catching-up' with persistent competitive gains in more technology intensive industries through-out the period; others are seriously lagging behind.

1. INTRODUCTION

The transition from a centrally planned to a market economy was characterised by the massive restructuring of the economy. Commonly, TEs pursued policies of macroeconomic stabilisation, privatisation and market liberalisation that were generally considered an effective means to successful economic integration of these countries. In particular, free market forces were considered a powerful device that would force through efficient industrial restructuring, induce technological progress and enhance trade and economic growth.

The very beginning of transition was marked by the fall in industrial output and employment; in particular of more technology intensive industries i.e. capital and R&D-intensive industries (Dobrinsky and Landesmann, 1995; Kornai, 1994). The early "recession" pattern, however, soon came to be replaced by the period of recovery. Already in 1992-1995 TEs showed massive improvements in both industrial and trade performance (Havlik, 1996 and 2000; Aiginger et al., 1998; Guerrieri, 1995; Carlin and Landesmann, 1997). In particular, significant increases in imports and exports to the West were generally considered as important signs of the revitalisation of TEs' industries and improvements in competitiveness.

Past research on restructuring and competitiveness of transition economies, particularly the Central and Eastern European Countries (CEECs) mainly focused on the development of patterns of trade during the early and late 1990s (Havlik, 1995 and 1998; Dobrinsky, 1995; Carlin and Landesmann, 1997; Hottop et al., 2005; Havlik et al., 2001; Landesmann and Stehrer, 2002). The early studies revealed that TEs tended to specialise in labour-intensive and natural-resource intensive sectors, or generally in those industries in which primarily labour costs and natural resource abundance rather than technology play an important role (see also Guerrierri, 1998; Landesmann, 1995). The studies focusing on the mid and late 1990a, however, showed impressive improvements in export performance with respect to more technology sophisticated industries for some transition economies, namely Hungary, Czech Republic, Slovenia and to lesser extent Poland and Slovakia. More precisely, the studies clearly suggest that whereas some countries have embarked on the course of successful technological 'catching up' others are seriously lagging behind (Hottop et al., 2005; Dulleck et al., 2004;Landesmann and Stehrer, 2002).

Following the increasing integration of the transition economies (TEs) into European and global structures, it is important to analyze how this phenomenon has affected technological development and structural change in these economies in recent years. The purpose of this paper is to investigate if the trade integration process is associated with rapid export growth and technological advancement of the manufacturing sector in recent years as anticipated in the literature (see Verspagen, 1999; Kandogan, 2003, Kornai, 2001). In particular, it is important to investigate if the trend of technological divergence among CEECs, has been reversed and if the lagging-behind economies of Bulgaria, Rumania, Latvia and Lithuania have endeavoured to switch their export focus to more technology intensive and sophisticated manufacturing.

The current understanding of the evolution of industrial performance and particularly the technological pattern of trade between the EU-15 and TEs in the more recent period of 2000-2009 is fairly limited. In this paper we analyse the competitive position of individual TE against that of other transition economies using dynamic shift-share analysis. The main contribution of this empirical work is reflected in the application of dynamic shift-share method to the analysis of the competitiveness of TEs, which has not been applied before.

The analysis in this paper is based on the technology-gap theoretical framework, under which dynamic efficiency, technological capabilities and technological growth are considered crucial in not only shaping the long-term trade specialisation pattern, but also in sustainable employment generation. Haque (1997) argues that competitiveness though dependant on a host of factors is predominantly determined by technological prowess, that is by the country's ability to accumulate and increase its technological competences.

In the light of the emphasised importance of technology, in this study we will investigate:

- If there has been a shift towards more value added and technologically sophisticated manufacturing exports in recent years.
- If there has been a shift, what explains this, i.e. what are the factors contributing to the export growth? Specifically, we use dynamic shift-share analysis to decompose export growth into three main components: general demand component; structural effect component; and the competitive gain component. We investigate the evolution of the competitive gain component of individual transition economies, with particular emphasis on the more technology intensive industry groups.
- What are a country's competitiveness and growth prospects given the character and the dynamics of technological change? Specifically, we aim to explore the implications of the technological upgrading or the reverse i.e. relative increase/decrease in competitiveness of more technology intensive industries for country's transition and development prospects.

The paper is structured as follows. In second section of the paper we discuss the theoretical basis of investigation, research methods and the data used in the empirical analysis. In section three we analyse we patterns of competitiveness using the shift-share method and investigate the changes in the competitive position of individual TEs against that of other transition economies. In particular, the evolution of competitive gain component of industries classified into technology groups are used as indicators of competitiveness of less and more sophisticated branches. The central focus of this section is on comparative analysis. Specifically we discuss the differences and similarities in the observed patterns between TEs. The conclusion follows.

2. THEORETICAL BASIS OF INVESTIGATION

Here we apply the neo-technology approach to analyse industrial development and technological change in transition economies. Specifically we investigate the patterns of industrial restructuring and competitiveness of transition economies' industries by looking at the technological pattern of trade.

According to the neo-technology theoretical framework technology matters and technological change is crucial in understanding both industrial development and international competitiveness (Dosi et al., 1990; Guerierri, 1998; Pavitt, 1984). Essentially, under this stream of literature and in contrast to neoclassical propositions technological change is dependant on endogenous efforts of firms and institutions to acquire the knowledge and competences necessary to pursue the change. The differences in the levels of the technological development have to do with the complexities of technology acquisition and change, the tacit and cumulative nature of technology, and country or industry specific features of technology which are not ultimately universally applicable or transferable (Nelson and Winter, 1982; Lundwall, 1992; Nelson, 1989; Dosi et al., 1990; Patel and Pavitt, 1994).

Although some technology and knowledge may spread out from one country to another there are essential impediments to this process including market and coordination failures and also impediments related to adoption and appropriateness of particular technology determined by the overall 'absorptive capacity' of catching up economy. Within such a theoretical framework it is possible not only to allow for the existence of international technological differences but also to comprehend that the differences in levels of technological development

need not necessarily be temporary phenomenon, or a 'passing disequilibrium' as referred to by Fagerberg (1998). Instead the differences may be growing, as the gap is cumulative and technological in nature (Soete, 2008; Lall, 2003).

Under neo-technology approach the dynamic features of technology including questions related to its change and differences in levels of technological development across countries are of curial importance in comprehending the relationship between technology and international trade patterns. More specifically, the fundamental features of international trade patterns are international technology gaps. The technology gaps reflect superior and inferior knowledge and techniques among countries, industries and firms and are considered the prominent factors explaining the international trade specialisation pattern (Hufbauer, 1966, 1970; Leamer, 1974; Pavitt and Patel, 1988; Soete, 1981 and 1987; Dosi et al., 1990). Specifically, it is the relative technological advance of one country which will induce trade.

This highlights the mechanism leading to comparative advantage on the grounds of country-specific, but importantly also sector-specific gaps or leads in technology. Importantly, closing of the gap or technological 'catching up' is determined by the country's ability to mobilise its resources and accumulate the technological capabilities necessary in the process of technology transfer, i.e. imitation. Whereas countries at the upper end of the technology spectrum, i.e. those competing at the technology frontier, develop innovative capabilities to pursue technological breakthroughs and acquire technology leads, countries at the lower end of technology spectrum, those with inferior technologies develop imitative capabilities to effectively adopt new technologies and close the gap. Again, international competitiveness patterns could be understood in terms of technology leads-gaps.

Although, there is no clear theoretical conceptualisation of economic or industrial restructuring within the neo-technology theoretical framework, implicit in the neo-technology studies is the importance of understanding this process in terms of technological change. Technological change encompasses the long term process of learning and accumulation of technological capability considered critical for technological upgrading of industries, and the subsequent restructuring of industries. Specifically, technological progress induces industrial transformation revealed in sequential moving up of industries along the technology ladder i.e. from low-technology to more technology intensive industries.

In this analysis, we draw on these theoretical propositions and particularly on the empirical evidence suggesting that the international patterns of competitiveness of industrialised countries have been strongly influenced by sectoral innovative leads depicting countries' relative technological capabilities (Dosi and Soete, 1988; Dosi et al., 1990). We assume that overall learning effects are embodied in exported goods, so the change in the structure of exported goods (i.e. technological composition of exports) may enlighten our understanding of technological upgrading in the course of industrial restructuring, while the relative differences in export performance (i.e. cross-country differences in export growth rates reflecting changes in market shares) of more technology intensive industries may shed some light on the competitiveness of the more technology intensive branches. In view of this we assume that the differences in the technological performance between TEs depict differences in technological capabilities.

2.1 Research method and the data

In this paper we analyze the recent evolution of the industrial sectors and technological change in transition economies. By transition economies in this analysis we mean the ten Central and Eastern European Countries (CEECs); namely Bulgaria, Romania, Latvia,

Lithuania, Estonia, Hungary, Czech Republic, Slovakia, Slovenia and Poland. A relatively concise picture on competitiveness and the role of technology in competitiveness of TEs is provided using shift-share methodology. Specifically, dynamic shift-share analysis has been applied to analyse the evolution of the competitive gain component of individual industries as well as technology defined groups among TEs in the 1999-2009 period. Specifically, we examine changes with respect to less and more technology intensive industries using the OECD method. Accordingly, industries are classified into low technology (LT), medium-low technology (MLT), medium-high technology (MHT) and high technology (HT) industries (for method see Appendix 3). The aim is to portray the competitive position of individual transition economy relative to the average performance of other transition economies through time.

The analysis is principally based on 2-digit-NACE industry trade data for TEs and EU-15, covering period from 1999-2009. The exception are the following 2-digit industries which were grouped into single subsections: wood and wood products (20), pulp and paper products (21), printing and publishing (22) which corresponds to NACE DD subsection; basic metals (27) and fabricated metal products (28) which correspond to NACE DJ subsection; and textile (17) and wearing apparel (18) which corresponds to NACE DB subsection (for NACE 2-digit classification of industries and NACE subsections see Appendix 1). In addition, to the 2-digit NACE trade data, the 3-digit NACE codes were used to classify industries into the technology groups according to the OECD method (see Appendix 3).

The source of the data is Eurostat COMEXT database which provides detailed, up-to-date trade statistics. Data and figures presented in this chapter are own calculations and refer to the period 1999-2009. Though manufacturing industry trade with the EU covers only a part of trade of the transition countries, the share of trade with EU-15 in total manufacturing has been large, accounting for 77% in Hungary and Estonia, to 55% in Bulgaria, Lithuania and Latvia.[1] The trade statistics with the EU shed some light on the competitiveness of TEs and is particularly relevant for analysing technological pattern of trade, given the level of technological development and proficiency of the EU-15 countries.

3. INDUSTRIAL RESTRUCTURING AND COMPETITIVENESS IN TRANSITION ECONOMIES: evidence from dynamic shift-share analysis

3.1. Overview of export performance of CEECs in the period 1999-2009

Trade integration between the EU and the CEECs progressed remarkably in terms of exports over the period 1999-2009. Manufacturing exports increased by 256%, which is about three times higher than the export growth rate for the period 1995-2000 (i.e. 78%). Imports from the EU grew at about the same rate (i.e. 238%) suggesting positive trade developments between CEECs and the EU in the recent period. A bulk of the export growth can, however, be attributed the two CEE countries, namely Poland and Czech Republic, with more than half of the total CEECs export increase attributed to these two countries (the two countries' share in total CEECs' export increase for the period is 55%). As a consequence, the combined share of Czech and Polish exports in total CEECs' exports to the EU increased from about 47% in 1999 to about 54% in 2009.

In terms of sectoral changes, the fastest growing sectors have been from the high-technology group (the R&D intensive): pharmaceuticals (24.4) with a record export growth rate of about

[1] Own calculations based on data on total trade of transition countries. Source: National Statistic Agencies.

828% albeit from the low base; and radio, medical, precision and optical instruments (33) and TV and communication equipment (32) which grew by about 455% and 403%, respectively. Apart from these, food and beverages (15) and coke and refined petroleum products (23) achieved very high export growth rates of 480% and 395% respectively. In spite of continuous export increases across transition economies, CEE economies show remarkable differences in trade specialisation pattern, and the dynamics of technological 'catch up' in the period. The differences are particularly pronounces in more recent years

Overall, export performance among CEECs in the period reveals the fast changing and distinctive trade specialisation pattern. The structure of exports of some CEECs such as the Czech Republic, Hungary, Slovakia and also Poland, but to lesser extent Slovenia is fairly diversified with increasing shares of more technology sophisticated industries in recent years. The structure of exports of other, less advanced TEs remains, however, dominated by few low skill and labour intensive industries. The trade specialisation pattern in the period seems similar to the one presented in comparable studies using earlier data (Havlik al., 2001; Landesmann and Stehrer, 2002) with comparative advantage of the group of less advanced TEs i.e. Bulgaira, Romania, Latvia, Lithuania and Estonia predominantly concentrated in low and medium low technology industries even in recent years. However, the emerging importance of more technology intensive industries is indicated for most TEs throughout the period, and is particularly pronounced in Romania and Bulgaria from the group of less-advanced TEs, whereas high technology industries reveal rapid improvements in competitiveness in Czech Republic and Slovakia (see Appendices 4 to 13). In what follows we analyse patterns of competitiveness and the evolution of competitive gain component of individual country in detail using shift-share methodology.

3.2. Method of investigation

The shift-share analysis has been widely used to analyse differences between a (region's) country's employment, productivity and export growth rates and the respective growth rates of referent economies. For basic methodology reviews see Richardson (1978) and Fothergill and Gudgin (1979). Although a simple methodology, with number of shortcomings we discuss on the pages to follow, it has been used extensively in the analysis of trade competitiveness (Hayward and Erickson, 1995; Willson et al., 2005). Shift-share technique present a useful descriptive tool to examine (changes in) competitive position of individual countries and interpret the changes in the industrial structure in view of the relative (often regional) performance of competing economies. More specifically, the shift-share analysis compares changes in a country's exports with corresponding exports of a selected group of reference economies, principally in relation to changes in demand, industrial structure and competitiveness e.g. isolating trends in regional performance.

Havlik et al. (2001) applied shift-share methodology to analyse changes in the competitive position of individual CEECs in 1995-1999 against that of other non-EU countries exporting to the EU-15. According to this methodology there are principally three factors which affect export growth. The first relates to demand component of the trading partner (i.e. importing country), the second relates the changes in relative demand component of individual sectors of the trading partner (importing country) referred to as structural effect, and the third is the relative competitive gain component which depends on a particular country's or industry's export growth rate relative to that of referent economies. The results of their static analysis indicate that the increase in exports by CEE countries over the period can by and large be attributed to the increase in competitiveness of CEECs relative to other non-EU member

states, with a contribution of competitive gain effect of 66.1% in the total CEECs export increase over the period.

The shift-share methodology used here is based on Havlik et al. (2001) shift-share equation but applied as the dynamic version of shift-share. In contrast to Havlik et al. (2001) we decompose export growth of CEECs as competing economies over a period of time (i.e. 1999-2008) analysing year to year changes. The objective of this study is to apply shift-share method to analyse trends in competitiveness of individual TE manufacturing industries relative to other TEs used as reference economies in the period 1999-2008, which have not been investigated previously in the literature.

More precisely, the export increment of country i's total exports to another country (in this case the EU-15) ΔX_i is given by following equation:

$$\Delta X_i = \sum X_{ij} (\Delta M/M) + \sum X_{ij} ((\Delta M_j / M_j) - (\Delta M / M)) + \sum X_{ij} ((\Delta X_{ij} / X_{ij}) - (\Delta M_j / M_j)) \quad (i)$$

Where X_{ij} is country i's exports of industry j; M_j denotes EU total imports of industry j from CEEC10 which we use as a reference category; M denotes EU total imports from CEEC10; and Δ stands for increment (Havlik et al., 2001, p.21).
Equation (i) means that we can decompose the total increment in TE's exports to the EU into three components; a general demand component, a structural effect component and a competitive effect component. The general demand component, $\sum X_{ij} (\Delta M/M)$, indicates how given country's exports would evolve if growing at the same rate as total EU imports (from reference countries). The structural effect component, $\sum X_{ij} ((\Delta M_j / M_j) - (\Delta M / M))$, shows to what extent a given country's exports grew because they are concentrated on goods that are in the above average import demand in the export markets (i.e. country's exports are concentrated on sectors which are growing above the average rate of EU imports). The positive sign implies that EU imports of that sector grew at the above average rate as compared with total EU imports. The competitive gain component, $\sum X_{ij} ((\Delta X_{ij} / X_{ij}) - (\Delta M_j / M_j))$ shows if a country increased the total exports of certain goods to the export markets more than its competitors (Havlik, et al., 2001).

The competitive effect component is the main indicator of trends in competitiveness. It shows how much of the export increase is due to a difference between the export growth rate of a country's particular industry and the export growth rate of that particular industry in the reference group. In other words, it captures the enhanced performance of particular industry compared to performance of that industry at the reference group level. If country's growth exceeds the rate for the group, the effect is positive and the country has competitive advantage in that product category and vice versa. Given this, in this analysis we are particularly interested in the contribution of competitive gain component in export performance of TEs relative to the demand and structural developments in the EU-15 as the exporting market.

3.3. The choice of reference economies

The economies selected to be in the reference group for the purpose of this shift-share analysis are those that are deemed to be not only the closest export competitors, but also those which have experienced similar path of economic transformation, in that they have adopted similar growth and transition strategies. These are Poland, Hungary, Czech Republic, Slovakia, Slovenia, Estonia, Latvia, Lithuania, Estonia, Romania and Bulgaria (CEEC10). These economies underwent rapid liberalisation, economic and industrial restructuring and achieved substantial growth over this period. The catching up process was primarily driven by

the size and the proximity of the EU-15 market, but also Foreign Direct Investments (Sjohlm, 1996; Rojec and Ferjancic, 2006). Many have also experienced a shift towards more technology and capital intensive exports as discussed in chapter 3. In particular, these countries have been shifting their export base rapidly towards more value added exports, such as machinery and equipment, electrical machinery and apparatus, and electronics mostly driven by surge in FDI into these countries (Hoekman and Djankov, 1996; Damijan and Rojec, 2004; Landesmann and Stehrer, 2003). Although the export performance of some CEE economies such as those of Czech Republic, Hungary, Slovakia and Slovenia are likely to pose a competitive challenge to less developed TEs including BiH, comparison against their performance is highly relevant in that other transition economies ought to undertake similar structural change in the course of their transition and path to sustainability. Given the similarities and the geographic proximity of the EU-15 market as the major trading partner of transition economies, these economies are main competitors to each other.

In view of this, here we argue that competitive gains of individual TEs ought to be analysed in the context of the regional performance. Although, the results of shift-share analysis in which all other exporters to the EU-15 are used as reference economies indicate absolute net shifts in competitiveness (i.e. absolute changes in market shares), the results may be treated with caution for at least two reasons. First the assumed technology gap between transition countries and other countries exporting to the EU-15 market may be reflected in higher export growth rates of TEs relative to those of industrialised economies but also other economies exporting to the EU-15. As discussed in the theoretical basis of the paper technology gap allows for the exploitation of the so called 'productivity differential' and subsequent high export growth rate potential of less developed and technologically inferior countries e.g. those below the technological frontier. Given the shift-share equation[2] the results may overstate the contribution of competitive gain effect by TEs, assumed to be technologically inferior, relative to the other advanced economies exporting to the EU. This is particularly worrying if the static shift- share analysis is applied as in Havlik et al. (2001) because the choice of the years may strongly influence the figures. Above all the static analysis may be problematic in assessing competitiveness of more technology intensive industries of TEs given the low export basis of these industries at the beginning of the period. Second, applying shift-share analysis to a global as opposed a regional context precludes the effects of geographic proximity on export performance. In other words, if we consider the competitive gains of individual TE in face of regional performance we, to some extent, do take into account the impact of geographical and regional integration forces on TEs' export performance. This is why, shift-share method is largely applied to analyse changes in competitiveness in regional context (see also Willson et al., 2005).

3.4. Dynamic vs. Static Shift-Share Analysis

Most studies rely on static shift-share analysis in that they examine situations at the beginning and at the end of the period of interest (Havlik et al., 2001). A major shortcoming of the static shift-share analysis is, however, in that it does not take into account the continuous changes in the economy. In contrast, a dynamic shift-share analysis is based on a year-to-year changes and allows for the analysis of the evolution of the shift-share components (Richard and Knight, 1988). A disadvantage is that in the dynamic shift-share analysis, because other things are not kept constant, there may be 'random fluctuations' that appear. The averaging process of the static analysis may diminish these. However, in static analysis a large fluctuations in

[2] The competitive gain component of the equation shows if a country's exports are growing above the average export growth rate of reference economies.

either initial or end period can significantly alter the figures. This means that the choice of the years may have large effect on the values i.e. relative contribution of the components analysed. This could be, in particular, problematic when analyzing the comparative export performance of transition economies given the major transformations of these economies i.e. significant changes in industrial structures overtime, and exporting from the initially low base.

This is why in this study we rely on dynamic shift-share analysis. We apply dynamic shift-share methodology with the principal aim to analyze the evolution of competitive gain effect in TE's in the period 1999-2008. In particular, we investigate whether or not we observe clear positive/negative contribution of competitive gain effect throughout the period and for which industries?

It is important to stress that the results of the shift-share analysis can only be considered as intuitive indicator of competitive gains/losses as we look at the changes in competitiveness relative to average export performance of reference economies, and not all Extra-EU-15 exporters to the EU-15 which would indicate absolute market share gains. We, however, argue that the choice of reference economies made in this study is the relevant one for comparison of individual TEs export performance for the reasoned aforementioned i.e. given the similarities and the geographical distance to the EU-15 as the exporting market among the TEs.

3.5. The results

The key results of dynamic shift-share analysis for transition economies discussed here reveal the dynamics of structural effect component and competitive gain effect by technology groups (i.e. LT, MLT, MHT, HT) in the period 1999-2009. Here, we do not discuss the results of shift-share analysis by individual industries. Instead, changes in exports that can be attributed to general demand component, competitive gain and structural effect component of individual TE's at the industry level are given in Appendices 4 to 13. Of principal interest in this analysis is the assessment of competitiveness of individual CEECs' manufacturing industries relative to that of other TEs. We first discuss the results with respect to structural effect component and then look more closely at the evolution of the dynamic gain component in by country. In what follows we discuss the technological 'catching up' vs. falling behind among transition economies.

Table 1 summarises the results with respect to the dynamics of structural effect component for low technology, medium-low technology, medium-high technology and high technology industries by country. The size of the structural effect, as noted earlier, cannot be readily compared by countries or by technology groups. What is important, however, is to discuss the trend of structural changes in the EU-15 as major importing market for the transition economies indicated by the sign of the structural effect component. Generally, we observe that the structural changes in the EU-15 economies reveal a higher demand for more technology intensive branches relative to other less sophisticated product groups. This is evident in the persistent negative structural effect through out the period for the low technology industries across CEECs, and the less pronounced but mostly negative effect for medium-low technology industries.

In contrast, demand for medium-high technology and high-technology product groups in particular is growing above the average demand growth rate. Overall, the changing demand in the EU-15 has had a negative effect on the trade developments of countries which tend to specialise in the low technology industries, demand for which has been growing below the average demand growth rate of total EU-15 imports from TEs, in relative terms. On the other

hand, the positive structural effect component of high technology group indicated throughout the period suggests that high-technology industries lead in export dynamism to EU-15.

Table 1. Dynamics of structural effect component of technology groups by country

Dynamics of structural effect component of LT industries by country in millions of Euros										
Country	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
BULGARIA	-122,8	-11,7	-76,3	-101,0	-262,3	-106,3	-386,8	-267,8	-198,2	-244,3
CZECH R.	-446,5	-9,3	-73,0	-73,9	-452,7	-167,3	-814,5	-394,1	-367,7	-439,3
ESTONIA	-86,6	-33,4	-25,2	-14,8	-131,6	-9,7	-157,9	-51,1	-46,8	-79,4
LATVIA	-98,6	-53,4	-14,5	-3,0	-131,2	-29,5	-138,9	-40,9	-50,4	-78,2
LITHUANIA	-101,8	-9,8	-43,7	-52,3	-145,5	-10,9	-243,7	-100,3	108,1	-78,5
HUNGARY	-576,0	-208,1	-172,8	-247,5	-734,7	-374,3	-713,0	-502,4	-630,7	-591,0
POLAND	-681,5	50,1	-68,1	-195,6	-839,8	227,7	-1605,3	-382,2	1246,0	-270,7
ROMANIA	-463,8	-108,0	-324,1	-446,4	-1100,6	-506,1	-1216,9	-682,1	-803,5	-861,8
SLOVENIA	-172,3	-24,9	-16,9	-22,0	-187,8	-45,9	-259,9	-103,6	-55,7	-130,6
SLOVAKIA	-157,4	-34,8	-52,9	-42,8	-331,6	-91,2	-351,4	-171,3	-270,2	-243,1
Dynamics of structural effect component of MLT industries by country in millions of Euros										
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
BULGARIA	13,35	-48,56	-58,54	-62,80	128,21	10,42	112,36	-72,71	114,49	-82,36
CZECH R.	70,84	-18,74	-190,46	-64,77	675,57	298,86	712,51	-211,87	321,35	-98,36
ESTONIA	4,96	-7,68	-11,84	-14,04	37,65	12,02	9,39	-47,51	109,77	56,12
LATVIA	3,37	-8,73	-12,80	-7,51	38,35	5,82	16,85	-17,45	34,98	-22,03
LITHUANIA	-3,13	49,42	-11,55	-170,34	0,37	32,99	-159,30	-107,96	110,45	-110,25
HUNGARY	5,98	-66,16	-56,49	-193,32	134,18	99,41	72,53	-227,63	235,84	68,25
POLAND	151,20	-31,03	928,87	-177,21	691,96	345,16	213,87	-1024,3	2030,9	-965,6
ROMANIA	-15,57	79,72	-49,41	-170,71	139,84	-33,70	2,19	-190,82	118,32	38,24
SLOVENIA	0,90	-73,95	-46,64	6,54	94,12	15,88	146,35	-66,12	63,52	-75,12
SLOVAKIA	22,40	2,93	-65,51	-66,33	236,11	119,19	91,33	-116,70	446,40	-289,32
Dynamics of structural effect component of MHT industries by country in millions of Euros										
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
BULGARIA	14,92	-25,18	-9,75	20,21	-22,75	13,36	21,87	1,04	-24,51	18,46
CZECH R.	151,20	1,84	736,50	810,38	-294,02	637,72	997,95	1157,73	-796,03	897,36
ESTONIA	3,95	-0,73	6,99	18,17	-13,09	17,33	17,65	2,12	-26,97	-18,24
LATVIA	1,84	-1,47	-0,28	3,48	-2,64	2,28	5,06	3,93	-3,59	1,24
LITHUANIA	18,47	-30,53	-16,73	13,84	-28,46	22,96	31,56	0,62	49,55	38,36
HUNGARY	566,86	127,20	460,60	792,65	323,25	517,41	151,40	530,45	-239,01	278,65
POLAND	-74,62	-25,01	22,04	456,34	-517,62	811,44	845,02	1016,04	-747,98	996,56
ROMANIA	19,61	-16,73	11,42	92,99	-105,99	4,52	68,42	-23,65	-189,49	354,24
SLOVENIA	103,84	-15,84	38,14	161,16	-58,31	149,07	180,08	144,00	-223,46	-275,24
SLOVAKIA	74,01	-26,20	64,97	65,86	124,51	560,52	296,12	206,68	-316,16	468,32
Dynamics of structural effect component of HT industries by country in millions of Euros										
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
BULGARIA	15,27	8,93	6,14	7,22	21,31	9,17	27,90	40,35	42,70	41,52
CZECH R.	370,88	192,30	237,22	325,75	753,89	599,20	1153,83	1246,28	1404,39	1268,1
ESTONIA	110,26	153,71	75,32	46,31	120,36	57,32	185,79	104,84	61,64	68,24
LATVIA	2,17	1,34	1,17	1,27	3,44	2,09	7,11	7,16	6,09	5,62
LITHUANIA	21,41	14,79	9,78	9,79	33,68	17,18	37,15	31,64	26,05	28,01
HUNGARY	1273,76	979,11	565,26	718,08	1758,54	963,56	1742,53	1506,89	1324,27	1384, 3
POLAND	313,53	185,95	155,13	166,58	383,13	165,93	582,20	737,10	768,55	698,78
ROMANIA	41,42	73,52	39,70	33,97	90,55	51,32	92,68	82,11	59,77	98,74
SLOVENIA	69,14	41,10	24,74	27,70	67,32	33,78	80,49	80,36	78,68	86,24
SLOVAKIA	79,69	50,00	35,44	31,29	139,85	105,37	331,24	454,57	644,17	665,89

The observed pattern of changing demand in the EU-15 is somewhat important in that it emphasise the imperative of technological upgrading of the manufacturing sector in the course of economic integration of TEs. In view of this, the principal interest of this analysis is to investigate if technologically inferior (less developed) TEs are catching up in terms of technological pattern of trade. In particular has this happened in recent years?

The evolution of the competitive gain component, which indicates net positive shifts (i.e. absolute market share gains relative to other transition economies), will provide a more concise picture on a pattern of technological convergence/divergence. Relying on this indicator, below we discuss the trade competitiveness pattern of individual CEECs in great detail.

Figures 1 to 10 present the evolution of the competitive gain component of individual technology groups by country. The figures with respect to shift-share equation components including the competitive gain component by individual country, industry and technology group are presented in Appendices 4 to 13. It is important to note that given the total change in exports varies considerably by industry these graphs illustrate the trends in competitive gains in technology groups, but the size of the change can not be readily compared neither between the technology groups nor between countries. Although, there are a lot of random fluctuations the figures portray the technological pattern of competitiveness across countries rather clearly.

The dynamics of competitive gain component for Bulgaria, presented in *Figure 1* generally suggest a clear pattern of competitive gains in low technology industries, but also in technology sophisticated products in last few years. More precisely, competitive gains for the low technology group suggest not only strong but persistent comparative advantage in low technology industries in the period. A less clear pattern, however, is suggested for medium-low technology industries with fluctuations through the period. Importantly, medium high and high technology group experience competitive gains from 2005 onwards. In specific industries, market share gains are recorded for: machinery and equipment (29); medical, precision and optical instruments (33); and electrical machinery and apparatus (31). Though marginal in size, the competitive gains of these industries may suggest that in Bulgaria more technology intensive branches have embarked on a course of convergence. The indicated technological catching up suggests improvements in the technology levels and capabilities of Bulgarian manufacturing sector necessary to make use of productivity differentials between less and more technologically developed TEs.

A similar trade specialization pattern including the convergence pattern of more technology intensive branches has been indicated by the figures for Romania and Lithuania (see *Figures 2* and *4)*. First, both countries experienced strong comparative advantages and constant competitive gains in the low technology group of industries. The competitive gain component is particularly strong in Romania. Second, the convergence pattern is clearly been indicated for the Romanian medium-high technology group with strong positive net shifts of the medium high technology industries observed throughout the period. This rather remarkable performance of the Romanian manufacturing sector, is further supported by the absolute market share gains and significant in magnitude of the medium-low technology group. Less pronounced, but giving generally a positive competitive gain effect is the Lithuanian medium-high technology group in the period, mainly due to positive net shifts of basic chemicals (24 excl. 24.4)[3] with other industries from the group exhibiting negative competitive gains. The

[3] with the exception of 2001, 2006 which indicate negative compettitive gain component.

pattern of technological divergence of high-technology group is shown for both countries; these industries exports grew at much lower rate compared to the average growth rate of TEs throughout the period.

In contrast, the technological upgrading and sophistication with the progressive catching up process of high technology industries is indicated for Czech, Slovak and Polish high-technology groups in the second half of the period (see *Figures 8, 9* and *7* respectively). In particular, considerable competitive gains are observed for the Czech Republic, which shows strong comparative advantages in R&D intensive industries such as: office, accounting and computing machinery (30); and radio, TV and communication equipment (32).

While the Czech and Slovak manufacturing sectors have been progressively gaining competitiveness in the high technology group, the growth of the medium-high technology industries has somewhat slowed down, with fluctuations suggested throughout the period. Generally positive trend in competitive gains of high-technology industries has also been suggested for Poland in recent years. In addition to the competitive gains of high-technology group, continuous improvements in competitiveness and a strong concentration of manufacturing exports in the low technology group have been suggested for both Slovakia and Poland.

The dynamics of competitive gain components further shows that the strong trade specialization in high technology group of Hungarian and Estonian manufacturing sector discussed in previous sections is not accompanied by further competitive gains (see *Figures 10* and *5*). On the contrary, the results generally reveal competitive losses for the high technology industries throughout the period. This is not to say that these countries are no longer competitive in high technology branches, but rather that the pace and trends of exports has slowed down which may well be because of the utilized capacities, technological convergence and the subsequent decrease in the productivity differentials between the two countries and the more developed EU-15. Nevertheless, the negative competitive gain component suggests that the two countries are outperformed by their new rivals, and in particular the Czech Republic in which the high technology group seems to be growing at much faster rate.

A les clear pattern of trade specialization and competitive gains has been suggested for Latvia and Slovenia (see *Figures 3* and *6*). It seems difficult to profile the current trade specialization pattern of these countries as we observe highly fluctuating trends with respect to all technology groups. If we look at the competitive gain dynamics of individual industries for Latvia we generally observe fluctuating trends. Although absolute market share gains relative to other transition economies are indicated for Latvia's chemicals (24) and motor vehicles and trailers (34) industries in the second half of the period, the results reveal no clear pattern of competitiveness. Similarly, Slovenian industries show highly fluctuating trends of the competitive gains component.

Figure 1. *Evolution of Competitive gain component in Bulgaria by technology group*

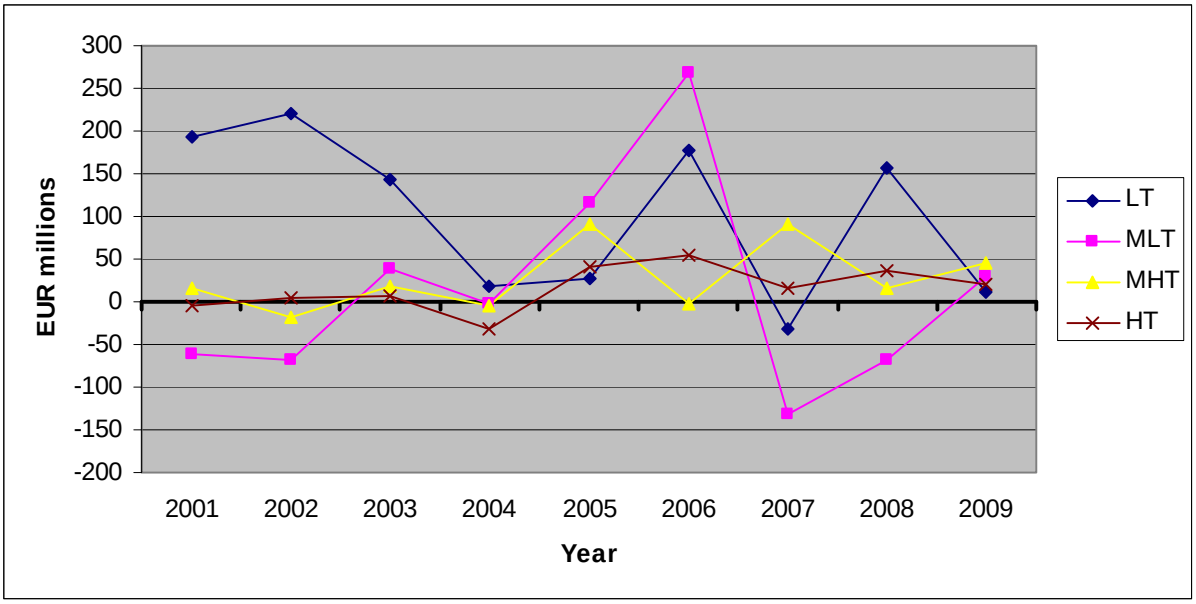


Figure 2. *Evolution of Competitive gain component in Romania by technology group*

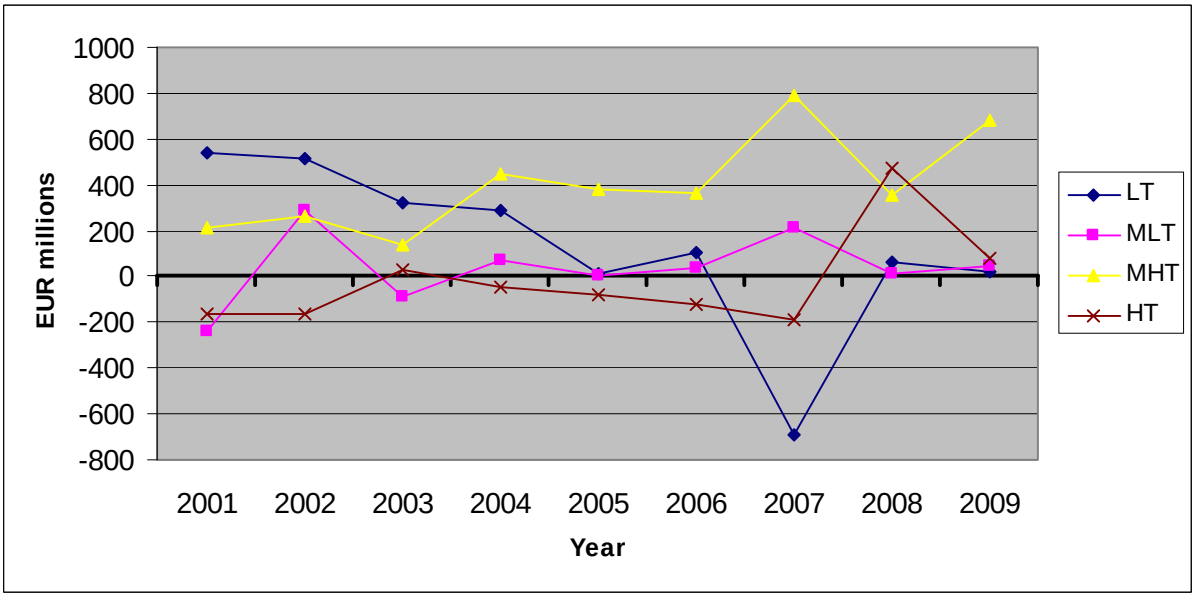


Figure 3. *Evolution of Competitive gain component in Latvia by technology group*

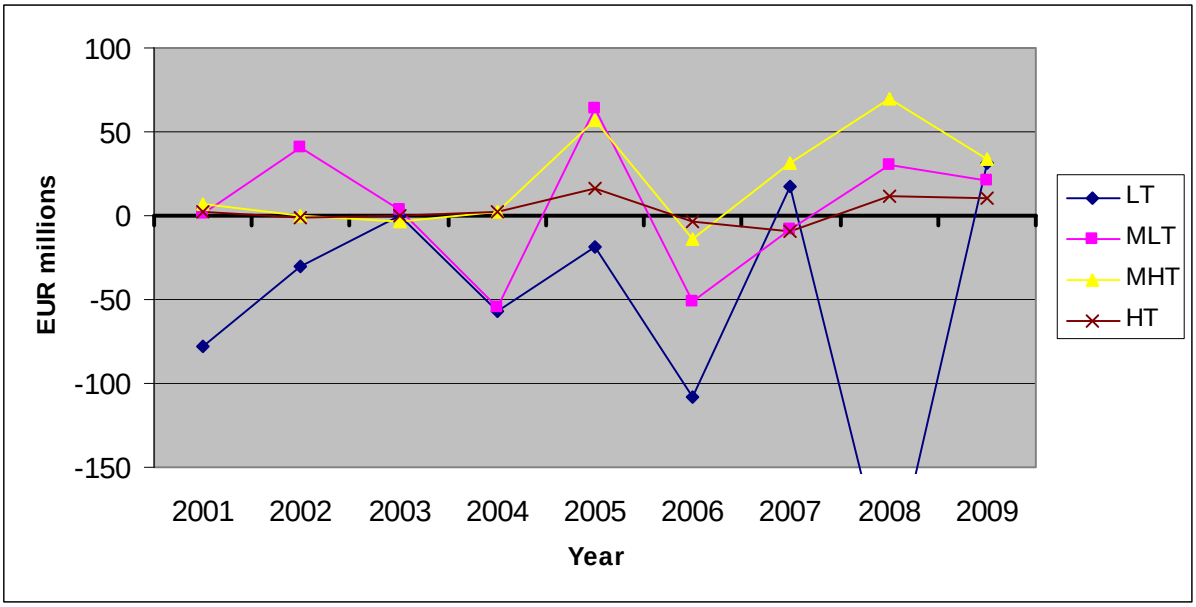


Figure 4. *Evolution of Competitive gain component in Lithuania by technology group*

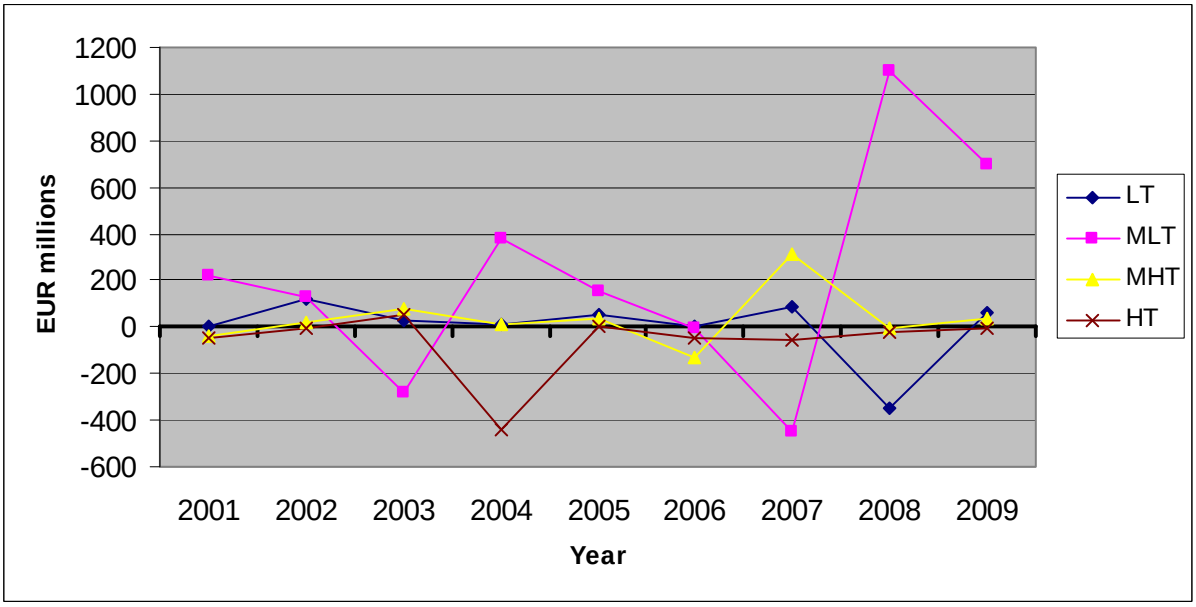


Figure 5. *Evolution of Competitive gain component in Estonia by technology group*

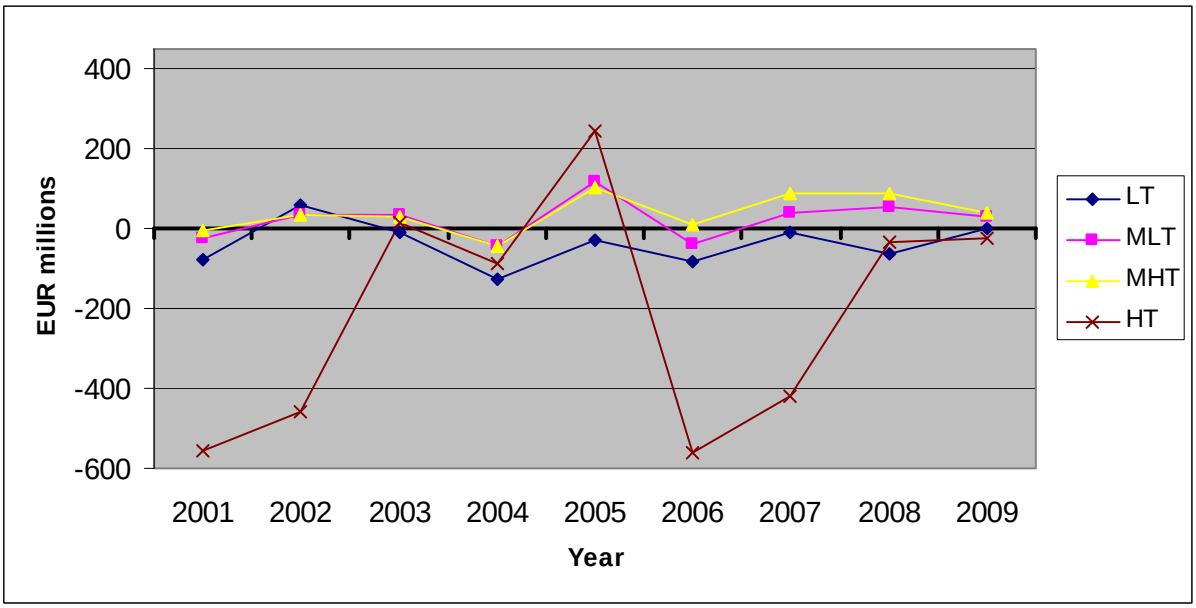


Figure 6. *Evolution of Competitive gain component in Slovenia by technology group*

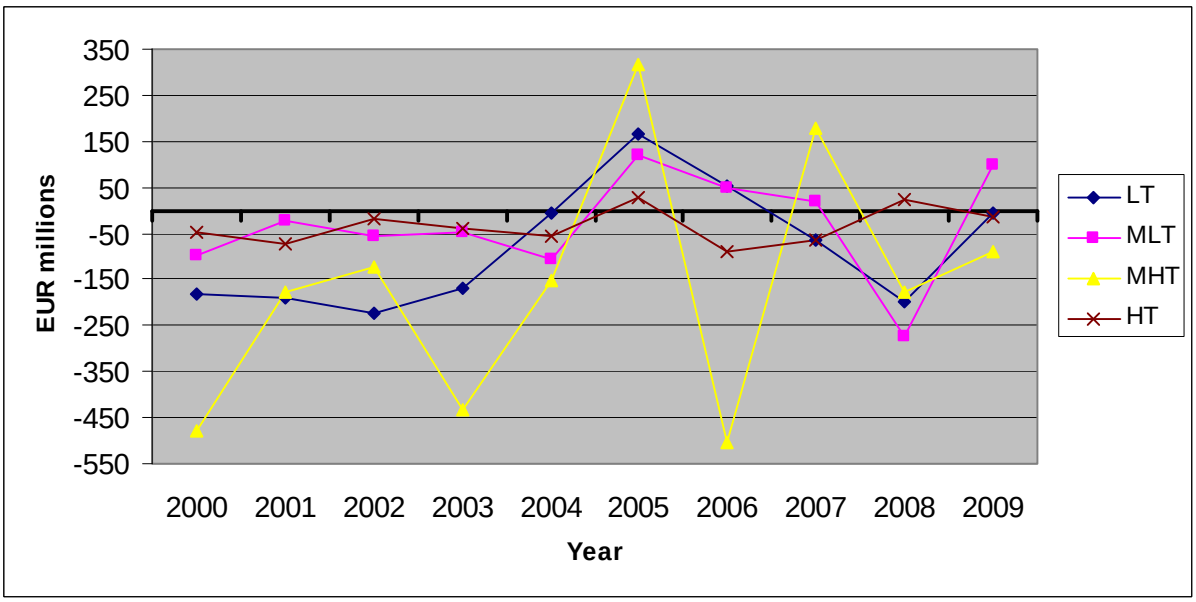


Figure 7. *Evolution of Competitive gain component in Poland by technology group*

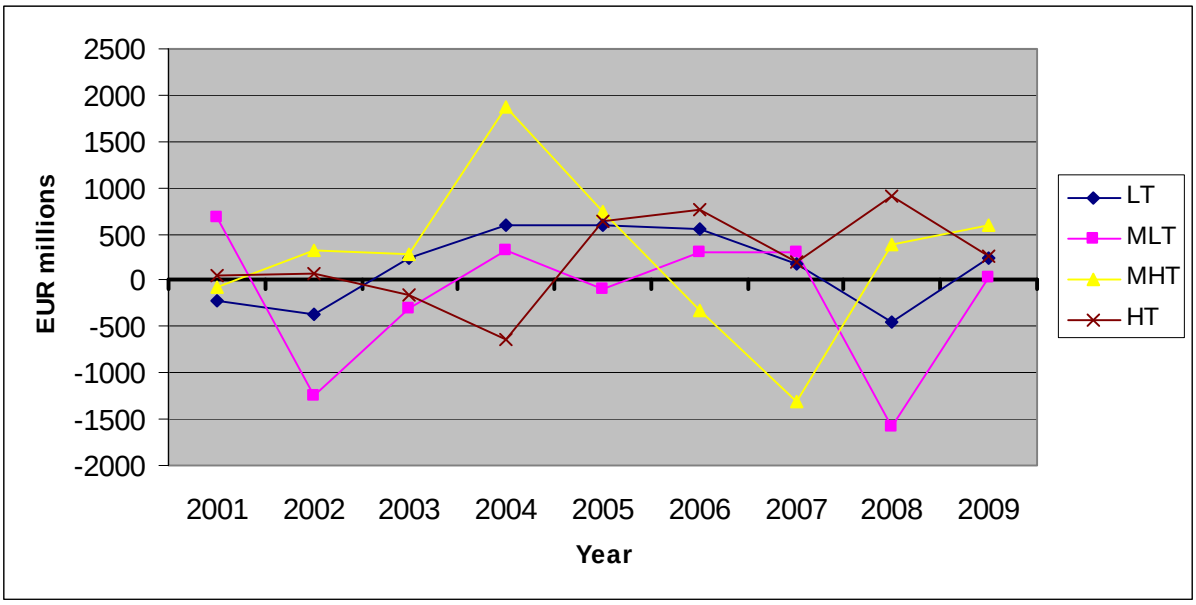


Figure 8. *Evolution of Competitive gain component in Czech Republic by technology group*

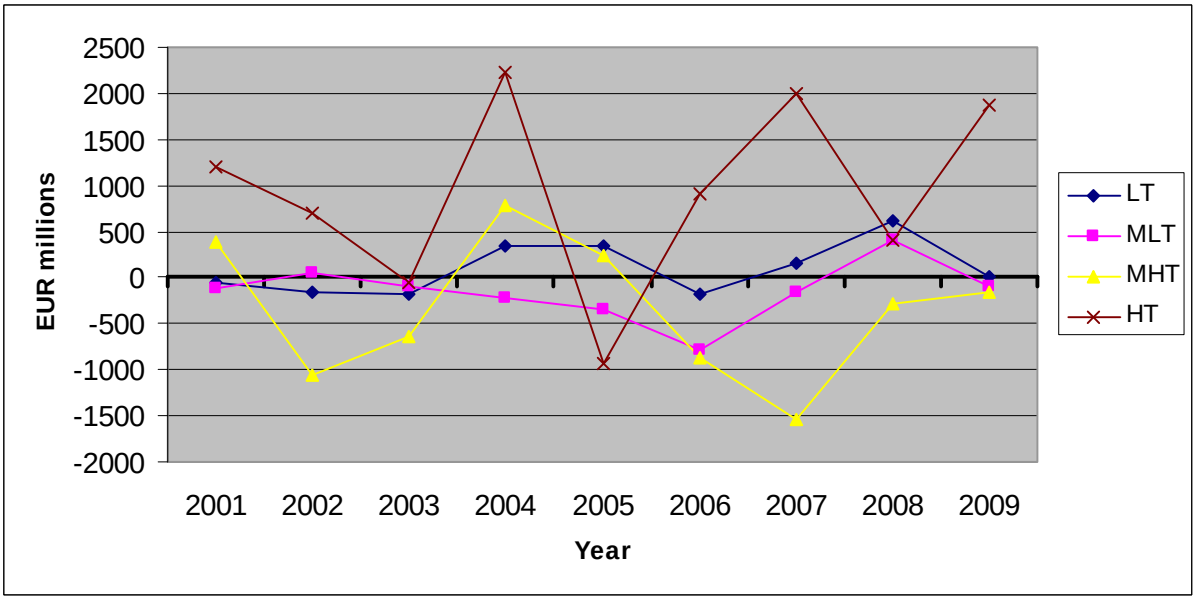


Figure 9. Evolution of Competitive gain component in Slovakia by technology group

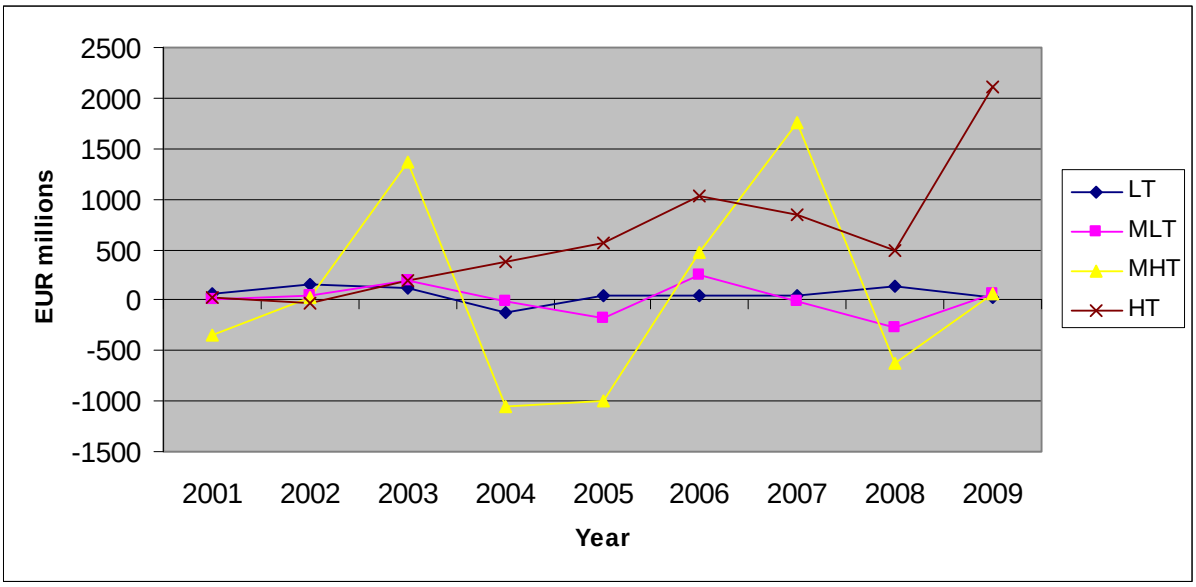
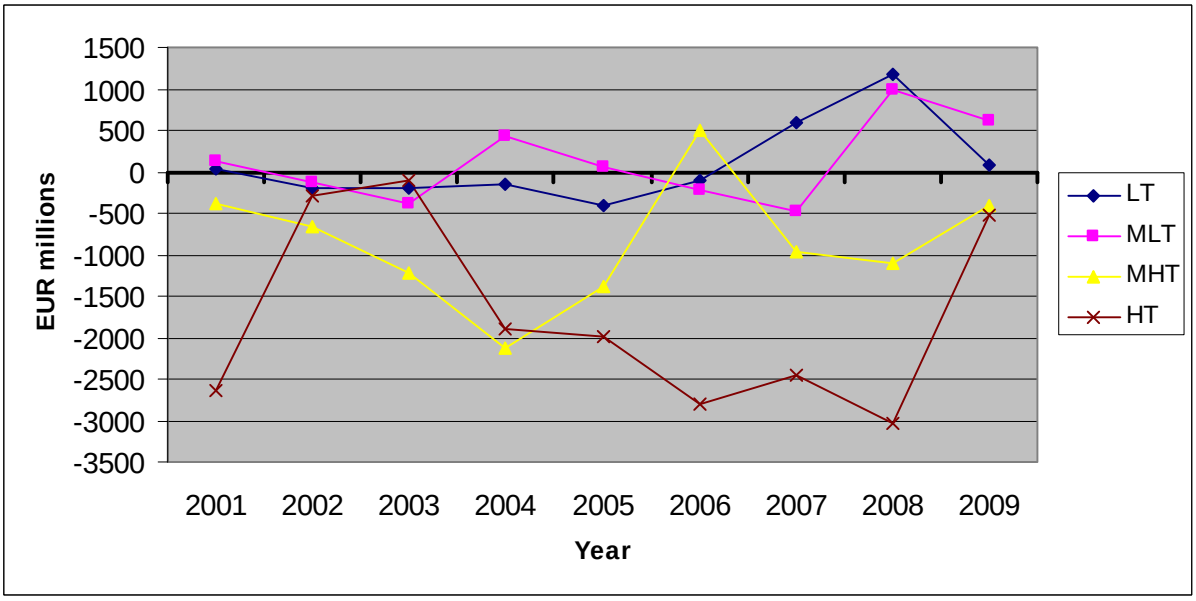


Figure 10. Evolution of Competitive gain component in Hungary by technology group



Overall, the results of the dynamic shift-share point to the large and even growing disparities in the technological performance between CEE countries. Although changes in the competitive gain component has provided some evidence on shifts in comparative advantage towards more sophisticated branches in recent years in Romania, Estonia and to lesser extent Bulgaria the progress in terms of technological upgrading of their manufacturing sector remains small, except may be in Romania. In contrast, large comparative gains and a shift towards high technology branches in recent years have been observed in the Czech Republic and Slovakia. The diverging pattern of trade among CEECs observed in the recent period imposes a number of questions and sets the framework for further research discussed below.

5. CONCLUSIONS

This paper intended to investigate the evolution of industrial restructuring and competitiveness of TEs' manufacturing industries using dynamic shift-share analysis. Although the period has been too short and turbulent to analyse long-term patterns of comparative advantage, the analysis shed some light on the current pattern of trade specialisation. The analysis suggests predominant and lasting comparative advantages in low technology industries in Bulgaria, Romania, Latvia, Lithuania, and also, though to lesser extent, Estonia throughout the period. The technological 'catching up' of sophisticated medium-high technology industries has however been indicated for Romania, and progressive competitive gains of R&D-intensive, high-technology industries has been suggested for Czech Republic, and also Slovakia.

Although in this analysis we provide some evidence that lately more technology intensive industries, even in the less developed TEs, have become more competitive overall, the analysis reveals poor technological capabilities of these countries with a continuing technological gap compared with other more advanced economies. Whereas the gap seems to be closing down in Romania, it remains particularly pronounced for Bulgaria, Latvia and Lithuania. This wedge is persistent and thus does not seem to be of a transitional (temporary) nature.

In view of the suggested structural changes in the EU-15 with the demand forces favouring imports of more sophisticated products, the ability to restructure away from the traditional manufacturers towards more technology intensive industries seems essential for long term competitiveness of transition economies. Given the further evidence of technological divergence presented in this analysis there is not much room for optimism that the technological wedge is likely to be reversed soon. On the contrary, the wedge is not likely to be reversed unless strong policy measures are undertaken. The reasons are at least threefold.

First, the slow pace of technological change for less developed TEs presents a real threat considering the strong challenges that emerge from other more technologically advanced transition economies with seemingly acquired technological proficiency in technology-intensive branches (i.e. Hungary, Czech Republic, Slovakia, Estonia, Poland) and with relatively low wages (see Landesmann, 1996; Landesmann and Burgstaller, 1997; Kaminski and Ng, 2001). It is becoming more and more difficult to compete solely on the basis of cost advantages and increase in technological proficiency is likewise important. In view of this, the changing demand pattern in the EU may inhibit prospects to increase living standards, sustain and generate long-term employment in less developed TEs.

Second, the accumulation of technological capabilities and industrial upgrading does not happen automatically and market liberalisation, though important, is not sufficient to induce technological change. The strongest impression conveyed by this analysis is that, though access to foreign markets is of the great importance and market liberalization had a positive impact on export growth, successful integration is dependent predominantly on the supply side that is technological capacities of firms and industries. Technological advancement presents a key challenge to the less developed TEs, and probably strong policy measures are needed to reverse the trend.

Third, and related to this, poor technological capabilities indicated by the poor performance of the technology intensive industries among the less developed TEs, are reflected in not only

technological capacities of firms but possibly also in institutional, and social factors. The complex interplay of these factors in capability building, their complementarities and interdependencies may widen the "gap".

What explains the diversity among transition economies persistent even two decades after the beginning of the transition remains an open question. Our understanding on what drives the differences in the technological performance of transition economies is fairly limited. In particular, what are the determinants of technology growth which led some transition economies embark on the course of successful transformation and 'catching up' and what are the barriers to technological upgrading which keep some transition economies lagging behind? The answer to this question is not a straightforward. To disentangle the complexities associated with the technological accumulation is indeed and ambitious task as complex and country specific patterns of learning including interactions between firms, institutions and policies are difficult to comprehend. An even greater concern is posed by understanding the barriers to technological upgrading. While CEECs pursued similar transition path and implemented similar policies including marker liberalisation and deregulation, macroeconomic stability, institutional building, corporate restructuring and privatisation, under the unique framework of integration into the European Union, still we observe diverging patterns of transition and competitiveness among transition economies.

Although the differences in the initial conditions of, for example the industrial base and technological levels, may be prominent in understanding the phenomena, comprehending the importance of other factors such as the evolution of industrial organisation, technological and innovative activities by firms and institutions in the course of transition, their complementarities and interdependencies are of particular interest for theory and policy. This analysis suggests that whereas some countries are capable of utilising resources to build necessary capabilities i.e. accumulate TC others seem to be locked in a 'low capability' trap. What constitutes TC and precisely how firms build those capabilities particularly within more technology sophisticated sectors seems rather essential. Hence, if technological prowess of firms and industries is crucial for long term competitiveness, we ought to further our understanding of the features of that prowess at a country, industry and a firm level and especially patterns of technological learning and the complexities related to technological upgrading.

BIBLIOGRAPHY

Aiginger, K., Havlik, P. and Schnitzer, Y. (1998), *The Competitiveness of Transition Economies*, OECD Publishing, OECD, Paris.

Carlin, W. and Landesmann, M. (1997), From Theory into Practice? Restructuring and Dynamism in Transition Economies, *Oxford Review of Economic Policy*,Vol.13(2), pp.77-105.

Damijan, J. and Rojec, M. (2004), Foreign Direct Investment and the Catching-up Process in New EU Member States: Is There a Flying Geese Pattern?, WiiW Research Reports No. 314.

Damijan, J., Ferjancic, M. and Rojec, M. (2006), Growing export performance of transition economies: Where does it come from?, a paper presented at the European Association

for Comparative Economic Studies (EACES), 9th Bi-Annual Conference: Development Strategies- A Comparative View.

Dobrinsky, R. and Landesmann, M. (eds) (1995), *Transforming economies and European integration,* E. Elgar, Aldershot, Hants, England; Brookfield, Vt., US.

Dobrinsky, R. (1995), Economic transformation and the changing patterns of European East-West trade, in Dobrinsky, R. and Landesmann, M. (eds), *Transforming Economies and European Integration*, Aldershot: Edward Elgar, pp.86-115.

Dosi, G. and Soete, L. (1988), Technical change and international trade, in G. Dosi, C. Freeman, Nelson, R., Silverberg, G. and Soete, L. (eds), *Technical Change and Economic Theory*, Harvester Wheatsheaf, London.

Dosi, G. (1988), The nature of the innovation process, in Dosi et al. (eds), *Technical change and economic theory*, Pinter, London, pp.37-.46.

Dosi, G., Freeman, C., Nelson, R., Silverberg, G. and Soete, L. (eds) (1988), *Technical change and economic theory*, Pinter, London.

Dosi, G., Pavitt, K. and Soete, L. (1990), *The Economics of Technical Change and International Trade*, Hemel Hempstead, Harvester Wheatsheaf.

Fagerberg, J. (1987), A technology gap approach to why growth rates differ, *Research Policy*, Vol. 16, pp. 87-99.

Fagerberg, J. (1988), International Competitiveness, *Economic Journal*, Vol. 98, pp. 355-374.

Fagerberg, J. (1991), Innovation, catching up and growth, in OECD, *Technology and productivity: the challenge for economic policy*, OECD, Paris, pp. 34-72.

Fagerberg, J. and Srholec, M. (2005), Catching up: What Are the Critical Factors for Success?, Centre for Technology, Innovation and Culture, University of Oslo, Working Papers on Innovation Studies, No. 0401.

Fagerberg, J., Srholec, M. and Knell, M. (2007), The Competitiveness of Nations: Why Some Countries Prosper While Others Fall Behind?, *World Development*, Vol. 35 (10),pp. 1595-1620.

Fagerberg, J. and Verspagen, B. (2007), Innovation, growth and economic development: have the conditions for catch-up changed?, *International Journal of Technological Learning, Innovation and Development*, Vol.1 (1), pp.13-33.

Fagerberg, J. and Srholec, M. (2008), National Innovation systems, capabilities and economic development, *Research Policy*, Vol. 37, pp. 1417-1435.

Fothergill, S. and Guding, G. (1979), In Defence of Shift-Share Analysis, *Urban Studies*, Vol. 16(3), pp. 309-319.

Guerrieri, P. (1993), Patterns of Technological Capability and International Trade Performance: and Empirical Analysis, in Kreinin, M. (ed), *The Political Economy of International Commercial Policy: Issues for the 1990s,*, Taylor & Francis, London and New York.

Guerrieri, P. (1995), Trade Integration and Changing specialization Patterns in the East Asia Electronics Industry, mimeo, Berkeley and University of Rome.

Guerrieri, P. (1998), Trade Patterns, FDI and Industrial Restructuring of Central and Eastern Europe, BRIE *Working paper Series* No.124.

Haque, I. (1997), *Trade, Technology and International Competitiveness*, Economic Development Institute, World Bank, Washington DC.

Hayward, D. and Erickson, A. (1995), The North American Trade of U.S. States: A Comparative Analysis of Industrial Shipments 1938-1991, *International Regional Science Review*, Vol. 18(1), pp.1-31.

Hoekman, B. and Djankov, S. (1996), Intra-industry Trade, Foreign Direct Investment and the Reorientation of East European Exports, *CERP Discussion Papers*, No. 1377.

Hufbauer, G.C. (1966), *Synthetic Material and the Theory of International Trade*, Cambridge, MA.

Hufbauer, G. (1970), The impact of National Characteristics and Technology on the Commodity Composition of Trade in Manufactured Goods, in NBER *The Technology Factor in International Trade*, pp.143-232.

Kandogan, Y. (2003), The Reorientation of Transition Countries' Exports: Changes in Quantity. Quality and Variety, The William Davidson Institute Working Paper No.631.

Kornai, J. (1994), *Highways and Byways: Studies on Reform and Post communist Transition*, The MIT Press.

Kornai, J. (2001), Ten years after the road to free economy. The author's self-Evaluation. *Politicka Ekonomie*, University of Economics, Prague, Vol. 2001(5), pp.13-24.

Landesmann, M. (1995), The Pattern of East-West European Integration: Catching up or Falling Behind?, WiiW Research Reports No.212,Vienna Institute for International Economic Studies, Vienna.

Landesmann, M. (1996), Emerging Patterns of European Industrial Specialisation: Implications for Labour Market Dynamics in Eastern and Western Europe, WiiW Research Reports No. 230, Vienna Institute for International Economic Studies, Vienna.

Landesmann, M. and Stehrer, R. (2002), The CEECs in the Enlarged Europe: Convergence Patterns, Specialisation and Labour Market Implications, WiiW Research Reports, No. 286,Vienna Institute for International Economic Studies, Vienna.

Landesmann, M. and Stehrer, R. (2003), Evolving competitiveness of CEECs in an enlarged Europe, *Rivista di Politica Economica*, Vol. XCII (I), pp.23-88.

Lall, S. (2003), Reinventing industrial strategy: The role of government policy in building industrial competitiveness, Research Report, The Intergovernmental Group on Monetary Affairs and Development (G-24).

Lall, S. (2004), Industrial Success and Failure in a Globalising World, Queen Elisabeth House *Working Paper Series*-QEHWPS, No.102.

Leamer, E. (1974), The Commodity Composition of International Trade in Manufactures: An empirical analysis, *Oxford Economic Papers*, Vol.26, pp.350-374.

Nelson, R. and Winter, J. (1982), *An evolutionary theory of Economic Change*, Cambrige, MA, Harvard University Press.

Nelson, R. (1989), US Technological Leadership, Where did it come form and where did it go?, *Research Policy, 19, pp. 117-132.*

Patel, P. and Pavitt, K. (1994), National Innovation Systems: Why they are important, and how they might be measured and compared, *Economics of Innovation and New Technology*, Vol.3, pp.77-95.

Pavitt, K. (1984), Sectoral Patterns of Technological Change: Toward a Taxonomy, *Research Policy*, No.13, pp. 343-373.

Pavitt, K. and Patel, P. (1988), The International Distribution and Determinants of Technological Activities, *Oxford Review of Economic Policy*, Vol.4 (4), pp.35-55.

Richard, B. and Knight, P. (1972), Shift-Share Analysis Revisited, *Regional and Urban Economics,* Vol.2 (3), pp. 249-61.

Richardson, H. (1978), The state of regional economics: A Survey Article, *International Regional Science Review*, Vol. 3(1), pp.1-48.

Rojec, M. and Ferjancic, M. (2006), Overview of export performance of 'New Europe': Theoretical Underpinnings and Empirical Evidence, The Second Lancut Economic Forum on 'New Europe', Competitiveness of 'New Europe': Trade Performance and Its Underpinnings.

Sjoholm, F. (1996), International Transfer of Knowledge: the Role of International Trade and Geographic Proximity, *Welwirtschaftliches Archiv*, Vol. 132, pp. 97-115.

Soete, L. (1981), A general Test of the Technological Gap Trade Theory, *Weltwirtschaftliches Archiv*, Vol. 117, pp. 638-666.

Soete, L. (1987), The impact of technological innovation on international trade patterns: The evidence reconsidered, *Research Policy*, Vol. 16(2-4), pp.110-130.

Soete, L. (2008), Science, Technology and Development: Emerging concepts and visions, UNU-MERIT *Working Paper Series*, No.001,United Nations University, Maastricht Economic and social Research and training centre on Innovation and Technology.

Verspagen, B. (1999), A global perspective on technology and economic performance, and the implications for the post-socialist countries, in. Dyker, D. and Radosevic, S. (eds), *Innovation and Structural Change in Post-Socialist Countries: A Quantitative Approach*, Kluwer Publishers, Dordrecht, pp. 27-44.

Willson, P., Chern, T., Ping, T. and Robinson, E. (2005), Assessing Singapore's Competitiveness through Dynamic Shift-Share Analysis, *ASEAN Economic Bulletin*, Vol. 22(2), pp. 160-185.

APPENDIX 1. NACE Rev.2 Classification of industries

CODE 2-digit	Manufacturing industry
15	Food products and beverages
16	Tobacco products
17	Textiles
18	Wearing apparel; dressing and dyeing of fur
19	Tanning and dressing of leather; related articles
20	Wood and products of wood and cork
21	Pulp, paper and paper products
22	Publishing, printing and reproduction of recorded media
23	Coke, refined petroleum products, nuclear fuel
24	Chemicals and chemical products
25	Rubber and plastic products
26	Other non-metallic mineral products
27	Basic metals
28	Fabricated metal products, except machinery and equipment
29	Machinery and equipment
30	Office, accounting and computing machinery
31	Electrical machinery and apparatus
32	Radio, TV and communication equipment and apparatus
33	Medical, precision, optical instruments, watches and clocks
34	Motor vehicles, trailers and semi-trailers
35	Other transport equipment
36	Furniture

APPENDIX 2. NACE REV.2 Subsections

CODE	
DA	Food products, beverages and tobacco
DB	Textile and textile products
DC	Lather and lather products
DD	Wood and wood products
DE	Pulp paper and paper products; printing and publishing
DF	Coke, refined petroleum products and nuclear fuel
DG	Chemicals, chemical products and man-made fibres
DH	Rubber and plastic products
DI	Other non-metallic mineral products
DJ	Basic metal and fabricated metal products
DK	Machinery and equipment
DL	Electrical and optical equipment
DM	Transport equipment

APPENDIX 3. Technological classification of industries – OECD method

Activities	NACE Rev.2 CODE
High-technology group:	
Aircraft and Spacecraft	353
Pharmaceuticals	244
Office, Accounting and computing machinery	30
Radio, television and communication equipment	32
Medical, precision and optical instruments	33
Medium-high technology group:	
Electrical machinery and apparatus	31
Motor Vehicles, trailers and semi-trailers	34
Chemicals, excluding pharmaceuticals	24 (excl.244)
Railroad equipment and transport equipment	352 and 354
Machinery and Equipment n.e.c.	29
Medium-low technology group	
Coke, refined petroleum products and nuclear fuel	23
Rubber and plastic products	25
Other non-metallic mineral products	26
Building and repairing of ships and boats	35.1
Basic metals and Fabricated metal products, except machinery and equipment	27 +28
Low - technology group	
Furniture manufacturing and recycling	36 +37
Wood, pulp, paper and paper products	20+21
Printing and publishing	22
Food products and beverages and Tobacco	15+16
Textiles, textile products, lather and footwear	17+18+19

Source: Damijan et al. (2006)

APPENDIX 4. BULGARIA

Manufacturing exports in Euros by industry (NACE 2 and 3 digit Codes) in the period 1999-2009

NACE/Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	203043184	169202540	202997813	310000273	263911248	287064791	367355859	429874354	430422710	822137973,4	847205612,9
17,18	537547774	716138004	951467767	1098430841	1286434344	1380392255	1387080207	1502974375	1574173490	1485569598	1511769174
19	120152127	155670951	210837213	202130561	232256968	214970522	228445942	234998168	206545254	192814686	193980741,8
20,21,22	73305890	76679139	88608878	94097261	95075996	116270285	110425207	125400782	137022985	144058858,2	145449277,4
36	29090173	39141891	48143017	64068019	81407417	104897481	116090990	125756320	145950103	140886909,6	146301348,6
23	52507293	67636663	153303340	160935785	80444651	73010646	133221305	172686921	173275814	293932087,1	307446875,2
24	122049638	202257899	200832936	153373841	155530236	161349170	205141494	225478600	274151666	335139413,6	340990703,6
24	99542150	183256261	185640781	138600999	139534185	143677514	183713566	191439021	226703427	282481503,1	287672970,6
24.4	22507488	19001638	15192155	14772842	15996051	17671656	21427928	34039579	47448239	52657910,56	53363301,7
25	25816447	25892008	29765724	35626819	38596209	48309392	59676667	92000269	119099215	129280866,7	134462048,3
26	29787140	29654879	41357291	41915899	46256382	44399219	45797922	81588565	115837036	119510663	123110511
27,28	429634791	792768059	707568330	645397374	761797187	1075096967	1217162705	1788896037	1871944597	2087245990	2167775836
29	147863412	172522646	199650847	220902391	247297926	287418001	354294818	447657833	594469883	645042929,3	666732008,9
30	2149743	4421461	6370765	6607582	7333881	6654257	12825582	18913435	12725801	10397171,65	10796056,22
31	30419648	51830333	63175243	86964490	133669434	172722260	208620098	269597124	304194975	343534101,6	378894633,3
32	9195113	14766958	18380222	29559876	41327079	27698476	42530557	46326604	91520441	144826124,3	166188465
33	17572489	24546845	27991443	34989633	42507750	52215353	69215008	128175312	165259127	191832574	210855923,9
34	6592204	7112669	11524319	15780304	13071045	11195191	22671973	19580417	21218341	25257746,69	25972908,95
35	5107896	7814761	20737339	15441661	23878834	22063876	46025284	69893427	44466638	53593038,96	58680194,52
35.1	2995905	5404746	8613220	7525233	15171025	13057789	34436527	19374132	3415880	4767058,09	4795240,525
35.2, 35.4	2339819	3250744	7492400	15206049	22489029	22725280	29473222	42193204	65017770	68179814,61	87364882,75
35.3	1009795	532210	6720358	362458	511070	626870	866847	33386064	2451045	3772932,56	3876172,64
Total	1841834962	2558057706	2982712487	3216222610	3550796587	4085728142	4626581618	5779798543	6282278076	7165060733	7436657889

Evolution of Demand Component in Bulgaria by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	59,13	23,88	16,69	25,94	52,23	25,11	69,78	66,50	57,54	25,72
17,18	156,56	101,06	78,21	91,93	254,61	120,74	263,46	232,50	210,44	46,47
19	34,99	21,97	17,33	16,92	45,97	18,80	43,39	36,35	27,61	6,03
20,21,22	21,35	10,82	7,28	7,87	18,82	10,17	20,97	19,40	18,32	4,51
36	8,47	5,52	3,96	5,36	16,11	9,18	22,05	19,45	19,51	4,41
23	15,29	9,54	12,60	13,47	15,92	6,39	25,30	26,71	23,16	9,19
24	35,55	28,54	16,51	12,84	30,78	14,11	38,96	34,88	36,65	10,48
24	28,99	25,86	15,26	11,60	27,62	12,57	34,89	29,61	30,31	8,84
24.4	6,56	2,68	1,25	1,24	3,17	1,55	4,07	5,27	6,34	1,65
25	7,52	3,65	2,45	2,98	7,64	4,23	11,34	14,23	15,92	4,04
26	8,68	4,18	3,40	3,51	9,15	3,88	8,70	12,62	15,49	3,74
27,28	125,13	111,88	58,16	54,01	150,77	94,04	231,19	276,73	250,25	65,29
29	43,06	24,35	16,41	18,49	48,94	25,14	67,30	69,25	79,47	20,18
30	0,63	0,62	0,52	0,55	1,45	0,58	2,44	2,93	1,70	0,33
31	8,86	7,31	5,19	7,28	26,46	15,11	39,63	41,70	40,67	10,75
32	2,68	2,08	1,51	2,47	8,18	2,42	8,08	7,17	12,23	4,53
33	5,12	3,46	2,30	2,93	8,41	4,57	13,15	19,83	22,09	6,00
34	1,92	1,00	0,95	1,32	2,59	0,98	4,31	3,03	2,84	0,79
35	1,49	1,10	1,70	1,29	4,73	1,93	8,74	10,81	5,94	1,68
35.1	0,87	0,76	0,71	0,63	3,00	1,14	6,54	3,00	0,46	0,15
35.2, 35.4	0,68	0,46	0,62	1,27	4,45	1,99	5,60	6,53	8,69	2,13
35.3	0,29	0,08	0,55	0,03	0,10	0,05	0,16	5,16	0,33	0,12
Total	536,42	361,00	245,16	269,16	702,76	357,37	878,78	894,08	839,85	224,11

Evolution of Structural Effect Component in Bulgaria by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	-30,12	6,84	-8,02	12,36	38,45	61,99	-20,35	42,49	165,64	15,26
17,18	-72,99	-19,60	-65,69	-97,34	-225,55	-148,23	-307,86	-269,07	-296,75	-44,08
19	-10,28	6,76	-3,43	-18,88	-56,42	-16,06	-34,68	-29,95	-36,00	-5,08
20,21,22	-7,51	-6,87	-0,53	1,65	-11,38	-2,87	-10,04	-1,09	-16,54	-2,83
36	-1,86	1,19	1,39	1,27	-7,40	-1,09	-13,91	-10,15	-14,54	-2,30
23	10,70	17,37	-3,67	-59,51	38,30	10,69	-29,70	-31,70	96,03	3,06
24	10,84	-32,16	-9,05	6,19	-4,18	15,06	17,83	14,35	24,01	0,08
24	9,26	-34,34	-17,04	0,41	-9,90	15,25	11,65	6,51	20,34	-1,82
24.4	1,22	1,67	4,10	3,33	2,46	0,87	3,67	5,50	3,85	2,98
25	-0,02	1,50	3,85	1,42	-0,43	3,47	0,64	0,35	0,28	0,58
26	-5,31	-1,71	-3,10	-0,09	-7,45	-0,91	-1,07	-4,13	-2,26	-2,44
27,28	8,79	-69,40	-57,76	-3,70	100,23	1,79	145,73	-31,59	20,52	-9,37
29	6,48	8,13	3,15	9,90	-2,08	5,75	-1,25	-5,86	-41,15	-2,55
30	0,25	-1,02	1,15	0,57	-1,25	0,49	0,75	-2,48	0,05	-0,09
31	-0,88	0,90	4,93	6,02	-6,68	-3,38	8,68	-7,76	-5,17	-1,43
32	4,50	2,31	0,12	-1,31	0,69	-0,13	2,58	5,95	1,13	3,18
33	1,23	3,38	0,58	4,29	2,82	-9,22	24,50	3,19	0,35	2,66
34	0,28	-0,23	0,27	0,64	-0,04	1,09	1,51	1,54	-0,89	0,07
35	-2,22	4,26	0,55	0,05	22,45	-12,51	1,46	7,91	1,01	-0,35
35.1	-0,81	3,69	2,13	-0,92	-2,44	-4,61	-3,25	-5,64	-0,09	-0,11
35.2, 35.4	-0,22	0,37	-1,06	3,24	-4,07	-5,35	1,29	6,62	2,36	-0,76
35.3	-1,10	0,96	-3,98	0,21	2,81	-0,59	0,09	-9,22	0,24	-0,13
Total	-88,11	-78,37	-135,26	-136,50	-119,91	-94,08	-215,16	-318,00	-104,29	-45,62

Evolution of Competitive Gain Component in Bulgaria by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	-62,86	3,07	98,33	-84,39	-67,52	-6,81	13,09	-108,44	168,53	-15,90
17,18	95,02	153,87	134,45	193,42	64,90	34,18	160,29	107,78	-2,29	23,81
19	10,81	26,44	-22,61	32,09	-6,84	10,73	-2,16	-34,86	-5,34	0,22
20,21,22	-10,47	7,98	-1,27	-8,55	13,76	-13,14	4,04	-6,68	5,26	-0,29
36	3,44	2,28	10,58	10,71	14,78	3,11	1,52	10,89	-10,03	3,30
23	-10,87	58,76	-1,29	-34,45	-61,66	43,14	43,86	5,57	1,46	1,26
24	33,82	2,20	-54,92	-16,87	-20,79	14,62	-36,46	-0,56	0,33	-4,71
24	45,47	10,87	-45,26	-11,07	-13,58	12,22	-38,82	-0,86	5,13	-1,82
24.4	-11,28	-8,16	-5,77	-3,34	-3,95	1,34	4,87	2,64	-4,99	-3,92
25	-7,42	-1,28	-0,44	-1,44	2,51	3,67	20,35	12,52	-6,02	0,55
26	-3,50	9,23	0,25	0,92	-3,57	-1,57	28,16	25,76	-9,55	2,30
27,28	229,22	-127,67	-62,57	66,09	62,30	46,24	194,81	-162,09	-55,47	24,61
29	-24,89	-5,34	1,69	-1,99	-6,75	35,98	27,32	83,43	12,25	4,06
30	1,39	2,35	-1,44	-0,39	-0,88	5,10	2,91	-6,63	-4,08	0,16
31	13,44	3,13	13,66	33,41	19,28	24,17	12,67	0,65	3,84	26,04
32	-1,60	-0,78	9,55	10,60	-22,50	12,54	-6,87	32,07	39,94	13,65
33	0,63	-3,40	4,12	0,30	-1,52	21,65	21,31	14,06	4,13	10,36
34	-1,68	3,64	3,04	-4,67	-4,43	9,41	-8,91	-2,93	2,09	-0,14
35	3,44	7,56	-7,55	7,10	-28,99	34,54	13,66	-44,15	2,18	3,76
35.1	2,34	-1,25	-3,93	7,93	-2,68	24,85	-18,35	-13,31	0,98	-0,01
35.2, 35.4	0,45	3,41	8,16	2,77	-0,15	10,11	5,83	9,68	-7,89	17,81
35.3	0,33	5,15	-2,93	-0,09	-2,80	0,77	32,27	-26,88	0,76	0,12
Total	267,91	142,03	123,60	201,91	-47,92	277,56	489,60	-73,61	147,23	93,06

APPENDIX 5. ROMANIA

Manufacturing exports in Euros by industry (NACE 2 and 3 digit Codes) in the period 1999-2009

NACE/Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	165819256	143117310	199691630	174454473	215046554	259675373	303567907	381248836	377869366	938849133,4	982617176,3
17,18	1906411846	2490956514	3075082420	3448700718	3658842246	3887422618	3831986699	3771895530	3417787507	3190803025	3212300160
19	649162044	883657969	1145511556	1298784652	1343453609	1309488685	1353764340	1421057841	1353610928	1204435992	1214738380
20,21,22	223590371	270315500	306552712	334231098	393473764	439013233	445243888	489561869	521570848	450966949	455552983,8
36	335423616	394598752	462904573	523586237	541151919	665123388	724771826	784348181	873685979	893579815,5	908449284,7
23	41505184	46293785	168085609	439309034	218745837	235895460	439415277	300238483	203681989	214972301,2	223956871,8
24	122470687	217449970	186444779	177686524	211079448	269601917	271470265	335207025	512605471	690130342,8	722118336,2
24	108444320	201026357	171838592	165447769	198498404	249269834	262978357	325443014	497980594	663453534,4	697408546,9
24.4	14026367	16423613	14606187	12238755	12581044	20332083	8491908	9764011	14624877	26676808,4	26917407,7
25	54214648	74241889	98523392	162175674	223869769	276620389	340926643	425816931	529325653	655419289,3	728100959,9
26	87188228	105025148	128732363	133102764	124225302	118094241	115080299	105507508	117135610	186889193	189026297,2
27,28	634439111	891042267	778328556	720492730	733194630	1118150210	1045984066	1486726425	1992373244	2276006844	2334896962
29	319425776	399345011	525963112	592089900	703343602	1038730790	1135806035	1449308776	1819615342	2033311889	2142409691
30	68419279	70252729	69833596	16555068	47342902	36865704	33406689	76522459	99488193	126218875,5	127285153,9
31	208047399	288414236	433230001	656251595	786261550	1020422660	1351126553	1814787426	2141533172	2425241313	2683703102
32	35634710	412630921	348744717	316172269	333119953	377699352	285876688	296793702	208376838	637587083	745290234,6
33	17503982	29044146	40549380	48022385	51422115	75313379	94358034	109815537	114794562	166654079,7	180854546,9
34	61694365	88285023	147592805	239363357	306504217	442631030	650174826	920100876	1380639031	1633007711	2048923623
35	175646458	187248499	212432733	234218634	304294048	408238166	350222123	417434741	544368922	702575184,2	723652013,8
35.1	143924947	146718266	104154833	158440765	196387761	254548717	214154712	298741216	205520227	255349517	257326395,4
35.2, 35.4	23827600	37006188	75244799	83591762	118156054	123627999	116943401	126357038	288038924	355628707	405150269,6
35.3	8260708	5368327	42672961	4658157	11678125	55620417	50856516	33242654	9976259	22322438,6	22702420,74
Total	5106596960	6,992E+09	8,328E+09	9515197112	1,0195E+10	1,198E+10	12773182158	14586372146	1,6208E+10	1,8427E+10	19626083395

Evolution of Demand Component in Romania by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	47,75	19,72	15,35	14,90	42,69	23,55	59,48	59,50	50,50	29,03
17,18	548,92	343,15	236,41	294,63	726,30	352,56	750,86	588,66	456,77	98,67
19	186,92	121,73	88,07	110,96	266,68	118,76	265,26	221,78	180,90	37,24
20,21,22	64,38	37,24	23,57	28,55	78,11	39,82	87,24	76,40	69,70	13,95
36	96,58	54,36	35,59	44,73	107,42	60,32	142,02	122,41	116,76	27,63
23	11,95	6,38	12,92	37,53	43,42	21,39	86,10	46,86	27,22	6,65
24	35,26	29,96	14,33	15,18	41,90	24,45	53,19	52,31	68,51	21,34
24	31,22	27,69	13,21	14,13	39,40	22,61	51,53	50,79	66,55	20,52
24.4	4,04	2,26	1,12	1,05	2,50	1,84	1,66	1,52	1,95	0,82
25	15,61	10,23	7,57	13,85	44,44	25,09	66,80	66,45	70,74	20,27
26	25,10	14,47	9,90	11,37	24,66	10,71	22,55	16,47	15,65	5,78
27,28	182,68	122,75	59,84	61,55	145,54	101,41	204,96	232,03	266,27	70,38
29	91,97	55,01	40,44	50,58	139,62	94,21	222,56	226,19	243,18	62,88
30	19,70	9,68	5,37	1,41	9,40	3,34	6,55	11,94	13,30	3,90
31	59,90	39,73	33,31	56,06	156,08	92,54	264,75	283,22	286,20	74,99
32	10,26	56,84	26,81	27,01	66,13	34,25	56,02	46,32	27,85	19,72
33	5,04	4,00	3,12	4,10	10,21	6,83	18,49	17,14	15,34	5,15
34	17,76	12,16	11,35	20,45	60,84	40,14	127,40	143,60	184,51	50,50
35	50,57	25,79	16,33	20,01	60,40	37,02	68,62	65,15	72,75	21,73
35.1	41,44	20,21	8,01	13,54	38,98	23,09	41,96	46,62	27,47	7,90
35.2, 35.4	6,86	5,10	5,78	7,14	23,45	11,21	22,91	19,72	38,49	11,00
35.3	2,38	0,74	3,28	0,40	2,32	5,04	9,97	5,19	1,33	0,69
Total	1470,37	963,19	640,27	812,90	2023,82	1086,41	2502,85	2276,41	2166,16	569,80

Evolution of Structural Effect Component in Romania by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	-24,93	5,15	-0,43	2,58	29,51	56,36	-19,48	36,83	139,29	16,73
17,18	-300,05	-101,57	-259,56	-323,83	-675,00	-425,05	-833,71	-528,85	-630,53	-94,02
19	-97,52	-1,04	-79,57	-142,55	-353,67	-116,02	-228,94	-120,56	-166,66	-33,34
20,21,22	-22,88	-24,02	-0,49	3,44	-47,40	-11,77	-42,92	-3,06	-58,58	-8,67
36	-18,40	13,51	15,94	13,92	-54,04	-9,61	-91,88	-66,43	-87,05	-14,22
23	8,73	11,16	-16,76	-154,83	110,49	27,49	-85,09	-49,66	118,49	2,35
24	10,66	-32,23	-9,29	5,61	-7,83	27,48	20,87	16,42	41,46	-0,45
24	10,21	-35,24	-16,91	-1,29	-16,37	28,58	13,20	4,54	41,21	-4,95
24.4	0,41	1,39	4,08	2,74	1,83	1,21	1,45	1,57	1,11	1,47
25	-0,17	4,26	11,96	4,39	-3,07	18,07	1,83	-0,39	-2,61	1,96
26	-15,87	-6,06	-9,17	0,93	-19,65	-2,30	-0,55	-4,53	-4,79	-3,69
27,28	29,41	-72,10	-59,71	2,04	90,90	14,19	123,79	-59,39	17,83	-7,70
29	15,14	18,29	10,62	24,11	-14,58	19,95	-14,48	-25,28	-130,76	-8,97
30	9,06	-16,09	14,47	1,28	-7,99	2,70	1,56	-10,43	0,17	-0,97
31	-6,04	0,21	24,99	44,64	-50,62	-53,21	25,85	-72,09	-41,92	-18,28
32	14,07	78,73	7,34	-14,31	5,54	1,55	16,91	41,69	-1,18	13,66
33	1,17	3,90	1,08	6,03	3,02	-13,68	35,57	3,60	-0,75	2,43
34	2,77	-2,93	3,41	8,59	-2,55	38,92	36,14	62,85	-62,55	2,55
35	-80,19	121,09	6,14	-4,17	313,37	-240,69	12,24	39,05	2,83	-4,68
35.1	-37,67	142,47	24,28	-23,23	-38,83	-91,15	-37,79	-76,85	-10,59	-5,51
35.2, 35.4	-2,48	2,95	-10,69	16,93	-21,87	-29,71	7,71	6,33	4,53	-5,25
35.3	-9,07	8,13	-22,11	2,55	65,64	-54,22	28,66	-10,27	0,52	-0,77
Total	-475,03	0,25	-339,05	-522,15	-683,57	-665,61	-1042,31	-740,23	-867,33	-155,33

Evolution of Competitive Gain Component in Romania by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	-45,52	31,71	-40,16	23,11	-27,57	-36,02	37,68	-99,71	371,19	-1,99
17,18	335,67	342,55	396,76	239,35	177,28	17,05	22,76	-413,91	-53,22	16,85
19	145,10	141,16	144,78	76,26	53,03	41,53	30,97	-168,66	-163,42	6,40
20,21,22	5,22	23,02	4,60	27,25	14,83	-21,82	0,00	-41,33	-81,73	-0,69
36	-19,01	0,44	9,15	-41,08	70,59	8,93	9,44	33,36	-9,82	1,46
23	-15,89	104,25	275,06	-103,26	-136,76	154,64	-140,19	-93,75	-134,42	-0,01
24	49,05	-28,73	-13,80	12,61	24,46	-50,07	-10,33	108,67	67,55	11,09
24	51,15	-21,64	-2,69	20,20	27,74	-37,47	-2,27	117,20	57,71	18,39
24.4	-2,05	-5,47	-7,57	-3,44	3,43	-14,89	-1,84	1,77	8,99	-2,06
25	4,59	9,80	44,12	43,45	11,38	21,15	16,26	37,44	57,96	50,46
26	8,60	15,30	3,64	-21,18	-11,15	-11,43	-31,58	-0,31	58,89	0,05
27,28	44,51	-163,36	-57,96	-50,89	148,52	-187,77	112,00	333,01	-0,46	-3,79
29	-27,20	53,32	15,08	36,56	210,35	-17,09	105,43	169,40	101,28	55,19
30	-26,93	5,99	-73,12	28,09	-11,88	-9,50	35,01	21,45	13,27	-1,87
31	26,50	104,88	164,72	29,30	128,70	291,37	173,07	115,61	39,43	201,75
32	352,67	-199,46	-66,72	4,25	-27,09	-127,62	-62,01	-176,43	402,54	74,33
33	5,33	3,60	3,28	-6,73	10,66	25,90	-38,60	-15,76	37,27	6,62
34	6,05	50,08	77,01	38,10	77,84	128,48	106,39	254,09	130,41	362,87
35	41,21	-121,70	-0,68	54,24	-269,83	145,65	-13,65	22,74	82,62	4,03
35.1	-0,98	-205,24	22,00	47,64	58,00	27,67	80,41	-62,99	32,95	-0,41
35.2, 35.4	8,79	30,19	13,25	10,50	3,89	11,82	-21,21	135,63	24,56	43,77
35.3	3,80	28,43	-19,19	4,07	-24,02	44,42	-56,24	-18,18	10,50	0,46
Total	889,98	372,85	885,77	389,42	443,36	373,40	352,65	85,91	919,35	782,76

APPENDIX 6. LATVIA

Manufacturing exports in Euros by industry (NACE 2 and 3 digit Codes) in the period 1999-2009

NACE/Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	27018835	38296627	53001977	60995091	70912678	74626843	166036983	177582333	2,32E+08	414734787	474248564
17,18	205563240	2,35E+08	249325675	245030732	264410896	264836986	239595138	231561980	2,07E+08	177833992	177594104
19	4607121	4789731	5125069	3920468	5024428	3338100	2686905	2430952	2810927	3120628,8	3110560
20,21,22	555016251	635478968	662606357	694223706	748742539	784739230	787450763	785518932	9,38E+08	739349814	741805364
36	68780245	78127409	88324219	96481984	101313610	110754639	103356136	106591499	99518081	70767138	70787581
23	9199897	13483017	18442972	21255482	26655962	30636774	81875426	42913597	59131976	64737969	68646080
24	15219990	14871129	21880859	14484635	12542511	9477899	24373663	41427329	61245932	111135981	118139743
24	13689883	13965875	20773161	12906397	10483012	8162085	21174531	38701957	58490385	106129148	113295389
24.4	1530107	905254	1107698	1578238	2059499	1315814	3199132	2725372	2755547	5006833	5120599
25	3891761	9306183	12636697	18638459	21720821	23307076	27705349	36740173	38211733	37909785	41223493
26	3003138	2312161	1765688	2149447	2771276	3999517	5313545	4013511	5753600	18646636	19617949
27,28	65792299	1,51E+08	161927288	198944978	201294326	234643917	270190754	340976105	3,61E+08	474210630	503648165
29	15474645	22462902	26005194	30871180	32129884	37818586	58964889	50981142	64017670	79787203	83103156
30	1481107	1989099	5012534	6354816	6379606	7978845	11114808	8103162	10375343	10575368	11224714
31	13431886	15342220	16619154	23726063	31352976	36662901	50576472	47668943	53086167	50395585	51782439
32	2472262	3312979	4580521	3542581	4879945	5276104	8549033	24224993	18694377	26413187	28970991
33	1715296	2919885	3260008	3556419	3888755	3742526	4547079	4689337	7758708	6613034	6801858
34	3997658	3968013	6458575	8398840	8233103	15580629	35024738	51179353	75868724	113949223	145289812
35	1450457	3879753	3604959	1994259	7531339	8231306	23604706	24066073	24526321	35859997	44367151
35.1	1255306	3646843	3368003	1896323	7289827	2761408	5896577	7785572	8117014	5506539	5693023,7
35.2, 35.4	361511	413437	282672	253953	262252	708905	1246623	1476393	3458547	4623592	5168697
35.3	174520	203153	230575	69344	158938	5462325	9360631	7132374	5736423	6045732	8079641,3
Total	998116088	1,3E+09	1,3E+09	1,43E+09	1,55E+09	1,66E+09	1,9E+09	1,98E+09	2,3E+09	2,44E+09	2,59E+09

Evolution of Demand Component in Latvia by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	7,94	5,48	4,36	5,14	14,05	6,57	32,12	27,13	31,24	12,92
17,18	60,41	33,59	20,50	20,66	52,40	23,32	46,35	35,38	27,79	5,54
19	1,35	0,69	0,42	0,33	1,00	0,29	0,52	0,37	0,38	0,10
20,21,22	163,09	98,08	54,49	58,53	148,39	69,09	152,33	120,00	126,09	23,03
36	20,21	11,19	7,26	8,13	20,08	9,75	19,99	16,28	13,38	2,20
23	2,70	1,93	1,52	1,79	5,28	2,70	15,84	6,56	7,95	2,02
24	4,47	2,13	1,80	1,22	2,49	0,83	4,71	6,33	8,23	3,46
24	4,02	2,00	1,71	1,09	2,08	0,72	4,10	5,91	7,86	3,31
24.4	0,45	0,13	0,09	0,13	0,41	0,12	0,62	0,42	0,37	0,16
25	1,14	1,33	1,04	1,57	4,30	2,05	5,36	5,61	5,14	1,18
26	0,88	0,33	0,15	0,18	0,55	0,35	1,03	0,61	0,77	0,58
27,28	19,33	21,65	13,32	16,77	39,89	20,66	52,27	52,09	48,57	14,77
29	4,55	3,22	2,14	2,60	6,37	3,33	11,41	7,79	8,61	2,49
30	0,44	0,28	0,41	0,54	1,26	0,70	2,15	1,24	1,40	0,33
31	3,95	2,20	1,37	2,00	6,21	3,23	9,78	7,28	7,14	1,57
32	0,73	0,47	0,38	0,30	0,97	0,46	1,65	3,70	2,51	0,82
33	0,50	0,42	0,27	0,30	0,77	0,33	0,88	0,72	1,04	0,21
34	1,17	0,57	0,53	0,71	1,63	1,37	6,78	7,82	10,20	3,55
35	0,43	0,56	0,30	0,17	1,49	0,72	4,57	3,68	3,30	1,12
35.1	0,37	0,52	0,28	0,16	1,44	0,24	1,14	1,19	1,09	0,17
35.2, 35.4	0,11	0,06	0,02	0,02	0,05	0,06	0,24	0,23	0,47	0,14
35.3	0,05	0,03	0,02	0,01	0,03	0,48	1,81	1,09	0,77	0,19
Total	293,30	184,11	110,25	120,96	307,15	145,76	367,73	302,59	303,73	75,89

Evolution of Structural Effect Component in Latvia by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	-4,67	1,42	-0,95	1,23	9,65	15,23	-9,32	15,77	91,26	6,92
17,18	-26,32	-3,38	-14,38	-18,54	-44,98	-27,50	-51,06	-38,70	-38,87	-5,08
19	-0,38	0,25	-0,12	-0,33	-1,23	-0,24	-0,42	-0,33	-0,50	-0,08
20,21,22	-62,85	-53,99	-1,81	12,59	-85,62	-16,07	-65,45	-9,54	-92,49	-13,64
36	-4,41	2,31	2,75	2,10	-8,99	-0,93	-12,67	-8,07	-9,75	-1,11
23	1,79	3,77	-0,46	-8,15	12,18	4,46	-17,26	-7,90	33,17	0,68
24	1,52	-2,41	-1,24	0,53	-0,38	0,88	1,86	2,66	5,09	-0,04
24	1,50	-2,63	-2,13	0,00	-0,77	0,86	1,06	1,31	4,97	-0,72
24.4	0,03	0,06	0,29	0,35	0,31	0,06	0,55	0,45	0,21	0,26
25	-0,03	0,51	1,62	0,72	-0,22	1,67	0,27	0,29	0,06	0,17
26	-0,55	-0,13	-0,13	-0,01	-0,45	-0,09	-0,08	-0,16	-0,16	-0,37
27,28	2,51	-15,37	-14,66	0,15	28,01	0,72	34,58	-7,35	2,09	-1,91
29	0,59	1,00	0,41	1,37	-0,29	0,77	-0,30	-0,43	-4,48	-0,30
30	0,17	-0,46	0,90	0,54	-1,09	0,59	0,62	-1,06	0,03	-0,09
31	-0,38	0,25	1,32	1,73	-1,50	-0,69	2,07	-1,28	-0,89	-0,17
32	1,20	0,51	0,04	-0,16	0,07	-0,02	0,48	3,23	0,25	0,59
33	0,12	0,39	0,08	0,44	0,26	-0,63	1,65	0,14	0,02	0,10
34	0,16	-0,14	0,15	0,33	-0,03	1,50	2,18	4,08	-3,29	0,31
35	-0,63	2,14	0,09	0,01	7,02	-4,65	0,81	2,52	0,51	-0,23
35.1	-0,34	2,49	0,83	-0,23	-1,17	-0,94	-0,67	-2,33	-0,18	-0,12
35.2, 35.4	-0,03	0,05	-0,04	0,05	-0,05	-0,16	0,06	0,24	0,10	-0,05
35.3	-0,19	0,38	-0,14	0,04	0,87	-5,15	2,86	-2,65	0,60	-0,21
Total	-92,15	-63,34	-26,39	-5,45	-87,61	-25,00	-112,04	-46,13	-17,95	-14,26

Evolution of Competitive Gain Component in Latvia by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	8,00	7,80	4,58	3,55	-19,99	69,61	-11,25	11,86	59,91	39,67
17,18	-5,11	-15,42	-10,42	17,27	-7,00	-21,05	-3,32	-21,56	-17,76	-0,70
19	-0,79	-0,60	-1,50	1,10	-1,45	-0,71	-0,36	0,34	0,43	-0,03
20,21,22	29,54	-66,29	-21,06	-16,60	-26,77	-50,31	-88,81	41,78	-232,02	-6,93
36	-6,46	-3,30	-1,85	-5,41	-1,65	-16,22	-4,09	-15,29	-32,38	-1,07
23	-0,21	-0,74	1,76	11,75	-13,48	44,08	-37,54	17,56	-35,51	1,21
24	-6,34	7,29	-7,96	-3,69	-5,17	13,18	10,48	10,83	36,56	3,58
24	-5,24	7,44	-7,45	-3,51	-3,62	11,43	12,38	12,57	34,80	4,58
24.4	-1,11	0,01	0,09	0,00	-1,46	1,70	-1,64	-0,84	1,67	-0,30
25	4,31	1,49	3,34	0,79	-2,49	0,67	3,40	-4,43	-5,50	1,96
26	-1,03	-0,75	0,37	0,45	1,13	1,05	-2,25	1,29	12,28	0,76
27,28	63,50	4,52	38,36	-14,57	-34,56	14,17	-16,06	-24,51	62,34	16,57
29	1,85	-0,68	2,32	-2,71	-0,39	17,05	-19,09	5,68	11,64	1,13
30	-0,10	3,20	0,03	-1,05	1,43	1,85	-5,79	2,09	-1,22	0,41
31	-1,66	-1,17	4,42	3,90	0,60	11,37	-14,76	-0,59	-8,94	-0,01
32	-1,09	0,28	-1,45	1,19	-0,64	2,83	13,55	-12,46	4,96	1,15
33	0,59	-0,47	-0,05	-0,40	-1,17	1,10	-2,38	2,21	-2,21	-0,12
34	-1,36	2,06	1,26	-1,21	5,75	16,57	7,20	12,79	31,17	27,48
35	2,64	-2,97	-1,99	5,36	-7,81	19,30	-4,92	-5,73	7,53	7,62
35.1	2,36	-3,29	-2,58	5,46	-4,81	3,84	1,42	1,48	-3,52	0,14
35.2, 35.4	-0,02	-0,24	-0,01	-0,07	0,44	0,64	-0,07	1,51	0,60	0,45
35.3	0,17	-0,38	-0,04	0,04	4,40	8,57	-6,90	0,17	-1,06	2,05
Total	86,28	-65,74	10,14	-0,29	-113,67	124,56	-175,99	21,86	-108,73	92,68

APPENDIX 8. ESTONIA

Manufacturing exports in Euros by industry (NACE 2 and 3 digit Codes) in the period 1999-2009

NACE/Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	56566582	85276320	86894012	1,06E+08	1,17E+08	177045038	2,36E+08	250980223	2,69E+08	421111300	448249921
17,18	258285316	3,19E+08	3,37E+08	3,43E+08	3,48E+08	310984064	2,84E+08	243491148	2,28E+08	206213081	205797340
19	38586713	44096457	46672571	50350789	50189893	32183194	37383119	35643244	34469680	34821302	34787322,7
20,21,22	390405727	4,27E+08	4,05E+08	4,66E+08	5,1E+08	485061905	5,33E+08	548550431	6,82E+08	638085951	642134080
36	109549763	1,38E+08	1,78E+08	2,13E+08	2,3E+08	241140275	2,25E+08	256296430	2,67E+08	269322764	273250706
23	15682470	23945239	24409369	39178248	40121483	77180895	1,27E+08	169652449	1,92E+08	221826162	250984875
24	23392532	33756309	39123178	45781769	69342275	67343236	92432209	93847386	1,24E+08	154795637	163490988
24	19247191	29114422	33244198	40767067	63003471	59353712	84687874	85479109	1,14E+08	142416715	151530460
24.4	4145341	4641887	5878980	5014702	6338804	7989524	7744335	8368277	10223316	12378922	12624795,4
25	20081892	31509912	37625831	50488061	63322011	58181124	64490530	78224223	95588422	110218533	115165641
26	22680627	25604452	26717502	27286269	33786565	37328145	44914485	55094209	55683411	160070085	169766440
27,28	121426985	1,62E+08	1,59E+08	1,75E+08	1,97E+08	221023920	3,15E+08	329447580	3,81E+08	499271722	514807576
29	64638601	96302498	1,11E+08	1,22E+08	1,51E+08	162198609	2,1E+08	254079470	3,43E+08	444494312	470615500
30	7273625	6613319	7157814	7175323	9811638	6349580	7557296	12518851	24949427	22784959	23270858,6
31	73857713	1,11E+08	1,1E+08	1,34E+08	1,37E+08	147712480	1,94E+08	301232080	3,88E+08	441982279	464011736
32	342389743	9,93E+08	8,33E+08	4,91E+08	5,31E+08	593038194	8,71E+08	596321066	3,47E+08	369816012	370112244
33	28913661	40603140	37522197	44899859	53503773	58048020	61017240	62587809	71055267	87622730	89401906,2
34	17215940	25933183	43645994	68821815	91093431	105598194	1,47E+08	145549908	1,52E+08	167502927	182125138
35	5065231	6030294	6555913	10970473	12923775	62425382	71075053	56225806	81037632	64908577	72577222,9
35.1	2439735	3423707	3607739	6083535	8704381	10246652	16157526	19677408	19878213	17479180	18556662
35.2, 35.4	837613	927903	627187	712550	1223379	676389	1455608	2544098	4537947	2796369,8	2861762,86
35.3	2117729	2337194	2818229	4792481	3613710	2867254	257606	257606	8099339	4240380,9	4282883,25
Total	1596013121	2,57E+09	2,49E+09	2,39E+09	2,64E+09	2,843E+09	3,52E+09	3489742313	3,74E+09	4,315E+09	4491213763

Evolution of Demand Component in Estonia by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	16,21	12,52	7,39	8,86	23,36	15,19	46,24	38,69	35,86	13,32
17,18	74,00	46,89	28,68	28,76	69,23	26,67	55,78	37,54	30,40	6,52
19	11,06	6,47	3,97	4,22	10,00	2,76	7,33	5,49	4,60	1,10
20,21,22	111,85	62,66	34,43	39,08	101,56	41,60	104,49	84,57	91,04	20,18
36	31,39	20,26	15,11	17,89	45,80	20,68	44,11	39,51	35,69	8,52
23	4,49	3,51	2,07	3,28	7,99	6,62	24,91	26,15	25,60	7,01
24	6,70	4,95	3,33	3,84	13,81	5,78	18,13	14,47	16,62	4,90
24	5,51	4,27	2,83	3,42	12,55	5,09	16,61	13,18	15,26	4,50
24.4	1,19	0,68	0,50	0,42	1,26	0,69	1,52	1,29	1,37	0,39
25	5,75	4,63	3,20	4,23	12,62	4,99	12,65	12,06	12,76	3,49
26	6,50	3,76	2,27	2,29	6,73	3,20	8,81	8,49	7,43	5,06
27,28	34,79	23,79	13,55	14,70	39,16	18,96	61,87	50,79	50,92	15,79
29	18,52	14,14	9,46	10,24	30,16	13,91	41,16	39,17	45,85	14,06
30	2,08	0,97	0,61	0,60	1,95	0,54	1,48	1,93	3,33	0,72
31	21,16	16,27	9,35	11,20	27,38	12,67	38,03	46,44	51,78	13,98
32	98,10	145,76	70,78	41,12	105,76	50,87	170,77	91,93	46,37	11,69
33	8,28	5,96	3,19	3,76	10,66	4,98	11,97	9,65	9,49	2,77
34	4,93	3,81	3,71	5,77	18,15	9,06	28,80	22,44	20,34	5,30
35	1,45	0,89	0,56	0,92	2,57	5,35	13,94	8,67	10,82	2,05
35.1	0,70	0,50	0,31	0,51	1,73	0,88	3,17	3,03	2,65	0,55
35.2, 35.4	0,24	0,14	0,05	0,06	0,24	0,06	0,29	0,39	0,61	0,09
35.3	0,61	0,34	0,24	0,40	0,72	0,25	0,05	0,04	1,08	0,13
Total	457,27	377,22	211,65	200,77	526,91	243,83	690,48	538,00	498,93	136,45

Evolution of Structural Effect Component in Estonia by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	-9,60	3,37	-1,97	2,25	14,88	38,22	-13,71	23,34	106,83	7,04
17,18	-31,81	-5,52	-20,60	-25,37	-58,41	-31,58	-60,66	-41,21	-42,77	-5,98
19	-2,85	2,27	-1,28	-4,17	-12,11	-2,28	-5,89	-4,91	-6,08	-0,92
20,21,22	-35,78	-36,53	-5,81	7,73	-55,72	-13,18	-48,89	-8,35	-78,14	-12,46
36	-6,51	3,00	4,45	4,78	-20,21	-0,84	-28,74	-19,97	-26,68	-4,43
23	3,16	6,70	-0,76	-15,01	17,90	11,64	-29,18	-31,79	110,47	2,07
24	2,44	-5,59	-2,46	1,46	-2,06	6,42	7,28	5,90	10,89	-0,14
24	2,19	-5,58	-3,64	-0,24	-4,58	6,38	4,54	2,77	10,31	-1,04
24.4	0,11	0,29	1,54	1,11	0,94	0,43	1,32	1,37	0,81	0,64
25	-0,05	1,64	4,70	1,91	-0,51	4,35	0,50	0,42	0,16	0,46
26	-3,99	-1,48	-2,08	-0,11	-5,57	-0,81	-0,85	-2,16	-2,99	-3,38
27,28	6,47	-16,85	-14,57	-0,11	27,27	0,35	40,80	-8,03	2,53	-2,13
29	2,90	3,97	1,46	5,34	-1,38	3,57	-1,85	-2,93	-24,41	-1,96
30	0,91	-1,57	1,27	0,61	-1,68	0,48	0,39	-1,67	0,11	-0,20
31	-1,88	1,78	8,42	10,22	-6,53	-2,84	5,85	-9,75	-6,67	-1,92
32	128,99	232,63	50,10	-22,35	9,92	-13,57	83,86	94,79	5,54	10,11
33	2,13	5,81	0,68	5,52	3,72	-9,79	22,83	1,93	0,11	1,38
34	0,80	-1,02	0,84	2,69	-0,38	10,37	9,04	11,61	-6,34	0,38
35	-2,17	3,30	0,12	0,06	11,82	-35,32	2,90	5,55	2,40	-0,46
35.1	-0,64	2,33	0,87	-0,72	-1,43	-3,51	-1,88	-5,95	-0,40	-0,40
35.2, 35.4	-0,07	0,11	-0,08	0,15	-0,22	-0,15	0,06	0,42	0,15	-0,03
35.3	-2,31	4,51	-1,76	3,00	20,26	-2,68	0,07	0,00	1,04	-0,15
Total	53,18	195,91	22,54	-24,54	-79,03	-34,81	-16,32	12,78	44,95	-12,53

Evolution of Competitive Gain Component in Estonia by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	22,10	-14,27	13,41	0,41	21,57	5,32	-17,32	-44,41	9,82	6,78
17,18	18,98	-23,43	-2,45	1,10	-47,34	-21,70	-36,00	-12,10	-9,13	-0,96
19	-2,69	-6,16	0,99	-0,21	-15,90	4,72	-3,18	-1,76	1,83	-0,21
20,21,22	-39,62	-47,98	32,59	-3,25	-70,56	19,24	-39,77	57,09	-56,67	-3,67
36	3,58	16,53	16,02	-6,18	-14,33	-36,08	16,02	-8,53	-7,00	-0,16
23	0,61	-9,75	13,45	12,66	11,17	31,57	46,90	27,73	-105,98	20,08
24	1,22	6,00	5,79	18,27	-13,76	12,89	-24,00	10,28	2,78	3,94
24	2,16	5,43	8,34	19,06	-11,62	13,87	-20,36	12,85	2,58	5,65
24.4	-0,80	0,27	-2,90	-0,20	-0,56	-1,36	-2,21	-0,81	-0,02	-0,79
25	5,72	-0,14	4,96	6,69	-17,24	-3,03	0,59	4,89	1,71	1,01
26	0,41	-1,16	0,37	4,32	2,39	5,20	2,22	-5,75	99,94	8,01
27,28	-0,63	-9,55	16,90	6,67	-42,00	75,11	-88,67	9,17	64,44	1,88
29	10,24	-3,11	-0,07	13,68	-18,00	30,19	4,91	53,06	79,67	14,02
30	-3,65	1,14	-1,86	1,42	-3,74	0,18	3,09	12,17	-5,60	-0,03
31	17,70	-18,93	5,89	-17,59	-10,60	36,37	63,43	49,89	9,06	9,97
32	423,5	-538,7	-463,0	21,6	-53,5	240,3	-528,9	-435,7	-29,4	-21,51
33	1,27	-14,85	3,50	-0,68	-9,84	7,78	-33,23	-3,11	6,97	-2,38
34	2,98	14,93	20,63	13,81	-3,26	21,80	-39,13	-27,28	1,19	8,94
35	1,69	-3,66	3,73	0,97	35,10	38,62	-31,69	10,59	-29,35	6,07
35.1	0,93	-2,64	1,30	2,84	1,24	8,54	2,23	3,12	-4,66	0,92
35.2, 35.4	-0,08	-0,54	0,12	0,30	-0,57	0,87	0,74	1,18	-2,50	0,01
35.3	1,92	-4,37	3,49	-4,58	-21,73	-0,18	-0,12	7,91	-5,98	0,06
Total	463,4	-653,1	-329,2	73,7	-249,9	468,5	-704,7	-303,8	34,2	51,78

APPENDIX 9. POLAND

Manufacturing exports in Euros by industry (NACE 2 and 3 digit Codes) in the period 1999-2009

NACE/Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	1119239042	1,33E+09	1,57E+09	1,63E+09	1,974E+09	2,88E+09	3937477343	4672805491	5683688322	8360501450	8901409894
17,18	2450163794	2,61E+09	2,74E+09	2,58E+09	2,492E+09	2,41E+09	2350639928	2331202092	2462027035	2291942236	2290462193
19	284071070	3,22E+08	3,81E+08	3,97E+08	405241068	3,66E+08	406463182	343578648	348302412	327800341	328304950
20,21,22	1312750036	1,61E+09	1,74E+09	1,95E+09	2,165E+09	2,41E+09	2600419713	2942575265	3416973541	3499174303	3557454093
36	1475764579	1,86E+09	2,17E+09	2,36E+09	2,647E+09	3,1E+09	3456396656	3773224113	4130556381	4368881279	4454529651
23	782215455	1,17E+09	1,53E+09	1,38E+09	1,144E+09	1,9E+09	2162355338	2118074245	2108344818	2652411702	2715828123
24	769703835	1,15E+09	1,08E+09	1,18E+09	1,325E+09	1,49E+09	1878046315	2610379256	3071459838	3995998863	4163495381
24	684360361	1,01E+09	9,13E+08	9,35E+08	1,013E+09	1,1E+09	1391341991	1898183721	2076311038	2591278025	2663482000
24.4	85343474	1,33E+08	1,65E+08	2,43E+08	311977551	3,9E+08	486704324	712195535	995148800	1404720837	1621885289
25	522676519	6,87E+08	8,95E+08	1,11E+09	1,326E+09	1,61E+09	1963049561	2485438999	2917484734	3326909901	3505403319
26	435947567	4,79E+08	5,51E+08	5,63E+08	640313428	6,93E+08	788933786	1017572351	1137753127	1164195849	1183643683
27,28	2428193058	3,18E+09	3,35E+09	3,37E+09	3,683E+09	4,92E+09	5484620486	7373617356	8353693446	9671442725	9959939861
29	1348557577	2,81E+09	3,43E+09	3,88E+09	4,561E+09	5,56E+09	6368976094	7362314430	8693102621	9047661204	9564204823
30	55488191	67861488	69530308	90817497	77356875	1,28E+08	158847025	148558054	166650555	1025578027	1204877947
31	1102104013	1,42E+09	1,64E+09	1,89E+09	2,138E+09	2,53E+09	2943260697	3554748434	4153113849	4255584865	4377351098
32	846184139	1,01E+09	1,28E+09	1,46E+09	1,444E+09	1,57E+09	2032417169	3344035237	4366371372	4760982741	4981245539
33	114307677	1,4E+08	1,66E+08	1,77E+08	241307145	3,14E+08	408476184	481084900	549006286	668758592	701196816
34	1829239405	2,8E+09	2,99E+09	3,39E+09	3,896E+09	5,94E+09	7072030087	8804104408	9766079310	1,1442E+10	1,2044E+10
35	557908436	6,22E+08	1,42E+09	1,58E+09	1,431E+09	1,5E+09	1092080234	1119608491	1087968084	1274776989	1291156873
35.1	461877818	4,68E+08	1,11E+09	1,34E+09	1,114E+09	1,22E+09	880783561	882178324	805451105	877502863	885399154
35.2, 35.4	137703288	1,92E+08	2,53E+08	2,65E+08	355210273	3,37E+08	284429395	314488603	365229993	498652673	511723413
35.3	15073961	28911141	1,34E+08	52270218	54839981	50953477	55615285	55188266	59543398	69087988,3	71563595,4
Total	1,8049E+10	2,39E+10	2,85E+10	3,06E+10	3,312E+10	4,09E+10	4,6325E+10	5,5735E+10	6,3643E+10	7,358E+10	7,5346E+10

Evolution of Demand Component in Poland by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	-214,69	64,27	-6,43	-56,19	137,24	537,63	-354,78	515,39	2603,23	94,56
17,18	-198,71	40,06	-105,39	-158,98	-345,57	-200,23	-488,24	-436,63	-435,49	-58,07
19	-16,14	20,23	-9,56	-33,47	-88,92	-23,70	-47,56	-47,90	-57,64	-7,65
20,21,22	-141,85	-150,73	-45,17	23,43	-248,12	-33,69	-261,43	-52,72	-399,77	-66,96
36	-110,13	76,30	98,43	29,61	-294,48	-52,26	-453,25	-360,37	-464,34	-72,49
23	160,44	454,30	157,74	-628,01	530,91	496,83	-460,17	-423,19	1861,32	79,20
24	58,86	-156,42	-92,95	42,12	3,25	131,23	70,02	214,59	186,53	-7,13
24	63,55	-159,76	-112,74	1,07	-44,42	117,11	21,77	139,93	186,24	-14,11
24.4	-4,98	7,93	32,39	56,44	68,37	7,20	61,41	81,29	-44,55	39,80
25	-1,41	20,17	103,65	15,11	-3,39	105,99	-19,50	-5,26	22,24	4,14
26	-72,02	-32,74	-45,92	-12,02	-104,73	-22,87	-47,76	-46,03	39,36	-22,87
27,28	172,16	-309,58	-315,83	-9,92	566,94	72,97	684,06	-195,54	87,30	-24,36
29	-99,10	119,82	9,72	123,05	-2,06	162,18	85,35	-172,14	-450,62	-58,16
30	7,40	-15,39	12,24	8,55	-12,58	11,83	11,43	-20,03	-16,87	-9,59
31	-24,85	33,09	134,86	162,34	-88,61	-83,39	171,88	-168,18	135,59	-6,58
32	573,82	168,44	-5,79	-46,00	78,46	-26,22	-24,20	415,31	169,41	127,48
33	11,99	21,74	4,24	18,27	18,69	-65,54	188,51	17,34	-1,13	11,45
34	5,22	-38,17	34,53	116,68	-336,23	682,75	534,52	1146,99	-611,65	4,29
35	-317,90	12,04	17,07	534,32	3133,22	-921,22	170,96	251,90	29,29	3,77
35.1	-107,97	-163,19	1029,22	457,63	-297,76	-307,75	57,24	-354,30	20,71	-17,42
35.2, 35.4	-19,45	20,01	-44,32	53,20	-46,31	-67,20	31,51	69,44	-7,55	-4,64
35.3	-17,34	26,67	-65,93	59,06	433,48	-48,72	26,28	-24,74	8,14	-2,32
Total	-206,9	327,4	-54,5	128,9	2944,0	772,3	-240,2	633,5	2696,8	-8,97

Evolution of Structural Effect Component in Poland by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	-214,69	64,27	-6,43	-56,19	137,24	537,63	-354,78	515,39	2603,23	94,56
17,18	-198,71	40,06	-105,39	-158,98	-345,57	-200,23	-488,24	-436,63	-435,49	-58,07
19	-16,14	20,23	-9,56	-33,47	-88,92	-23,70	-47,56	-47,90	-57,64	-7,65
20,21,22	-141,85	-150,73	-45,17	23,43	-248,12	-33,69	-261,43	-52,72	-399,77	-66,96
36	-110,13	76,30	98,43	29,61	-294,48	-52,26	-453,25	-360,37	-464,34	-72,49
23	160,44	454,30	157,74	-628,01	530,91	496,83	-460,17	-423,19	1861,32	79,20
24	58,86	-156,42	-92,95	42,12	3,25	131,23	70,02	214,59	186,53	-7,13
24	63,55	-159,76	-112,74	1,07	-44,42	117,11	21,77	139,93	186,24	-14,11
24.4	-4,98	7,93	32,39	56,44	68,37	7,20	61,41	81,29	-44,55	39,80
25	-1,41	20,17	103,65	15,11	-3,39	105,99	-19,50	-5,26	22,24	4,14
26	-72,02	-32,74	-45,92	-12,02	-104,73	-22,87	-47,76	-46,03	39,36	-22,87
27,28	172,16	-309,58	-315,83	-9,92	566,94	72,97	684,06	-195,54	87,30	-24,36
29	-99,10	119,82	9,72	123,05	-2,06	162,18	85,35	-172,14	-450,62	-58,16
30	7,40	-15,39	12,24	8,55	-12,58	11,83	11,43	-20,03	-16,87	-9,59
31	-24,85	33,09	134,86	162,34	-88,61	-83,39	171,88	-168,18	135,59	-6,58
32	573,82	168,44	-5,79	-46,00	78,46	-26,22	-24,20	415,31	169,41	127,48
33	11,99	21,74	4,24	18,27	18,69	-65,54	188,51	17,34	-1,13	11,45
34	5,22	-38,17	34,53	116,68	-336,23	682,75	534,52	1146,99	-611,65	4,29
35	-317,90	12,04	17,07	534,32	3133,22	-921,22	170,96	251,90	29,29	3,77
35.1	-107,97	-163,19	1029,22	457,63	-297,76	-307,75	57,24	-354,30	20,71	-17,42
35.2, 35.4	-19,45	20,01	-44,32	53,20	-46,31	-67,20	31,51	69,44	-7,55	-4,64
35.3	-17,34	26,67	-65,93	59,06	433,48	-48,72	26,28	-24,74	8,14	-2,32
Total	-206,9	327,4	-54,5	128,9	2944,0	772,3	-240,2	633,5	2696,8	-8,97

Evolution of Competitive Gain Component in Poland by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	112,65	-3,21	-68,52	264,82	412,25	326,24	360,53	-230,99	-638,23	204,69
17,18	-332,49	-258,29	-293,83	-136,83	-179,31	-27,14	33,24	205,02	-42,93	-9,66
19	-25,40	-5,25	-6,40	8,68	-23,38	39,61	-90,64	-0,80	-6,49	-1,32
20,21,22	67,61	67,25	100,92	36,83	106,30	58,18	121,75	69,63	54,04	24,10
36	82,63	-18,02	-96,25	63,43	271,44	198,81	129,64	131,07	185,36	31,86
23	3,85	-244,89	-444,54	281,81	14,82	-358,24	15,22	84,16	-1581,29	-92,45
24	101,80	-66,27	99,91	8,41	-73,66	152,95	314,33	-159,35	353,35	59,13
24	73,42	-77,33	56,37	0,27	-47,84	96,66	227,27	-256,92	68,69	11,41
24.4	28,67	6,48	30,95	-7,24	-46,53	63,22	73,90	90,93	329,50	136,76
25	18,81	95,13	34,25	110,69	45,08	142,06	178,15	50,89	21,81	78,19
26	-7,73	40,23	11,11	43,09	41,83	72,42	130,21	8,00	-155,41	8,66
27,28	-98,06	45,17	45,65	51,09	8,97	157,24	188,68	29,23	184,25	33,31
29	1178,41	126,71	147,29	236,85	179,24	272,45	-272,13	358,30	-283,53	313,19
30	-10,61	7,90	3,11	-29,48	49,26	10,42	-51,15	15,02	854,92	159,24
31	28,93	3,88	-28,32	-70,65	94,45	327,61	-105,75	213,89	-553,25	5,34
32	-650,28	-29,26	76,47	-92,82	-208,75	378,65	959,23	87,12	-321,63	-44,83
33	-18,23	-15,14	-6,77	31,16	10,56	138,83	-191,59	-24,21	52,12	1,66
34	449,31	-151,95	118,12	107,54	1677,09	50,80	-112,84	-1553,80	1064,84	266,30
35	225,05	704,30	17,97	-811,46	-3317,98	407,92	-345,78	-457,61	21,27	-24,24
35.1	-15,57	742,27	-895,00	-792,76	205,52	-116,60	-219,04	140,42	-49,53	-0,05
35.2, 35.4	34,98	14,79	35,46	14,88	-35,87	-8,07	-54,15	-67,59	95,23	3,30
35.3	26,95	74,73	-27,47	-60,78	-447,23	49,94	-37,01	20,51	-6,05	2,80
Total	1126,3	298,3	-289,8	103,2	-891,8	2348,8	1261,1	-1174,4	-790,8	1013,18

APPENDIX 10. CZECH REPUBLIC

Manufacturing exports in Euros by industry (NACE 2 and 3 digit Codes) in the period 1999-2009

NACE/Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	396674992	487027728	533086288	564130855	581459174	777994170	1056510251	1,119E+09	1424825085	2,229E+09	2,332E+09
17,18	1280577422	1549949380	1725838742	1677885555	1663254783	1920895836	2057250481	2E+09	2016119849	2,083E+09	2,096E+09
19	191789010	192969283	213179594	196021175	160620720	197552701	197652820	213336379	281252210	287574228	289010460
20,21,22	1044983891	1205982205	1270193696	1338190942	1537477608	1683368804	1794636990	1,987E+09	2320489039	2,535E+09	2,572E+09
36	619492340	729435799	888129723	1000903875	991253365	1117874181	1275821086	1,28E+09	1325529924	1,446E+09	1,465E+09
23	365735007	434332720	474802464	485693070	474251520	521858449	645658635	602614899	555243749	1,207E+09	1,235E+09
24	761412104	959123416	987798508	926166816	1034296955	1204807055	1424527942	1,631E+09	1793121916	2,3E+09	2,347E+09
24	672983860	854300968	870141681	780177567	872109387	978060529	1129283032	1,278E+09	1333613995	1,777E+09	1,806E+09
24.4	88428244	104822448	117656827	145989249	162187568	226746526	295244910	352945612	459507921	522874084	548562763
25	797420477	1025077703	1170872737	1433604829	1469794717	1760178038	1899145160	2,195E+09	2558686899	2,818E+09	2,889E+09
26	652987485	745911610	788952483	778409226	803890815	846239611	840759519	948376456	980490137	1,02E+09	1,026E+09
27,28	2167271701	2716574958	2978209608	3020801212	3289826611	4427543235	4813440267	5,949E+09	6691865966	7,89E+09	8,099E+09
29	2385076866	2968117396	3623321529	4031123958	4568031092	5569634352	6239838161	7,46E+09	8721932638	9,716E+09	1,001E+10
30	227140108	452006297	982179107	1910715941	2277078371	2684347389	3113613225	4,466E+09	4838718351	5,401E+09	6,632E+09
31	1794834935	2413824541	2724756134	2670094497	3021515343	3871937549	3772119233	4,36E+09	4976881456	5,419E+09	5,528E+09
32	312112177	650629924	1402026729	1342837737	1316938675	2018989127	1857425349	2,498E+09	4403250477	5,605E+09	6,556E+09
33	225257104	290094083	368305490	385677924	465436327	648688715	714743007	815189712	858737710	1,002E+09	1,036E+09
34	2831651579	3649912998	4371425262	4749281525	4947607312	5856804593	7533033339	9,242E+09	10277241027	1,074E+10	1,104E+10
35	538180988	206163776	181057596	196482331	257338187	1310397098	261066230	379383928	472371930	443516651	442736520
35.1	17827618	9029359	11737479	11154759	12424683	18958035	13489421	17516334	21101756	25132632	25235615
35.2, 35.4	217303251	232784061	204566595	205954982	261760494	294598834	265042845	354681992	451857848	413122781	416845574
35.3	350192779	19684230	18830551	29374797	48018058	1072635391	59834514	90353204	98131655	118705772	117921094
Total	16592598186	20677133817	24684135690	26708021468	28860071575	36419110903	39497241695	4,715E+10	54496758363	6,214E+10	6,561E+10

Evolution of Demand Component in Czech R. by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	122,28	61,73	43,77	48,18	102,67	70,09	201,80	169,59	187,74	71,10
17,18	394,75	196,45	141,71	143,29	293,68	173,05	392,94	303,10	265,65	66,44
19	59,12	24,46	17,50	16,74	28,36	17,80	37,75	32,34	37,06	9,17
20,21,22	322,13	152,85	104,30	114,28	271,47	151,65	342,78	301,15	305,76	80,88
36	190,96	92,45	72,93	85,47	175,03	100,70	243,69	194,01	174,66	46,12
23	112,74	55,05	38,99	41,48	83,74	47,01	123,32	91,34	73,16	38,51
24	234,71	121,56	81,11	79,09	182,63	108,54	272,09	247,14	236,27	73,37
24	207,45	108,28	71,45	66,62	153,99	88,11	215,70	193,65	175,72	56,69
24.4	27,26	13,29	9,66	12,47	28,64	20,43	56,39	53,50	60,55	16,68
25	245,81	129,92	96,14	122,43	259,52	158,57	362,74	332,62	337,14	89,87
26	201,29	94,54	64,78	66,47	141,94	76,23	160,59	143,74	129,19	32,53
27,28	668,08	344,31	244,55	257,97	580,89	398,86	919,39	901,64	881,75	251,69
29	735,22	376,20	297,52	344,25	806,58	501,75	1191,83	1130,76	1149,24	309,92
30	70,02	57,29	80,65	163,17	402,06	241,82	594,71	676,93	637,57	172,30
31	553,27	305,94	223,74	228,02	533,51	348,81	720,49	660,82	655,78	172,84
32	96,21	82,46	115,12	114,67	232,53	181,88	354,78	378,60	580,19	178,80
33	69,44	36,77	30,24	32,94	82,18	58,44	136,52	123,56	113,15	31,96
34	872,88	462,61	358,95	405,57	873,60	527,62	1438,84	1400,87	1354,17	342,63
35	165,90	26,13	14,87	16,78	45,44	118,05	49,86	57,50	62,24	14,15
35.1	5,50	1,14	0,96	0,95	2,19	1,71	2,58	2,65	2,78	0,80
35.2, 35.4	66,99	29,50	16,80	17,59	46,22	26,54	50,62	53,76	59,54	13,18
35.3	107,95	2,49	1,55	2,51	8,48	96,63	11,43	13,69	12,93	3,79
Total	5114,81	2620,73	2026,87	2280,78	5095,83	3280,85	7544,13	7145,72	7180,73	1982,28

Evolution of Structural Effect Component in Czech R. by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	-78,97	33,67	-8,35	17,06	88,84	159,59	-47,02	97,70	564,38	38,05
17,18	-191,88	4,51	-86,72	-121,92	-278,64	-234,65	-430,84	-343,98	-409,87	-62,44
19	-14,40	14,82	-2,76	-14,11	-38,44	-14,31	-30,96	-33,83	-50,79	-7,74
20,21,22	-117,68	-89,19	-0,16	2,52	-154,50	-51,16	-167,94	-25,21	-327,51	-53,22
36	-43,55	26,90	25,01	42,60	-69,99	-26,76	-137,71	-88,75	-143,89	-23,69
23	98,19	160,06	-8,84	-205,65	284,23	80,90	-135,36	-103,96	274,79	18,67
24	97,68	-151,84	-30,58	32,91	-9,78	112,88	165,30	156,68	136,47	6,24
24	92,70	-161,06	-68,05	-9,26	-45,88	116,35	98,72	94,09	91,88	-8,05
24.4	4,34	11,69	33,97	39,49	25,93	2,33	64,90	59,94	45,06	33,17
25	-16,42	107,52	143,27	131,85	8,51	192,31	64,73	13,52	45,58	28,46
26	-141,86	-13,44	-48,37	21,05	-121,56	16,03	11,54	0,52	10,68	-17,46
27,28	135,73	-279,21	-279,43	-10,68	506,19	16,09	773,12	-116,67	-9,20	-32,57
29	128,88	150,92	40,99	166,98	12,31	84,84	-39,08	-116,76	-736,95	-54,28
30	10,62	-177,41	-99,96	125,79	-632,80	199,42	-461,85	-988,94	204,16	-154,05
31	-192,27	144,75	649,29	237,92	-323,75	200,55	341,29	-150,25	8,24	10,30
32	138,26	48,79	48,20	-46,27	-20,85	57,30	79,13	106,91	-83,01	59,81
33	19,03	43,86	16,99	46,60	18,87	-157,66	415,59	62,56	-3,06	19,48
34	129,47	-207,39	144,84	368,53	113,95	307,57	593,96	1264,17	-219,71	52,49
35	-102,92	147,74	4,55	-2,91	163,34	-609,62	3,56	40,02	23,56	3,34
35.1	-4,81	6,34	2,91	-1,34	-1,80	-6,47	-1,51	-5,29	-0,50	-0,57
35.2, 35.4	-7,58	74,62	-30,57	46,21	-50,64	-71,60	3,07	66,48	60,50	-1,52
35.3	60,48	51,01	-13,17	17,50	4,89	-387,54	14,90	-46,80	12,01	-0,49
Total	-142,07	-34,93	507,97	792,26	-454,09	333,33	997,46	-226,28	-716,11	-168,63

Evolution of Competitive Gain Component in Czech R. by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	47,0	-49,3	-4,4	-47,9	5,0	48,8	-92,4	38,6	51,9	-6,19
17,18	66,5	-25,1	-102,9	-36,0	242,6	198,0	-19,6	57,3	211,1	9,04
19	-43,5	-19,1	-31,9	-38,0	47,0	-3,4	8,9	69,4	20,1	0,00
20,21,22	-43,4	0,5	-36,1	82,5	28,9	10,8	17,4	57,7	236,7	8,51
36	-37,5	39,3	14,8	-137,7	21,6	84,0	-101,8	-59,8	89,6	-3,14
23	-142,3	-174,6	-19,3	152,7	-320,4	-4,1	-31,0	-34,8	304,1	-29,40
24	-134,7	59,0	-112,2	-3,9	-2,3	-1,7	-231,3	-241,3	134,2	-33,12
24	-118,8	68,6	-93,4	34,6	-2,2	-53,2	-166,1	-231,8	176,0	-19,48
24.4	-15,2	-12,1	-15,3	-35,8	10,0	45,7	-63,6	-6,9	-42,2	-24,16
25	-1,7	-91,6	23,3	-218,1	22,3	-211,9	-132,1	18,0	-123,9	-46,96
26	33,5	-38,1	-27,0	-62,0	22,0	-97,7	-64,5	-112,2	-100,6	-9,34
27,28	-254,5	196,5	77,5	21,7	50,6	-29,1	-557,2	-41,9	326,0	-10,76
29	-281,1	128,1	69,3	25,7	182,7	83,6	67,8	247,6	581,7	43,00
30	144,2	650,3	947,8	77,4	638,0	-12,0	1219,7	684,6	-279,0	1212,21
31	258,0	-139,8	-927,7	-114,5	640,7	-649,2	-474,0	106,4	-222,3	-73,74
32	104,0	620,1	-222,5	-94,3	490,4	-400,8	206,6	1419,8	705,0	712,04
33	-23,6	-2,4	-29,9	0,2	82,2	165,3	-451,7	-142,6	33,0	-16,89
34	-184,1	466,3	-125,9	-575,8	-78,3	841,0	-323,4	-1630,3	-670,3	-95,08
35	-395,0	-199,0	-4,0	47,0	844,3	-557,8	64,9	-4,5	-114,7	-18,27
35.1	-9,5	-4,8	-4,5	1,7	6,1	-0,7	3,0	6,2	1,7	-0,13
35.2, 35.4	-43,9	-132,3	15,2	-8,0	37,3	15,5	35,9	-23,1	-158,8	-7,93
35.3	-498,9	-54,4	22,2	-1,4	1011,2	-721,9	4,2	40,9	-4,4	-4,08
Total	-888,2	1421,2	-511,0	-921,0	2917,3	-536,0	-893,7	432,2	1182,7	1641,91

APPENDIX 11. SLOVAKIA

Manufacturing exports in Euros by industry (NACE 2 and 3 digit Codes) in the period 1999-2009

NACE/Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	3,175E+09	3583366698	4212385044	4497971487	4,983E+09	6563987548	8483977734	9682013102	12040560085	1,847E+10	1,9365E+10
17,18	9,042E+09	10563113244	11936791093	12160445274	1,233E+10	12669501261	12386273041	12101321015	11871426125	1,116E+10	1,119E+10
19	1,783E+09	2139429579	2574212195	2698355996	2,656E+09	2516751280	2575286364	2649953047	2657759592	2,435E+09	2444226447
20,21,22	4,513E+09	5303403680	5528749256	5965946450	6,611E+09	7086568421	7464507504	8172878202	9446325950	9,585E+09	9692645126
36	3,647E+09	4387743346	5123899896	5621010187	6,035E+09	6934026507	7591627832	8131421339	8680754597	8,975E+09	9105635180
23	1,487E+09	2153851615	3180293041	3361906581	2,281E+09	3688196744	4662672496	4436662135	4223845797	7,367E+09	7658070784
24	2,764E+09	3826758004	3763613679	3834427725	4,356E+09	5052701384	5999087286	7585684707	9308085707	1,149E+10	1,1856E+10
24	2,446E+09	3406371796	3262153299	3163593780	3,474E+09	3868391417	4637553743	5740479867	6860328171	8,531E+09	8742992997
24.4	318979512	420386208	501460380	670833945	881710474	1184309967	1361533543	1845204840	2447757536	2,962E+09	3207681485
25	2,003E+09	2584199307	3047474283	3643174153	4,057E+09	4837320877	5604533145	6745515941	7784653417	8,819E+09	9119252070
26	1,552E+09	1731492446	1888843696	1904325368	2,077E+09	2152569283	2285501323	2704628163	3009622343	3,346E+09	3384452239
27,28	7,508E+09	10072768487	10371007981	10328953172	1,114E+10	14945285658	16403334271	21528265236	24478176478	2,798E+10	2,8743E+10
29	8,803E+09	11742996303	13960899502	15350968658	1,723E+10	20455525152	22589388480	26803783489	30574581211	3,237E+10	3,3234E+10
30	2,502E+09	3584374712	3275762542	4158979969	4,728E+09	4634230943	5363167214	6891438395	7416092327	8,442E+09	8641929838
31	3,65E+09	4594781859	5322418095	6186660341	7,111E+09	8058960065	8602866973	10675920359	12013081706	1,336E+10	1,372E+10
32	3,51E+09	6273455479	8103728094	8845693798	9,167E+09	10949751629	11343391853	13031861220	15732194775	1,768E+10	1,8393E+10
33	739306480	1005806759	1279747709	1420372334	1,695E+09	2145369371	1968641187	3088198038	3618657775	4,11E+09	4297705394
34	7,454E+09	9798226277	11155474080	12290784207	1,28E+10	16232886129	20129253191	24870992607	29258758383	3,26E+10	3,3698E+10
35	1,396E+09	1209771647	2089848488	2362746609	2,518E+09	5536482517	2929328315	3592242691	4504006659	5,154E+09	5293031022
35.1	660530202	684022524	1284816393	1711774830	1,641E+09	1683173757	1286430245	1402573527	1197246178	1,328E+09	1341260220
35.2, 35.4	493875286	631780447	776479623	770127688	971856792	1017238951	906012677	1119795396	1474249031	1,664E+09	1703445991
35.3	387452350	76171835	233160051	108980331	182603160	1241806688	183822154	263687236	205076647	255960505	255091837
Total	6,553E+10	84555539442	96815148674	1,04633E+11	1,118E+11	1,3446E+11	1,46383E+11	1,72693E+11	1,96619E+11	2,234E+11	2,2993E+11

Evolution of Demand Component in Slovakia by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	23,61	10,95	9,19	7,60	22,61	18,91	61,63	47,88	57,26	18,18
17,18	178,33	99,92	60,50	56,41	159,07	71,68	154,10	121,75	122,45	26,67
19	55,96	36,73	23,13	22,40	75,88	32,76	64,44	54,52	58,99	15,47
20,21,22	100,46	67,17	43,84	38,70	116,70	59,86	138,62	122,29	125,70	27,25
36	39,65	37,42	25,96	29,99	134,75	43,96	74,35	60,55	72,42	15,97
23	35,82	35,17	18,44	16,64	52,46	44,50	98,90	89,78	97,84	28,82
24	64,00	47,34	25,63	23,42	65,55	35,99	82,86	86,81	94,74	21,37
24	62,14	46,46	24,47	21,98	61,35	33,19	78,86	80,79	89,15	19,71
24.4	1,85	0,87	1,17	1,44	4,20	2,81	4,00	6,02	5,58	1,66
25	45,07	27,99	22,72	26,58	96,12	47,99	114,00	106,05	126,32	31,63
26	35,42	18,55	10,87	9,16	26,18	11,63	26,87	22,77	24,97	5,96
27,28	192,78	126,94	83,67	69,72	236,27	130,55	273,89	297,23	309,66	76,27
29	179,20	117,20	76,51	69,56	252,52	133,98	318,89	294,90	345,06	85,16
30	33,80	15,63	6,90	5,73	47,51	41,06	100,65	69,85	20,05	4,67
31	103,70	69,06	44,88	44,15	162,51	92,47	205,11	185,22	205,71	51,36
32	35,20	27,49	22,88	20,18	70,18	51,66	207,49	359,13	591,25	158,23
33	8,27	5,78	4,37	3,74	17,10	9,11	18,13	17,78	25,79	6,46
34	452,24	321,82	175,15	166,68	764,18	315,15	596,80	635,00	959,72	207,81
35	38,05	14,68	10,32	6,06	31,16	13,02	11,55	10,92	14,44	5,26
35.1	11,21	4,71	1,68	1,41	6,76	4,46	2,00	0,10	0,14	0,05
35.2, 35.4	27,89	10,95	9,27	5,21	26,15	9,05	10,35	10,39	13,94	5,09
35.3	0,56	0,23	0,12	0,20	0,86	0,74	0,96	1,79	1,50	0,32
Total	1621,6	1079,8	665,0	616,7	2330,8	1154,3	2548,3	2582,4	3252,3	786,55

Evolution of Structural Effect Component in Slovakia by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	-13,15	2,31	-1,47	4,41	12,73	43,48	-13,21	36,31	167,76	11,57
17,18	-75,01	-10,30	-46,47	-44,67	-137,70	-89,76	-173,83	-138,44	-176,13	-24,54
19	-17,42	14,75	-9,32	-27,61	-95,42	-24,17	-54,04	-53,36	-95,30	-13,55
20,21,22	-39,91	-47,48	-0,91	22,66	-75,36	-23,86	-65,43	15,24	-112,14	-16,85
36	-11,90	5,88	5,23	2,37	-35,83	3,06	-44,94	-31,03	-54,39	-8,05
23	19,52	80,44	-5,40	-95,05	106,91	88,09	-125,57	-120,86	437,60	9,89
24	20,69	-52,72	-19,66	23,29	-13,92	40,04	39,07	55,46	68,81	1,54
24	21,94	-60,03	-33,63	9,68	-27,08	41,23	25,49	32,97	70,50	-3,05
24.4	0,18	0,29	3,71	5,19	2,90	1,93	3,90	8,17	3,05	3,01
25	-0,03	6,62	32,28	17,64	-4,99	37,85	15,13	11,87	-2,86	4,92
26	-21,28	-6,92	-9,77	3,01	-21,48	-3,53	0,55	-4,24	-4,46	-3,62
27,28	34,01	-101,01	-87,87	10,34	161,57	13,09	202,22	-3,26	16,15	-5,65
29	26,95	35,47	17,83	55,14	-19,51	23,64	12,12	4,55	-196,26	-7,74
30	16,56	-24,90	16,15	5,77	-52,16	31,78	58,93	-31,47	0,34	-0,91
31	-11,26	6,37	45,37	52,59	-55,84	-22,09	69,88	-17,77	-35,57	-4,94
32	60,24	27,82	3,06	-9,43	-2,95	-30,71	-35,65	177,99	-53,05	58,70
33	2,00	5,08	1,58	6,87	5,26	-17,58	39,25	4,26	-0,02	3,54
34	37,44	-14,36	45,60	-66,34	247,08	537,95	185,38	173,60	-154,09	30,23
35	-55,55	58,97	6,37	-0,22	152,86	-82,16	2,99	9,09	0,89	-0,45
35.1	-9,84	23,81	5,25	-2,27	-5,90	-16,30	-1,00	-0,20	-0,03	-0,03
35.2, 35.4	-1,07	6,34	-10,21	14,79	-20,13	-20,21	3,24	13,35	-0,74	-0,99
35.3	-2,12	2,99	-0,92	1,80	23,74	-7,81	1,36	-4,66	1,24	-0,35
Total	-28,08	-14,00	-7,38	-39,24	171,25	525,11	112,84	87,93	-192,73	34,10

Evolution of Competitive Gain Component in Slovakia by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	-16,28	25,11	-10,22	-11,99	66,59	67,20	-45,71	-8,72	-28,77	10,94
17,18	-28,28	-29,48	63,59	-55,06	3,44	67,03	41,10	38,48	58,76	2,17
19	22,06	-18,30	28,03	50,64	15,21	-19,55	24,63	39,14	127,87	7,15
20,21,22	56,75	59,95	-18,47	-53,87	58,90	60,16	38,23	-95,70	-12,67	5,10
36	93,80	20,06	87,01	191,73	-266,87	-129,18	-6,02	66,02	-8,28	8,19
23	63,90	-129,83	2,52	92,89	84,01	-84,16	124,46	102,67	-276,28	29,17
24	21,40	-3,62	19,81	-67,08	31,42	-20,95	43,66	-72,14	-134,47	-6,27
24	22,36	-3,84	28,29	-51,63	37,79	-9,90	40,01	-41,22	-145,88	-2,41
24.4	-2,39	7,24	1,78	-7,03	3,89	-14,17	13,33	-16,59	6,67	-0,26
25	-7,22	53,77	53,27	39,58	-23,39	7,20	2,07	45,69	21,58	27,04
26	-8,20	-4,87	-1,44	-17,56	-2,49	10,22	-12,54	0,75	-1,67	-1,01
27,28	-15,22	134,75	-9,87	61,76	-89,42	-92,09	145,35	-161,88	-13,02	4,53
29	-14,93	-13,47	-22,29	99,63	34,04	105,63	23,32	109,73	205,49	29,19
30	-59,02	-12,99	-24,51	138,51	233,66	24,12	-215,42	-395,13	-9,11	-3,19
31	26,76	4,01	1,23	56,57	135,66	27,92	-79,28	8,58	61,20	21,33
32	-27,07	38,41	-13,39	39,13	169,64	550,89	1265,86	1219,17	486,95	2111,49
33	1,15	3,43	-5,37	18,86	-3,82	6,60	-29,97	39,29	3,86	4,69
34	172,50	-358,06	53,60	1220,69	-1221,56	-1086,76	480,67	1666,42	-806,63	11,17
35	-12,32	-47,04	-55,70	58,84	-190,71	-13,45	0,07	7,32	57,12	-4,16
35.1	-7,52	-40,12	-7,13	13,50	16,09	-27,27	-11,44	0,44	0,64	-0,04
35.2, 35.4	-47,38	22,03	-37,54	32,49	-32,74	-33,31	3,78	3,78	57,14	-2,71
35.3	1,18	-3,28	2,27	-0,73	-20,53	4,13	5,25	1,01	-3,06	0,53
Total	269,78	-278,18	147,79	1863,28	-965,69	-519,16	1800,49	2609,69	-268,07	2257,53

APPENDIX 13. HUNGARY

Manufacturing exports in Euros by industry (NACE 2 and 3 digit Codes) in the period 1999-2009

NACE/Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	1025334744	1,08E+09	1,289E+09	1,34E+09	1,403E+09	1,623E+09	1,628E+09	1,704E+09	2,39E+09	3666335614	3,76E+09
17,18	1347053593	1,465E+09	1,577E+09	1,499E+09	1,417E+09	1,326E+09	1,126E+09	950080998	868161813	747554300	7,44E+08
19	377789624	406650708	433100861	422330689	353440548	277049691	243267397	265418229	302324904	278292264	2,78E+08
20,21,22	442548940	517517842	550301574	560387334	586358614	555275000	497780099	520608721	590110364	617119418	6,2E+08
36	493196616	548691629	611588303	643586384	663553819	673727409	644848300	700754627	706307049	707251877	7,1E+08
23	34599670	172842104	490093546	517499021	27450013	546082627	795189898	743577388	326362385	1609357056	2,34E+09
24	561157457	764911004	785395151	857200387	980327740	1,204E+09	1,349E+09	1,782E+09	2,109E+09	2251827277	2,32E+09
24	493287768	670093106	656329478	670677317	691836176	810612304	956579304	1,219E+09	1,396E+09	1558303269	1,59E+09
24.4	67869689	94817898	129065673	186523070	288491564	393460300	392427859	562976755	712778964	693524008	7,57E+08
25	350248710	463018795	505633399	516775871	558873709	657865918	767430369	833819905	882553105	1070356589	1,09E+09
26	176966177	198302146	200291295	205366322	272763508	249443330	270559900	293807218	386506517	480328126	4,89E+08
27,28	967648457	1,288E+09	1,304E+09	1,289E+09	1,31E+09	1,722E+09	1,833E+09	2,37E+09	2,587E+09	2778697419	2,83E+09
29	3565662294	4,172E+09	4,808E+09	5,203E+09	5,636E+09	6,326E+09	6,568E+09	7,864E+09	8,2E+09	8137949832	8,24E+09
30	2127183241	2,964E+09	2,115E+09	2,099E+09	2,274E+09	1,727E+09	1,993E+09	2,107E+09	2,196E+09	1729670532	1,73E+09
31	1847573754	2,307E+09	2,52E+09	2,734E+09	3,047E+09	2,753E+09	2,661E+09	3,366E+09	3,694E+09	3832663597	3,87E+09
32	1880758647	3,069E+09	4,093E+09	5,067E+09	5,367E+09	6,202E+09	6,084E+09	6,043E+09	6,133E+09	5986840636	6,12E+09
33	173216301	300082199	449003982	532833338	627521759	755159603	355855843	1,191E+09	1,531E+09	1624586671	1,76E+09
34	1764330588	2,236E+09	2,55E+09	2,662E+09	2,462E+09	2,586E+09	2,773E+09	3,698E+09	4,87E+09	5569499510	5,69E+09
35	68211623	98376570	131431258	84358847	113414165	1,982E+09	942912402	1,275E+09	2,059E+09	2358074117	3,15E+09
35.1	3692040	4823394	4025588	3685664	5647390	4316989	4033180	2600310	1940705	451455,358	447492,8
35.2, 35.4	71834564	101423595	135700967	94582503	127136523	140842296	118512463	156171818	180197406	193592863	1,97E+08
35.3	962193	560866	1356112	3202777	4157065	6586795	2090506	5876737	4416001	3016412,7	3080811
Total	17203480436	2,205E+10	2,441E+10	2,623E+10	2,71E+10	3,117E+10	3,053E+10	3,571E+10	3,983E+10	4,3446E+10	4,58E+10

Evolution of Demand Component in Hungary by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	307,30	164,45	107,34	122,02	288,26	172,16	321,29	259,08	299,22	141,12
17,18	403,72	223,17	131,30	136,45	291,02	140,66	222,32	144,46	108,68	28,77
19	113,23	61,94	36,07	38,44	72,61	29,39	48,02	40,36	37,85	10,71
20,21,22	132,64	78,83	45,83	51,01	120,45	58,89	98,26	79,16	73,88	23,75
36	147,82	83,58	50,93	58,59	136,31	71,46	127,29	106,55	88,42	27,22
23	10,37	26,33	40,82	47,11	5,64	57,92	156,97	113,06	40,86	61,94
24	168,18	116,51	65,41	78,03	201,38	127,71	266,30	270,89	263,99	86,67
24	147,84	102,07	54,66	61,05	142,12	85,98	188,83	185,28	174,76	59,98
24.4	20,34	14,44	10,75	16,98	59,26	41,73	77,47	85,60	89,23	26,69
25	104,97	70,53	42,11	47,04	114,81	69,78	151,49	126,79	110,49	41,20
26	53,04	30,21	16,68	18,69	56,03	26,46	53,41	44,67	48,39	18,49
27,28	290,01	196,18	108,56	117,32	269,16	182,69	361,74	360,43	323,92	106,95
29	1068,66	635,51	400,41	473,67	1157,84	670,93	1296,50	1195,75	1026,50	313,23
30	637,54	451,42	176,18	191,04	467,10	183,21	393,34	320,34	274,94	66,58
31	553,74	351,35	209,85	248,91	625,83	292,00	525,39	511,78	462,45	147,52
32	563,68	467,45	340,83	461,26	1102,41	657,82	1201,06	918,90	767,84	230,44
33	51,91	45,71	37,39	48,50	128,91	80,10	70,25	181,16	191,69	62,53
34	528,79	340,64	212,38	242,33	505,79	274,30	547,42	562,26	609,61	214,37
35	20,44	14,98	10,95	7,68	23,30	210,25	186,13	193,84	257,82	90,76
35.1	1,11	0,73	0,34	0,34	1,16	0,46	0,80	0,40	0,24	0,02
35.2, 35.4	21,53	15,45	11,30	8,61	26,12	14,94	23,39	23,75	22,56	7,45
35.3	0,29	0,09	0,11	0,29	0,85	0,70	0,41	0,89	0,55	0,12
Total	5156,0	3358,8	2033,0	2388,1	5566,9	3305,7	6027,2	5429,5	4986,6	1672,26

Evolution of Structural Effect Component in Hungary by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	-307,30	-164,45	-107,34	-122,02	-288,26	-172,16	-321,29	-259,08	-299,22	-141,12
17,18	-164,08	-25,22	-77,52	-108,84	-236,33	-144,40	-230,44	-154,43	-151,13	-26,06
19	-28,60	18,48	-9,97	-39,29	-86,58	-28,62	-31,41	-36,09	-50,01	-9,16
20,21,22	-49,25	-51,99	-0,82	7,79	-66,55	-17,93	-46,99	-3,17	-67,09	-16,10
36	-26,80	15,07	22,87	14,81	-57,01	-11,19	-82,85	-49,61	-63,30	-15,36
23	7,60	47,19	-9,97	-206,92	13,92	95,26	-173,87	-184,28	183,01	5,74
24	55,15	-137,43	-59,50	19,61	-54,05	114,70	82,01	135,05	289,04	-16,59
24	54,94	-134,49	-75,82	3,20	-64,24	76,45	39,96	56,98	172,36	-20,59
24.4	-0,81	1,35	28,81	23,07	38,78	39,03	54,89	105,64	131,10	28,99
25	-6,88	31,32	81,98	19,85	-9,33	34,84	17,63	17,32	1,28	0,33
26	-33,59	-10,85	-15,57	-7,52	-41,75	-10,50	-2,06	-18,25	-12,42	-13,45
27,28	39,87	-137,09	-113,90	1,74	172,30	-18,64	231,28	-41,65	64,00	-27,55
29	469,40	221,57	107,34	303,93	73,76	200,64	-88,71	239,17	-299,57	-17,59
30	390,59	1652,54	1349,63	341,30	109,46	104,19	295,23	-289,10	340,17	158,08
31	-36,20	144,19	346,24	261,88	303,05	26,17	62,52	-50,56	79,96	14,27
32	1202,59	346,44	-550,42	-371,86	429,89	602,54	1803,62	1835,28	603,75	293,41
33	-7,91	10,36	-8,28	70,10	56,79	31,54	-5,57	-32,94	96,06	-4,87
34	88,08	-113,68	94,81	204,37	36,15	248,27	133,90	254,77	-201,04	-8,13
35	-31,96	55,89	6,75	-0,87	27,37	-1094,20	-27,21	-111,66	84,59	-66,27
35.1	-1,02	3,26	0,99	-0,46	-0,95	-1,55	-0,46	-0,77	-0,03	-0,01
35.2, 35.4	-9,36	9,62	-11,97	19,27	-25,47	-34,14	3,74	30,08	9,27	-3,25
35.3	-1,06	1,05	-0,84	1,89	23,29	-6,29	0,52	-2,17	0,53	-0,13
Total	1560,7	1902,3	1056,3	388,0	382,8	-39,5	1615,8	1250,8	598,1	109,59

Evolution of Competitive Gain Component in Hungary by industry in millions of Euros

NACE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
15	54,28	209,26	51,56	62,82	219,87	4,44	76,31	686,26	1276,20	94,44
17,18	-121,61	-86,47	-131,44	-109,81	-145,22	-196,21	-168,01	-71,95	-78,17	-6,04
19	-55,77	-53,97	-36,87	-68,05	-62,42	-34,55	5,54	32,64	-11,87	-2,28
20,21,22	-8,42	5,95	-34,92	-32,83	-84,99	-98,46	-28,44	-6,49	20,22	-5,22
36	-65,53	-35,75	-41,80	-53,43	-69,12	-89,14	11,46	-51,39	-24,17	-8,80
23	120,27	243,73	-3,44	-330,24	499,08	95,93	-34,72	-346,00	1059,13	664,80
24	-19,58	41,40	65,90	25,49	76,42	-97,47	84,20	-78,73	-409,94	-2,24
24	-25,98	18,65	35,51	-43,10	40,90	-16,46	33,17	-64,86	-184,77	-5,75
24.4	7,42	18,46	17,90	61,92	6,93	-81,79	38,19	-41,45	-239,59	8,25
25	14,68	-59,23	-112,94	-24,79	-6,48	4,95	-102,74	-95,38	76,04	-19,53
26	1,89	-17,36	3,97	56,22	-37,60	5,16	-28,10	66,28	57,86	3,19
27,28	-9,60	-43,45	-9,42	-97,64	-29,23	-54,03	-55,12	-101,74	-196,68	-27,40
29	-931,57	-221,30	-112,28	-344,64	-542,24	-629,49	88,37	-1099,26	-788,61	-191,29
30	-191,73	-2952,08	-1542,59	-357,20	-1123,00	-22,21	-574,43	58,25	-1081,66	-227,89
31	-58,49	-282,36	-341,54	-198,57	-1222,41	-409,70	116,37	-132,98	-403,77	-120,61
32	-578,22	209,90	1184,04	210,06	-696,77	-1378,09	-3045,76	-2663,97	-1518,21	-393,14
33	82,86	92,85	54,72	-23,92	-58,06	-510,94	770,86	191,64	-194,41	78,46
34	-144,93	87,01	-195,37	-646,60	-417,95	-335,59	243,32	354,75	291,38	-86,13
35	41,69	-37,82	-64,77	22,25	1818,22	-155,44	172,97	702,45	-43,77	767,11
35.1	1,05	-4,80	-1,66	2,09	-1,54	0,80	-1,77	-0,28	-1,70	-0,01
35.2, 35.4	17,42	9,21	-40,45	4,67	13,06	-3,13	10,52	-29,80	-18,44	-0,92
35.3	0,37	-0,34	2,57	-1,22	-21,71	1,10	2,85	-0,18	-2,48	0,07
Total	-1869,8	-2899,7	-1267,2	-1910,9	-1881,9	-3900,8	-2467,9	-2555,6	-1970,4	517,44

THE STRUCTURE AND QUALITY UPGRADING OF CROATIAN EXPORTS TO EU15 MARKET

Nebojša Stojčić
University of Dubrovnik
E-mail: nstojcic@unidu.hr

Iraj Hashi
Staffordshire University/Professor
Leek Road 1, (Brindley),
ST4 2DP, Stoke-On-Trent, United Kingdom
Phone: ++ 44 77 32 58 05 09 Fax: ++ 44 1782 294 907
E-mail: i.hashi@staffs.ac.uk

Key words: *competitiveness, trade, growth, quality upgrading, manufacturing*
JEL: F12, F43

ABSTRACT

This paper aims to explore the changes in the structure of Croatian exports to EU15 market. Our analysis is nested in the wide body of literature postulating that the structure of exports has an important role in explaining the ability of nations to grow and to provide their citizens with better standard of living. A substantial body of evidence shows that, following demise of central planning, most transition economies penetrated the EU 15 markets as producers of price-competitive low quality products but that over time some of them have shifted to quality-competitive segments of market. Our investigation aims to identify whether there has been a change in the structure of Croatian exports to EU15 market, whether any change was of inter- or intra-industry type and how the quality of Croatian exports to this market can be improved. To address these issues we apply the dynamic shift and share and dynamic panel methodologies to a panel of 89 3-digit manufacturing industries in the period between 2001 and 2007. Our results indicate that, over the years, Croatian exporters to EU15 market have shifted from low technology intensive towards high technology intensive industries but within these sectors their trade with EU15 had all the characteristics of vertical intra-industry trade, a pattern typical for exchange between developed and developing economies. Furthermore, investment in new technology, innovations and import-led spillovers have key roles in improvements in the relative quality of exports.

1. INTRODUCTION

There is a long standing debate in the trade and growth literature over the question whether the structure of nation's exports matters for its growth. Recent contributions in this literature suggest that the level of sophistication embodied in a country's exports has an important role in explaining the growth potential of that country. This literature argues that quality based competitive profiles embody a higher growth potential than price based profiles. Therefore the key issue for the competitiveness of developing and transition economies is the identification of factors and forces which can lead to the quality upgrading of their exports. In a sizeable body of literature these factors and forces have been identified by the theories

explaining the behaviour of firms and industries by the Austrian, evolutionary and institutional economics schools.

Following the demise of central planning, transition economies reoriented their international trade towards the economies of EU15 whose markets they penetrated as producers of price-competitive products. Even though EU15 countries have been the most important trading partners of transition economies the trade between these two blocks has for a long time been of vertical intra-industry type with transition economies exporting products of lower quality to the EU15 market and importing from there more sophisticated products (Aturupane et al., 1997; Rojec and Ferjancic, 2006). However, in later years of transition, exporters from several transition economies, particularly those in Central and East European Countries (CEECs), have shifted from low to high technology intensive industries and to high quality segments of the market (Havlik, 2000; Benacek et al., 2006).

The structure and geographical direction of exports from transition economies have been investigated by a large number of studies. Yet, relatively little quantitative empirical work on the factors affecting improvements in the quality of exports to EU15 has been undertaken (Hoekman and Djankov, 1997; Dulleck et al., 2005). This is particularly true for group of 'laggard' transition economies which have not yet joined the EU and which includes Croatia. Bearing in mind that Croatia is country with the highest prospect of becoming the next EU member, it is important to address the ability of its producers to compete on EU market. The present investigation aims to identify whether there has been a change in the structure of Croatian export to EU15 market, if any change was of inter- or intra-industry type, and how the quality of Croatian exports to this market can be improved.

Outside the transition context, several studies have investigated the determinants of quality upgrading of exported products measuring the quality of exports with the unit export values (Dulleck et al., 2005; Lelarge and Nefussi, 2007; Monfort et al., 2008; Fernandes and Paunov, 2009; Bastos and Silva, 2010), the indices of specialisation such as RCA (Hoekman and Djankov, 1997) and by the productivity embodied in the production of exported products (Hausmann et al., 2007). A different approach to these has been adopted by Hummels and Klenow (2005) who suggest that competitiveness of country is quality-driven if it exports higher quantities of goods at higher prices than its rivals.

The evidence from the existing body of empirical literature suggests that there exists a relationship between the structure of exported products and the level of nation's development. In general, developed economies tend to export more sophisticated goods of higher quality and to charge for them higher prices (Hummels and Klenow, 2005; Hausmann et al., 2007). More importantly, this finding remains robust to particular measures of the level of development such as GDP or GDP per capita. In addition, the characteristics of the destination market seem to be important for exporters from developing economies. Bastos and Silva (2010) report that unit export values of exported products increase with the rise in GDP of importing countries while Dulleck et al. (2005) obtain a positive sign for the coefficient on market share of individual industries on the EU15 market. These findings are interpreted as the evidence of the learning-by-exporting effect. In building their competitiveness, producers from developing economies can benefit from the knowledge and technology spillovers associated with participation in the markets of developed economies.

The pressure of foreign competitors on the domestic market is another important mechanism of quality upgrading of exported products. Lelarge and Nefussi (2008) find that competitive pressure of producers from low-wage countries on the domestic market of developed

economies facilitates their innovation activity which in turn has a positive effect on the quality of their exports. Similar findings have been reported by Fernandes and Paunov (2009) who use the transport costs of imported products as a proxy for import penetration and Monfort et al. (2008) who take the removal of trade barriers as a proxy for the stronger presence of low-cost producers on the EU15 market. In addition, Hoekman and Djankov (1997) report the positive impact of the imports of intermediate inputs on the structure of exports of transition economies. Their study also finds a positive relationship between outward intra-firm trade and the structure of exports. These findings imply that horizontal spillovers have an important role in quality upgrading of exports from transition economies. However, they do not find any relationship between the structure of exports and FDI. Finally, the quality of institutions does not seem to statistically affect the level of sophistication of a nation's exports (Hausmann et al., 2007).

In addition to previously mentioned innovation, human capital has important role in determining the sophistication of nation's exports (Hausmann et al., 2007; Monfort et al., 2008) while the relationship between capital intensity of industry and measures of export quality is found to be statistically insignificant (Lelarge and Nefussi, 2008; Monfort et al., 2008). A distinctive approach to the matter of quality upgrading is taken by Dulleck et al. (2005) who control for the dependence of changes in relative unit export values on their initial level. They obtain a statistically significant and negative coefficient for the initial level of export quality.

With the exception of a few studies using cross-section datasets (Hummels and Klenow, 2005; Bastos and Silva, 2010) most of the studies referred to above used panels of firms or industries which have been estimated using static panel methods or as pooled cross sections which is interpreted as evidence that quality upgrading takes place at slower pace within industries with higher initial quality than among those with lower levels (Hoekman and Djankov, 1997; Dulleck et al., 2005; Hausmann et al., 2007; Lelarge and Nefussi, 2008; Monfort et al., 2008; Fernandes and Paunov, 2009). Although it has been acknowledged that models of quality upgrading may be subject to endogeneity due to reverse causality between the relative unit export values and factors such as FDI or export market share as well as due to the correlation between factors such as innovation, skills and capital intensity on one hand, and the error term on the other (owing to the impact of omitted variables such as institutions, quality of management or ownership on the former) the empirical strategy in most studies has been to ignore these issues.

Our investigation is undertaken on an industry-level, employing a panel of 89 3-digit manufacturing industries in the period between 2001 and 2007. The first part of the empirical investigation will use dynamic shift and share analysis to examine whether the change in the share of Croatian manufacturing industries on the EU15 market has been led by competitiveness, restructuring or changes in demand. We will then move to examine the within-industry changes in the structure of Croatian trade with EU15 using 3-digit industries in our analysis. The last part of investigation will bring together several important aspects recognised in the trade and transition literature as we investigate which factors and forces can improve the relative quality of Croatian export on EU15 markets. Next section establishes theoretical basis of research while our model for analysis of quality upgrading in Croatian exports to EU15 market will be developed in Section 3. The main characteristics of the dataset will be discussed in Section 4 followed by the analysis of changes in the structure of exports to the EU15 market in Section 5. Section 6 will investigate the question of how the relative quality of Croatian exports can be improved. Finally, Section 7 will conclude.

2. THEORETICAL FRAMEWORK

Theories of trade and growth usually predict that through effects of specialisation, such as greater production efficiency or the exploitation of economies of scale, international trade increases the ability of nations to grow and to provide their citizens with better standard of living (Ram, 1985). In addition, it has been postulated that exporting is related to economic growth indirectly through the impact of knowledge and technology spillovers on the productivity of physical and human capital (Hesse, 2009; Sohn and Lee, 2010). However, a sizeable body of knowledge underlines that a far more important issue than ability of nations to export is the structure of their exported products (Cuaresma and Worz, 2005; Hausmann et al., 2007; Guerson et al., 2007). The origins of such thinking can be traced to work of different economic schools which consider that the impact of individual industries on growth will differ due to factors such as innovation capacity or the extent of economies of scale. This implies that the structure of exports may hold part of the answer to the question why some nations perform better than others in trade and growth.

The structure and quality of exports are usually explained using three strands of trade theories. The traditional trade models postulate that the structure and quality of exported products are determined by relative factor endowments. In this context, quality is usually associated with technological intensity of the industry; it is postulated that nations relatively endowed with factors conducive to specialisation in sophisticated and high-technology intensive, i.e. high quality goods are likely to achieve higher rates of growth than those specialised in low technology or standardised price-competitive products (Fontagne et al., 1998; Liu and Shu, 2003; Cuaresma and Worz, 2005; Monfort et al., 2008; Sohn and Lee, 2010). From here it follows that quality upgrading of a nation's exports takes place through shifts in specialisation from the low towards the high technology intensive industries.

The new trade theories are more focused on trade taking place within industries. Models in this category consider economies of scale and demand for varieties as the main factors behind intra-industry trade (Krugman and Obstfeld, 2003). The key to explaining the structure and quality of a nation's exports becomes its general level of economic development. Hence economies at similar levels of development will be more inclined to trade similar products with developed economies exchanging more sophisticated goods among themselves and with their less developed counterparts trading in similar goods of lower quality.

There is also a third way of explaining the structure and quality of a nation's export which has its roots in the concept of vertical intra-industry trade (Greenaway et al., 1995; Fontagne et al., 1998; Fukao et al., 2003; Monfort et al., 2008; Sohn and Lee, 2010). It implies that, within industries, nations at different stages of development will exchange varieties of goods differentiated by their level of quality. This literature complements the standard arguments for intra-industry trade models mentioned above with assumption that the preferred level of quality will be determined by the relative factor endowments of an economy thus bringing together both traditional and new trade theories (Fontagne and Freudenberg, 1997; Hummels and Klenow, 2005). It is predicted that producers from developed economies are more likely to compete in high quality segments of their industries and thus achieve higher rates of growth while their counterparts from developing economies will, due to their lack of technology and skills, compete in less sophisticated varieties of the same goods (Greenaway et al., 1995; Imbriani et al., 2008; Monfort et al., 2008).

The explanations for improvements in the relative sophistication of a country's exports can be identified in the contributions of the Austrian, evolutionary and endogenous growth literature.

In this context, most of studies include physical and human capital and innovations, the factors identified in transition literature as forms of strategic restructuring (Fontagne et al., 1998; Kandogan, 2004; Hummels and Klenow, 2005; Verhoogen, 2007; Monfort et al., 2008; Schott, 2008). In some studies, the authors suggest that the quality of the country's institutional environment, particularly the prevalence of corruption, enforcement of contracts and property rights may also have an impact on the structure of its exports (Hummels and Klenow, 2005; Hausmann et al., 2007; Bastos and Silva, 2010). In addition, Hausmann et al. (2007) link the incentives of producers to move towards the higher quality segments of their industries with the ability of the market to provide them with the needed information about returns on such activities and postulate that in cases involving market failure government policies have a key role in shaping the country's production and trade structures.

In the endogenous growth models, the existing literature has recognised that knowledge and technology spillovers have an important role for quality upgrading of exports from developing economies. One group of authors suggest that the quality of traded products is positively related to the import penetration in industries (Monfort et al., 2008; Fernandes and Paunov, 2009). On the one hand, import penetration in industries from developing economies acts as an incentive for high-cost firms in developed countries to move to the quality segments of their industries. A similar reasoning is employed by Lelarge and Nefussi (2007) who include in their model the intensity of domestic competition. On the other hand, import penetration acts as a channel for horizontal knowledge and technology spillovers in developing economies. In the context of transition economies, the imports of intermediate inputs and final goods as well as foreign direct investment, have been identified as the key channels for technology transfer (Hoekman and Djankov, 1997; Kandogan, 2004). In addition, spillovers may be realised through the 'learning-by-exporting' process, i.e. a strong and continuous presence on foreign markets (Brooks, 2006).

In addition to above channels, the quality of exported products may be improved through intra-firm trade (Hoekman and Djankov, 1997; Kandogan, 2004; Marin, 2006). Such relationship may have beneficiary impact on affiliates through several channels such as the imposition of minimum quality requirements by the parent company or through access to the know-how and technology of its parent. Also, the intra-firm trade may affect the parent company through learning-by-exporting. Besides intra-firm trade, Hausmann et al. (2007) suggest that financial constraints may be an important factor in explaining the quality of exported products. Finally, the work of some authors suggests that quality upgrading takes place over time (Iacovone and Javorcik, 2008; Fernandes and Paunov, 2009). The explanation is that the shift from one segment of the market to another requires learning and acquiring or developing specific assets and skills which may be a lengthy process.

Summarising this discussion we can see that economic theory provides the rationale for the link between the structure of a nation's exports and its economic growth. In this context, it is postulated that improvements in quality may come through cross-industry structural changes and through changes in the level of sophistication of products traded within industries. Furthermore, the shift from one quality segment to another is considered as a dynamic process commonly related to investment in capital, innovations and skills as well as to knowledge and technology spillovers. Finally, institutional factors and financial constraints may have important roles in explaining the structure of a nation's exports.

3. MODEL SPECIFICATION

Having established the theoretical basis for the research we can develop an empirical model to analyse the quality upgrading of Croatian exports to EU15 markets. Taking the earlier discussion of international trade, the basic model can be written as:

$$Ruev_{it} = f(Ruev_{it-1}, Rest_{it}, Fin_{it}, Spill_{it}) \quad (1)$$

The dependent variable (*Ruev*) in equation 1 is the relative unit export value defined as ratio of the unit value of Croatian exports to EU15 to the unit value of EU15 imports from the rest of the world. At higher levels of aggregation (2 or 3-digit) export unit value is much closer to the meaning of proxy for quality than for prices (Fischer, 2007). A similar measure for the relative quality of exports has been used by Dulleck et al. (2005) and Monfort et al. (2008). Our choice of denominator was based on the findings from earlier literature which postulates that producers from transition economies have been mainly competing on the EU15 market with exporters from other countries (Havlik et al., 2001).

On the right hand side of equation we include the dependent variable lagged one period to control for the dependence of the current quality of exports on its past values. As we mentioned in Section 2, the movement from price to quality segment of market requires learning and acquiring or developing specific assets and skills. This is consistent with propositions from the endogenous growth literature which imply that improvements in a country's (industry's, firm's) competitiveness take place through gradual improvements in the quality of its products (Grossman and Helpman, 1994; Klette and Griliches, 2000).

In equation 1 the *Rest* refers to the process of restructuring. We model this process with three variables. Having in mind how the obsolescence of physical capital and a lack of innovativeness have been among the main deficiencies of firms in former centrally-planned economies, we include the capital-labour ratio (*Kl*) to control for the acquisition of new and the replacement of obsolete capital and a variable controlling for innovation intensity of the industry defined as the ratio of innovation output (including patents, licenses and project development) to the number of employees (*Inne*). We also consider that the shift towards higher quality segment of the market may be easier in industries with higher proportion of skilled labour. In line with Hausmann et al. (2007) we expect that the better quality of human capital would help producers to discover the potential returns of their actions and to reduce their aversion to investment necessary for the development of high quality products. For this reason the ratio of the average wage paid in industry to the average wage in manufacturing sector is included as a proxy for the quality of labour or the human capital (*Wpremium*). While not being perfect indicator of human capital as it may pick up effect of labour costs it is the closest measure available to us. For all three variables we expect to find positive signs.

In terms of factors deterring restructuring, we consider access to finance as one of the important barriers to improvements in the behaviour of firms. In equation 1, *Fin* stands for set of variables which control for financial constraints. As the quality upgrading may be financed from internal funds only by the largest firms and in competitive industries with a large number of small producers external funds may be more important, we introduce a measure of leverage defined as the quotient between long-run debt to assets ratio and number of firms in the industry (*Lev*). We consider that firms rely on long-run loans for strategic operations such as quality upgrading while short-run borrowing is being used to finance current activities. However, we do not have a priori expectations about the sign of this variable. On the one hand, the higher borrowing can be positively related to improvements in the quality of

exports. On the other hand, the excessive amount of debt can act as a burden for firm, thus constraining its strategic activities. In such cases, a negative sign can be expected. The model also includes the level of subsidies, measured by the total amount of revenues from subsidies divided by the number of firms in a given industry (*Subs*). Similar to the 'leverage' we do not have *a priori* expectations about the sign of this variable as a higher amount of subsidies may help firms to improve their competitiveness but also in the absence of hard budget constraints, it may weaken the incentive for restructuring. This variable, in addition to access to finance, reflects aspects of government policies towards the specific sector.

To capture the effects of knowledge and technology spillovers (*Spill*) on quality upgrading several variables are introduced. To control for the presence of horizontal and vertical spillovers to domestic market from imports we include relative import intensity (*Imp*) defined as the ratio of total imports in an industry and average imports in the manufacturing sector. The extent of competition in an industry is measured with a variable *Comp* defined as the number of firms in that industry divided by average number of firms in the manufacturing sector. In light of discussion in Section 2, we expect that horizontal and vertical spillovers in combination with threat of market seizure should act as incentive for firms to invest their efforts in quality upgrading.

We also control for the intensity of intra-firm trade (*IFT*) with a variable constructed as a ratio between revenues of Croatian firms from exports to affiliates, parent companies or other enterprises belonging to same group which are located abroad and their total revenues from exports. We expect that quality upgrading can be easier for firms which can minimise transaction costs through sharing of technology, know-how and networks within organisation. Finally, the market share of each individual industry in the EU15 market (*EUMshare*) is included in order to control for the learning-by-exporting mechanism. The complete list of variables is presented in Table 1.

Table 1: Description of variables

Dependent variable	
Ruev	Relative unit export value – Unit value of Croatian export to EU15/Unit value of export from other countries to the EU15
Independent variables	
KL	Capital labour ratio - tangible fixed assets/employee – EUR per head
Inne	Patents, licences and development projects/employee – EUR per head
WPremium	Wage premium – Wage per employee in industry i/average wage per employee in manufacturing sector – proxy for the quality of human capital
Lev	Leverage – (Long run debt/shareholders equity)/number of firms in industry i – proxy for external finance
Subs	Subsidies per company– Value of subsidies to industry i/Number of firms in that industry – EUR
Imp	Import intensity – Total imports in industry i/Average imports in manufacturing sector
Comp	Competition – Number of firms in industry i/Average number of firms in manufacturing sector
IFT	Intra-Firm Trade – sales to enterprises abroad which belong to same group /total revenues from sales of goods and services abroad
EUMshare	EU15 Market share – export of industry i to EU15/EU15 apparent consumption in industry i (output minus exports plus imports)

In modelling of quality upgrading we must take into account potential problems of endogeneity. Primarily this relates to the lagged dependent variable which, by definition, will be correlated with time-invariant elements of the error term. Moreover, variables representing restructuring process may be correlated with factors such as the quality of institutions or FDI

which have been identified as important drivers of quality upgrading in Section 2. Similarly, the extent of intra-firm trade may be influenced with features of institutional environment such as legislation, tax benefits, absence of corruption etc. For this reason, we treat all three restructuring variables and variables measuring intra-firm trade in our model as potentially endogenous.

Additional problems of this type may arise from the fact that the choice of lenders about provision of loans and decisions of policy makers concerning allocation of subsidies to industry may be based on observed quality of its exports. Also, the ability of Croatian producers to differentiate themselves and seize market share of their rivals on EU15 market may be determined with their previous and current relative quality of products. For this reason we treat financial variables and EU15 market share also as potentially correlated with the error term. Having discussed all the relevant factors, it is now possible to develop a model to investigate how the quality of Croatian exports to EU15 market can be improved. This is done in Section 5. Before discussing the model, we will present the dataset used in the research and examine major changes in the structure of Croatian exports to the EU15 market.

4. THE DATASET

We use the industry level data for Croatia's 3-digit manufacturing industries by NACE classification covering the period between 2001 and 2007, the most recent year for which data were available. The database is constructed from several sources. The unit export values and data on the Croatia-EU15 trade have been taken from the Eurostat's Comext database at the most detailed 8-digit Combined Nomenclature level. They were then converted and aggregated into NACE 3-digit industry data. Furthermore, the Eurostat's PRODCOM database had been used in the construction of EU15's apparent consumption to calculate Croatia's market share of the EU15 market. Finally, the industry specific variables were constructed using an industry-level dataset obtained from the Croatian Financial Agency (Financijska Agencija, or FINA). As all firms in Croatia are obliged to submit their annual financial statements to this Agency, the database is of all producers in each industry. Nevertheless, for some categories individual values are missing, although at very low rate, which means that we are dealing with an unbalanced panel.

As the Combined Nomenclature and NACE classification do not fully correspond with each other, some of the industries had to be excluded from the analysis while the data for two industries belonging to the same 2-digit NACE group had to be combined to correspond to one of the Combined Nomenclature group. Moreover, for some variables, the data in individual years were missing causing our panel to be unbalanced. The data set used in econometric model, therefore, contains 89 out of 101 3-digit NACE manufacturing industries with a total of 529 observations in the period between 2002 and 2007. As the data in FINA's dataset are provided in Croatian national currency Kuna (HRK) they were converted to Euro using the average annual exchange rates obtained from the Croatian National Bank. Moreover, all nominal variables including capital, innovation intensity and subsidies have been deflated by the annual producer price indices for the manufacturing sector obtained from Croatian Statistical Office (DZS). The brief descriptive statistics of our dataset are presented in Table 2 which shows that we are dealing with a panel with a fairly low rate of missing observations. The detailed annual descriptive statistics of the dataset are presented in Tables in Appendix.

Table 2: Descriptive statistics

Name	*Mean*	*StDev.*	*Missing(%)*
Ruev	1.20	1.17	0.6
KL	286.92	298.81	0.3
Inne	4.71	16.62	0.3
WPremium	1.00	0.31	0.3
Lev	0.67	8.79	0.2
Subs	71.51	258.81	0.0
Imp	1.00	3.09	0.0
Comp	1.00	1.46	0.0
IFT	0.15	0.20	2.4
Eums	0.001	0.003	0.2

From descriptive statistics in Table 2 several interesting facts about the competitiveness of Croatian manufacturing industries on the EU15 market are revealed. These figures show that in the apparent consumption of EU15 the share of Croatian manufacturing industries was very low, about 0.1%. The average relative unit value of goods exported from Croatia to EU15 was above unity suggesting that in comparison with other exporters to the latter market, Croatian industries on average exported products of higher quality. However, we must be cautious in interpreting this finding as Hoekman and Djankov (1997) suggest that divergent conclusions can be drawn from observing trade between EU15 and transition economies at different levels of aggregation, an issue to which we will return in next section which will examine major changes in the structure of Croatian exports to the EU15 market.

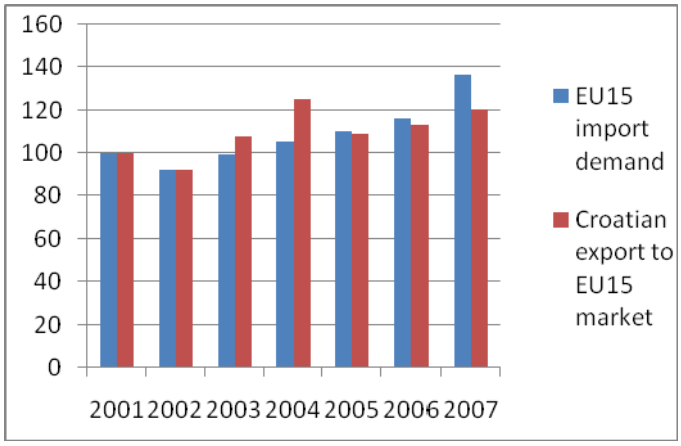
5. CHANGES IN THE STRUCTURE OF CROATIAN EXPORTS TO THE EU15 MARKET

During transition, EU15 countries have been most important foreign markets for producers from Croatian manufacturing industries. In this section we analyse at a more detailed level the changes in the structure of Croatian exports. In this context, we first address changes that have taken place across industries and then consider whether there has been any shift in the 'within-industry' pattern of trade.

5.1 5.1. Cross-industry changes in the structure of exports from Croatian manufacturing industries to EU15 market

We begin by comparing the demand of EU15 countries for total imports and their demand for imports from Croatia (defined as share of imports in apparent consumption) in 2001-2007 period. Indices in Figure 1 reveal that, with the exception of 2002, the demand of EU15 for imports had been rising and in 2007 its share in apparent consumption was 37% higher than in 2001. Croatian exports to the EU15 market over the analysed period also showed a generally upward though less consistent trend with its share in apparent consumption being 20% higher compared to 2001 level. We can conclude that EU15 demand for Croatian products increased at much slower rate than its overall demand for imports.

Figure 1: EU15 imports demand and Croatian exports to EU15 market (as share of apparent consumption), 2001-2007 (2001=100)

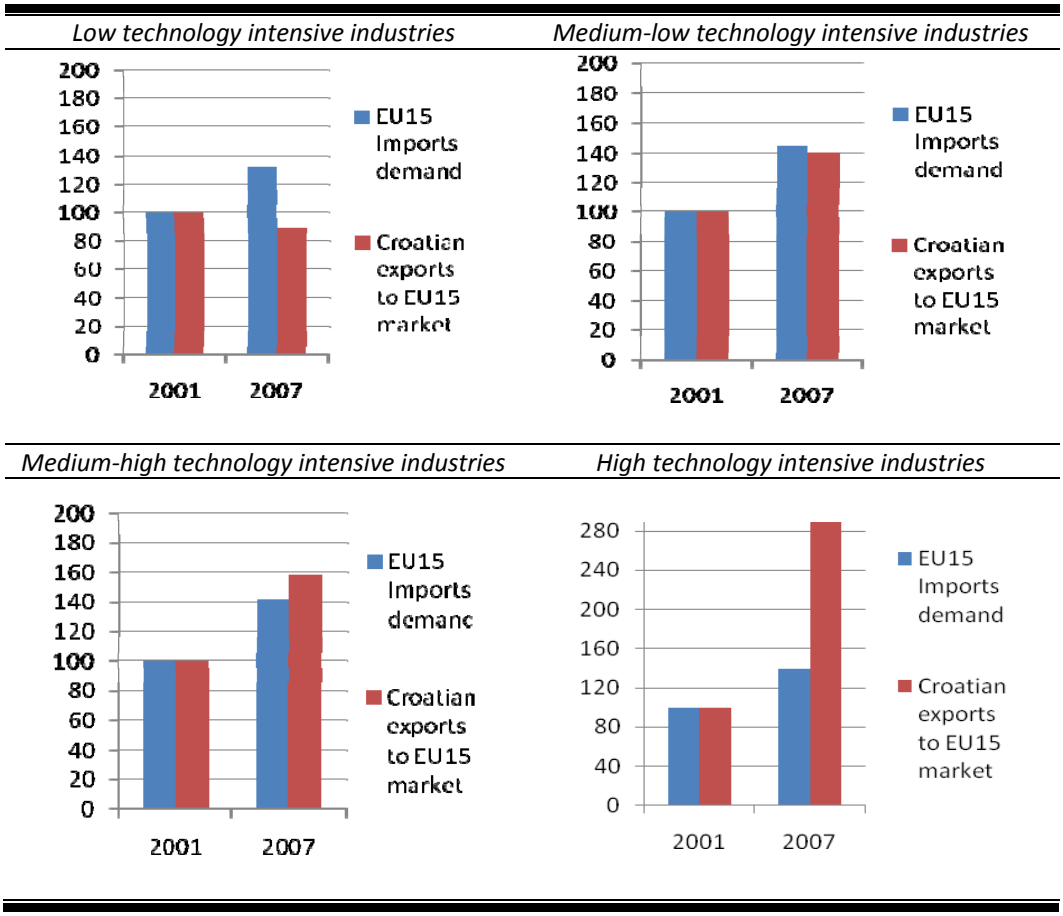


Source: Author's calculations based on EUROSTAT Comext database

The division of Croatian industries by technological intensity on the basis of OECD (2007) classification reveals that over the analysed period the EU imports demand in all four groups increased by about 40% (Figure 2). But in terms of imports from Croatia, the share of low technology intensive industries was reduced and by 2007 it was at 89% of its 2001 level. Other three groups increased their market share with particularly strong increase taking place in high technology intensive industries. Between 2001 and 2007 the share of this group on the EU15 market increased by about 191%.[1] Hence, we can say that in analysed period there has been a clear cross-industry change in structure of Croatian exports (particularly their technological structure) to the EU15 market.

[1] In terms of levels, Table A1 in Appendix VI shows that in 2001 low and medium low technology intensive industries from Croatia had almost two times a higher share of EU15 market than their medium-high and high technology intensive counterparts. However, while the former two groups of industries have not increased their market share between 2001 and 2007 the share of latter two groups increased, with high technology intensive industries having highest share among the four groups of Croatian industries by 2007.

Figure 2: EU15 imports demand and Croatian exports to EU15 market (as share of apparent consumption), 2001-2007 by technological intensity of industries (2001=100)



Source: Own calculations based on EUROSTAT's Comext database

To further investigate the reasons behind changes in the structure of Croatian exports to EU15 market we undertake the so-called 'shift and share analysis'. This technique enables us to decompose the change in the volume of imports from Croatia in the EU15 market and distinguish between changes induced by improved competitiveness, increased demand and restructuring. The starting point in the 'shift and share analysis' is the assumption that the overall demand of a country *k* (or s group of countries such as EU15) for industry *i* and its demand for imports of same industry from country *j* increase proportionally. The divergence between two ratios is commonly labelled as a "shift" (Selting and Loveridge, 1994). Using previous notation, the change in the volume of exports (x) of industry *i* from country *j* to country *k* between two periods can be decomposed in the following way:

$$\Delta x_{ijt} = x_{ijt-n}\left(\Delta M_{kt} / M_{kt-n}\right) + x_{ijt-n}\left[\left(\Delta M_{ikt} / M_{ikt-n}\right) - \left(\Delta M_{kt} / M_{kt-n}\right)\right] + x_{ijt-n}\left[\left(\Delta x_{ijt} / x_{ijt-n}\right) - \left(\Delta M_{ikt} / M_{ikt-n}\right)\right], n \in (0, \infty) \quad (2)$$

In equation (2), the exports of industry i from country j to country k is decomposed into three components: a general increase in demand in country *k*, an increase in the demand of country *k* for industry *i* in excess of the general increase in demand, and an improvement in the competitiveness of industry *i* from country *j* in comparison with other importers of the same

industry in country *k*. Here, x_{ij} stands for the volume of exports from industry *i* in country *j* to country *k* while M_k and M_{ik} refer to overall imports and the imports of industry *i* in country *k*.

The term $x_{ijt-n}\left(\Delta M_{kt}/M_{kt-n}\right)$ is usually referred to as the general demand component. It shows how the demand for exports of industry i (group of industries, manufacturing sector) would develop if it was growing at the same rate as the overall demand for imports. The second term $x_{ijt-n}\left[\left(\Delta M_{ikt}/M_{ikt-n}\right)-\left(\Delta M_{kt}/M_{kt-n}\right)\right]$ is known as the structural effect component. It shows whether the demand for industry *i* in destination market has grown at above-average or below-average rate. Hence, a positive sign for this component indicates that the demand for a particular industry's imports has grown at a higher rate than the overall demand for imports in the destination country. Finally, the third component $x_{ijt-n}\left[\left(\Delta x_{ijt}/x_{ijt-n}\right)-\left(\Delta M_{ikt}/M_{ikt-n}\right)\right]$ is the competition effect component. It indicates whether the rate of growth of a particular country's exports of a given industry is higher than the rate of growth of exports from other producers to the same market. It is commonly interpreted as an indicator of given industry's competitiveness on the destination country's market. The first two components are considered exogenous while the last one is considered endogenous.

Each component of change in export is weighted by the factor x_{ijt-n}. Commonly this factor takes the value of the variable of interest (in this case exports from Croatia) in the base or in the terminal year in which case the technique is referred to as the static shift and share analysis. However, it has been suggested in the literature that the choice of the base or terminal year as the weight may lead to a bias as such practice rests on the assumption that the export structure remains constant through the analysed period (Barff and Knight, 1988; Selting and Loveridge, 1994; Wilson et al., 2005). Another source of bias is the so-called compounding effect which is related to problems of assigning weights to particular components of change in the market share, primarily to the change in demand which is likely to be underestimated when the export of a particular industry grows faster than the overall export. To eliminate these biases, Barff and Knight (1988) have proposed the dynamic shift and share analysis which estimates the three components on an annual basis and then adds them together or interprets them separately.

Table 3: Shift and share analysis of changes in Croatian exports to EU15, 2001-2007 (millions EUR)

Period	$\Delta(x_{ijt})$	Demand effect	Structural effect	Competition effect
2002	-42	-80	30	8
2003	186	7	7	171
2004	439	231	-25	233
2005	-254	386	-142	-498
2006	282	-2431	2744	-31
2007	118	535160	-534727	-310
Total	729	533270	-532113	-427

Source: Own calculations using Eurostat Comext database

Table 3 shows that the volume of exports from the manufacturing sector in Croatia to EU15 increased (with exception of 2002 and 2005 years). However, a comparison between the realised volume of exports for whole period and the magnitude of demand effect reveals that the overall demand of EU15 for imports was growing at higher rate than its demand for Croatian products. A closer look at the structural effect suggests that Croatian industries have

mainly exported products for which EU15 demand was growing at below average rate while the negative sign on the competition effect implies that they were losing competitiveness in comparison to other exporters to EU15. A brief examination of the annual changes suggests that from 2005 onwards (with exception of 2006) Croatian exports to EU15 recorded low rates of growth which were the result of the combination of structural problems and the loss of competitiveness. Table 4 provides the analysis of changes in the volume of exports by Croatian industries to EU15 market according to their technological intensity.

Table 4: Dynamic shift and share analysis of changes in the volume of exports of Croatian manufacturing Industries to EU15 by their technological intensity, 2001-2007 (million EUR)

Technological Intensity	$\Delta(x_{ijt})$	Demand Effect	Structural effect	Competitive effect
Low	-93	519	-137	-474
Medium Low	319	292	119	-92
Medium High	304	182	23	97
High	199	164	-11	46

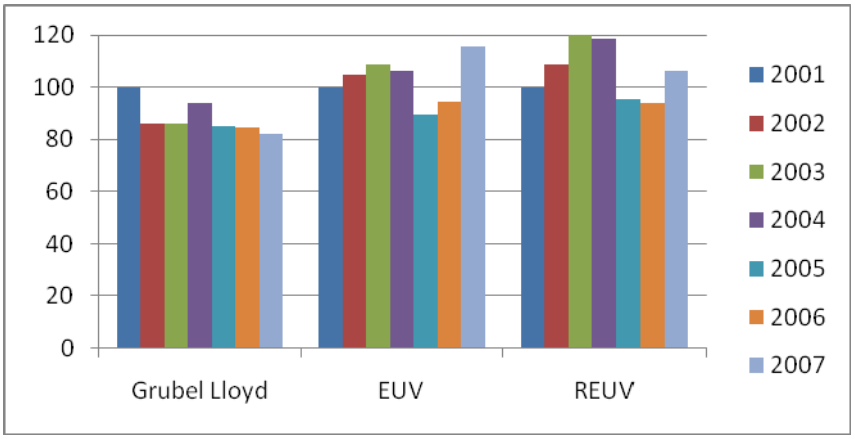
Source: Own calculations from EUROSTAT Comext database

Analysis across industries by their technological intensity in Table 4 enables us to understand our earlier findings in Figure 2 and Table 3. The table shows that the structural problems and declining competitiveness were behind the decline in the volume of exports from Croatian low technology intensive industries to the EU15 market while above average growth of EU15 demand for medium-low technology intensive industries triggered a rise in volume of exports from these Croatian industries. Finally, the rising market share of Croatian medium-high and high technology intensive industries on the EU15 market can be attributed to improvements in their competitiveness. These findings are further evidences of changes in the structure of Croatian export to EU15.

5.2 Within-industry changes in the structure of Croatian exports to EU15 market

Our analysis in the previous section showed that the structure of Croatian export to the EU15 market shifted towards products of higher technological intensity. This finding may indicate that Croatian exporters have been increasingly competing with products of higher quality. In Section 2 we postulated that within industries producers can compete at different levels of quality, while existing literature claims that vertical intra-industry trade was the dominant mode of trade between transition economies and EU15 (Aturupane et al., 1997; Rojec and Ferjancic, 2006). We can now examine the pattern of trade between Croatia and EU15 to see whether this trade is of inter or intra-industry type and whether it is characterised by vertical differentiation or with horizontal exchange in similar products.

Figure 3: Indices of intra-industry trade, unit export values and relative unit export values of Croatian trade with EU15 2001-2007 (2001=100)



Source: Own calculations based on EUROSTAT's Comext database
The base category in construction of relative unit export values is EU15 imports from the rest of the world.

Figure 3 shows the Grubel Lloyd index of intra-industry trade, unit export values and relative unit export values (imports from Croatia relative to EU15 imports from the rest of world) of Croatian export to EU15. From there we can see that over analysed period the share of intra-industry trade in overall exchange between the two entities declined and in 2007 it was at 80% of its 2001 level. However, same Figure shows that the quality of Croatian exports to the EU15 market in this period increased in both absolute (15%) and relative (6%) terms.

Table 5: Intra-industry trade (IIT), unit export values (EUV) and relative unit export values (RUEV) of Croatian trade with EU15, 2001-2007

	IIT		EUV (2001=100)		RUEV (2001=100)	
Year/Industry type	2001	2007	2001	2007	2001	2007
Low tech	1.0	0.8	100	69	100	64
Medium low tech	0.5	0.5	100	183	100	142
Medium high tech	0.4	0.3	100	104	100	117
High tech	0.4	0.6	100	121	100	137
Manufacturing	0.6	0.5	100	115	100	106

Source: Own calculations based on EUROSTAT's Comext database
The base category in construction of relative unit export values is EU15 imports from the rest of the world.

Further look in these issues in Table 5 reveals that the intra-industry trade accounted for about half of the overall exchange between Croatian and EU15 manufacturing sectors. The grouping of industries by their technology intensity shows that the highest proportion of intra-industry trade between EU15 and Croatia in the analysed period took place in low technology intensive industries. In 2001, nearly all trade in this group of industries was of intra-industry type but by 2007 its share decreased by about one fifth. In medium-low and medium-high technology intensive industries, the proportion of intra-industry trade remained relatively stable and was of similar magnitude to the whole manufacturing sector. The share of intra-industry trade in group of high-technology intensive industries, however, increased from 0.4 to 0.6 over the analysed period. The absolute and relative export unit values show that, with the exception of low technology intensive industries, all groups experienced an increase in the value of their export to EU15. In relative terms, particularly strong increases can be observed in medium-low and high technology intensive industries.

To identify the type of trade conducted by individual Croatian industries, we follow the methodology originally developed by Abd-El-Rahman (1991) and later improved by Greenaway et al. (1995) and Fontagne and Freudenberg (1997). By comparing degrees of product similarity and of trade overlap this methodology enables us to distinguish sectors for which trade is of inter-industry type from those in which exchange is of vertically or horizontally differentiated nature (intra-industry). Hence, we begin by disentangling the intra-industry trade of industry *i* in year *t* between Croatia and EU15 into two components, vertical and horizontal.

$$IIT_{it} = HIIT_{it} + VIIT_{it} \quad (3)$$

In equation (3) IIT is the overall intra-industry trade in industry *i* while HIIT and VIIT are its horizontal and vertical components respectively. Greenaway et al. (1995) suggest that ratios between unit values of exports and imports of a particular industry may reveal whether the within industry trade is of vertical or horizontal type. Assuming that differences in unit values reflect variations in quality of traded products they argue that within industry trade is of horizontal type if unit values meet following condition:

$$1-\alpha \leq \frac{EUV_{it}}{IUV_{it}} \leq 1+\alpha \quad (4)$$

while trade will be of vertical intra-industry type if

$$\frac{EUV_{it}}{IUV_{it}} < 1-\alpha \text{ or } \frac{EUV_{it}}{IUV_{it}} > 1+\alpha \quad (5)$$

where EUV and IUV are the unit export and unit import values of industry *i* in period *t* respectively and α is the dispersion factor taking value of 0.15.[2] However, Fontagne and Freudenberg (1997) suggest that such defined criterion does not take into account the distinction between one-way and two-way trade. Therefore, they propose an additional criterion to measure the degree of overlap in trade between two economic entities. A trade is considered to be of intra-industry type if the value of minority flow (exports or imports) represents at least 10% of the majority flow (imports or exports). This condition can be written as follows

$$\frac{Min(X_{it}, M_{it})}{Max(M_{it}, X_{it})} > 10\% \quad (6)$$

When the two criteria are brought together they enable us to distinguish first between inter- and intra-industry trade and then within the intra-industry trade between horizontal and vertical differentiation. This typology is presented in Table 6.

[2] This dispersion factor refers to the minimum threshold that can be used to distinguish between similar and vertically differentiated products. It commonly takes values of 0.15 and 0.25 (Greenaway et al., 1995; Fontagne and Freudenberg, 1997). Our analysis adopts the former, more conservative criterion.

Table 6: Criteria for identification of trade patterns

Degree of overlap between export and import values: Does the minority flow represent at least 10% of the majority flow	**Similarity of unit export and import values**: Do export and import unit values differ less than 15%	
	Yes Horizontal differentiation	*No* Vertical differentiation
Yes	*Two-way trade in similar products*	*Two-way trade in vertically differentiated products*
No	*Inter-industry trade*	

Source: Fountagne and Freudenberg (1997)

Table 6 combines two previously mentioned criteria for distinction between different types of trade. The first column of this table enables us to distinguish between inter- and intra-industry trade. Hence, if the degree of overlap between unit export and import values is below 10% the trade is defined as exchange of intra-industry type.[3] However, if two flows diverge for more than 10% this implies that exchange is of inter-industry type (last row of table). If the first criteria for intra-industry trade is satisfied, next two columns of table can be used to distinguish between horizontal and vertical within industry exchange. Hence, if the minority flow represents at least 10% of majority flow and unit export and import values differ for less than 15% the products are considered to be horizontally differentiated. But if the degree of overlap is above 10% and the unit export and import values differ by more than 15% the products are considered to be vertically differentiated.

Using above presented methodology, Table 7 provides detailed overview of trade patterns between Croatia and EU15 at the level of 3-digit NACE industries in 2001 and 2007 (the beginning and the end of the period under consideration). From here we can observe a change in the pattern of trade between two economic entities over the analysed period. It is evident that the number of industries characterised by horizontal intra-industry trade has increased across all groups except the low technology intensive group. Also, several industries have shifted from the inter-industry to vertical intra-industry group. Particularly interesting is the pattern observed in the high technology intensive group where in 2001 there were no horizontally differentiated industries. By 2007, production of electronic valves and tubes (NACE 321) and manufacturing of sound and video receiving and recording goods (NACE 323) had been characterised with horizontal intra-industry trade. However, it is evident that in most Croatian industries, even in this advanced stage of transition, trade continues to be dominated by vertical differentiation. This is particularly true for industries of lower technological intensity.

[3] Fontagne and Freudenberg (1997) suggest that such finding means that minority flow is not the structural component of trade and therefore can be labelled as insignificant.

Table 7: Trade pattern Croatia/EU15 at level of 3-digit industries, 2001-2007

	Inter-industry	Vertical intra-industry	Horizontal intra-industry
2001			
Low tech	154-157, 160, 172, 176, 363	158,159, 174,175,181, 182, 183, 192, 193, 201, 202, 204, 205, 21 222, 361, 362, 364-366	151-153, 171, 177, 203, 221
Medium low tech	263-267, 271, 273	232, 251, 252, 261, 262, 268, 272, 274, 281-286, 351	287
Medium high tech	243, 245, 246, 293, 296, 314, 341	247, 291, 292, 295, 297, 311-313, 315, 316, 342, 343, 352, 354, 355	294
High tech	300, 322, 323, 331, 334	321, 332, 333, 335, 353	-
2007			
Low tech	156, 157, 160, 172, 176, 363, 364, 365	151, 153-155, 158, 159, 171, 174, 175, 181-183, 193, 201-205, 211, 212, 221, 222, 361, 362, 366	152, 177, 192
Medium low tech	232, 263, 264, 273, 274, 283, 286	251, 252, 261, 262, 266–268, 271, 272, 282, 351	265, 281, 284, 285, 287
Medium high tech	243, 245, 246, 296, 314, 315, 341, 354	244, 247, 291-295, 297, 311, 316, 342, 343, 352, 355	312, 313
High tech	331, 333, 335	300, 322, 332, 334, 353	321, 323

Source: Own calculations based on EUROSTAT's Comext database

The overall picture emerging from this analysis is that in the advanced stage of transition changes have occurred in the structure of Croatian exports to EU15 both across and within industries. The composition of Croatian exports has shifted from low towards high technology intensive industries with the latter exhibiting the highest increase of EU15 market share. This was mainly caused by improvements in the competitiveness of these industries. Over analysed period unit export values of Croatian exports to EU15 have increased in both absolute and relative terms although we observed a lot of fluctuation in individual years in this respect. At first, this signals within-industry improvements in the quality of products. However, the analysis of similarity and overlapping in trade flows between Croatia and EU15 reveals that the bulk of this trade still takes place through vertical differentiation. Thus the results of our investigation are in line with studies mentioned earlier in this paper which suggested that most of the trade between transition economies and EU15 countries is of intra-industry type with the former competing in low quality segments of the latter's market. The evidence of several industries switching from vertical to horizontal type of intra-industry trade over the analysed period may be taken as an indicator of changing specialisation patterns towards the high quality segments of the market within Croatian manufacturing industries.

6. DETERMINANTS OF QUALITY UPGRADING OF CROATIAN EXPORTS TO EU15 MARKET

The evidence from previous section suggests that quality upgrading has taken place both across and within Croatian manufacturing industries. Yet, they also point out that trade in many of Croatian industries is still characterised by vertical intra-industry trade. In this section we attempt to investigate which factors and forces can improve the relative quality of exports to EU15. To do this we estimate the model discussed in Section 3. Taking all elements identified there as relevant for the investigation the model to be estimated can be written as:

$$\ln(\text{Rusv})_{it}=\alpha_0+\alpha_1\ln(\text{Rusv})_{it-1}+\alpha_2\ln(\text{KI})_{it}+\alpha_3\,\text{Inno}_{it}+\alpha_4\ln(\text{WPremium})_{it}+\alpha_5\,\text{Imp}_{it}$$
$$+\alpha_6\ln(\text{Comp})_{it}+\alpha_7\ln(\text{Rumshare})_{it}+\alpha_8\,\text{IFT}_{it}+\alpha_9\,\text{Lev}_{it}+\alpha_{10}\,\text{Subs}_{it}+\sum_{t=2008}^{2007}\text{year}_t+u_i+v_{it} \quad (7)$$

where variables include those in Table 1 and annual time dummies (*year*). In the estimation of equation (7) we use the twostep GMM system dynamic panel estimator with Windmeijer's corrections for robust standard errors.

The GMM is a general method for estimation of population parameters which unlike other methods does not require assumptions such as normality or homoskedasticity. The only requirements of GMM are assumed population conditions, expressed in terms of expectations or moments. A fundamental moment condition which needs to be satisfied in order to produce unbiased and consistent estimates of coefficients of interest is the restriction on the covariance between the error term and independent variable $E(\varepsilon_t, x_t) = 0$. When this condition is not satisfied the estimates are likely to be biased and inconsistent. The problem can be overcome by the use of instrumental variables which have to be uncorrelated with the error term but correlated with the endogenous variables. The number of these instruments is not limited and can be very large, by defining more than one moment condition per parameter to be estimated, which maximises the information available to the estimation process. This advantage of GMM is especially exploited in the dynamic panel estimation.

On the basis of GMM two types of dynamic estimators are developed – a difference GMM estimator (Arellano and Bond, 1991) and a system GMM estimator (Arellano and Bover, 1995; Blundell and Bond, 1998). With only one lagged dependent variable as an explanatory variable, such a model takes the following form:

$$y_{it}=\beta_1 y_{it-1}+\eta_i+v_{it}, \qquad |\beta|<1 \quad (8)$$

where η_i stands for the individual time invariant effects and v_{it} for the idiosyncratic errors. The time invariant nature of the former effects implies that they are correlated with dependent variable but also with its past realisations which appear on the right-hand side. In the difference estimator the problem of time invariant effects is solved by differencing the model.

$$y_{it}-y_{it-1}=\beta y_{it-1}-\beta y_{it-2}+v_{it}-v_{it-1}, \qquad |\beta|<1 \quad (9)$$

Although the time invariant effects are removed the problem of endogeneity remains as the differenced lagged dependent variable and error term are correlated through the correlation between y_{it-1} and v_{it-1} (Greene, 2002; p.308). However, under the assumption of no serial correlation in idiosyncratic errors, Arellano and Bond (1991) have proposed the use of lagged

difference $y_{it-2} - y_{it-3}$ or lagged level y_{it-2} as instruments (Greene, 2002; p. 308). Higher lags of levels and of differences of endogenous variables can also be used as instruments although the validity of these instruments would depend on their correlation with the explanatory variables. As Greene (2002; p.309) suggests, the instruments which are lagged too far are likely to bear less information.

The difference estimator has been found to be biased and inefficient in situations when the lagged levels of series are close to a random walk (Blundell and Bond, 1998; Pugh, 2008; Roodman, 2009b). The "system" GMM estimator (Arellano and Bover, 1995; Blundell and Bond, 1998) has an advantage in this situation. This builds a stacked dataset with twice the observations, one for the levels equation and one for the differenced equation. The introduction of levels equation in the model is explained by the argument that past changes may be more predictive of current levels than the levels can be of future changes when the series are close to random walk. Nevertheless, the system is treated as a single equation and the same linear relationship with the same coefficients is believed to apply to both the transformed (differenced) and untransformed (level) variables (Roodman, 2009b). Another advantage of system estimator over difference one is its ability to include time-invariant variables which are being differenced together with fixed effects in the latter case. Finally, supplementing instruments for differenced equation with those for the levels equation, the system estimator increases amount of information used in estimation thus leading to an increase in efficiency.

While being superior to the difference estimator in many aspects, the system estimator is also not without flaws. Its most commonly cited problems are the sensitivity to the number of instruments and on violation of the steady-state assumption. Roodman (2009a) notes that in finite samples large number of instruments may weaken the ability of relevant diagnostics (Hansen test) to reject the null hypothesis of instrument validity. There is no consensus over the question of optimal number of instruments but it is taken as rule of thumb that this number should not exceed number of groups (cross-sectional units) used in estimation. Another issue recognised in context of system estimator is requirement of steady-state assumption. There are two requirements for this condition to hold. First, the coefficient on lagged dependent variable must have absolute value less than unity so that the process is convergent and second, this process of convergence should not be correlated with time-invariant effects.

In our estimation we use the system dynamic panel estimator. There are three reasons which can justify our choice. First, the dynamic panel analysis enables us to control for potential endogeneity of other variables caused by their correlation with unobserved time-invariant characteristics in the same way as the relationship between these characteristics and lagged dependent variable is controlled for. Second, as we mentioned earlier in the presence of random walk or near random walk processes system estimator is more efficient. Finally, as we will explain soon, the dynamic analysis provides us with an opportunity to discern the short-run from the long-run effects of explanatory variables.

Dynamic estimators can be estimated in one-step and two-step procedures. In the one-step procedure the GMM estimator is developed by imposing some reasonable but arbitrary assumption (such as homoscedasticity) about the weighting matrix. However, this estimator is not robust to heteroskedasticity or cross-correlation. Therefore, the procedure for obtaining a robust estimator involves another step in which the residuals from the first step are used to construct the proxy for the optimal weighting matrix which is then embodied in the feasible GMM estimator, which is robust to the modelled patterns of heteroskedasticity and cross-correlation (Roodman, 2009b, p. 9). However, the standard errors obtained in the two-step

procedure are known to be downward biased when the number of instruments is large. This problem can be greatly reduced with the use of Windmeijer's (2005) corrections for the two-step standard errors. Given that Windmeijer's corrected standard errors are found to be superior to the cluster-robust one-step standard errors (Roodman, 2009b, p. 12), we decide to apply this approach.

Another benefit of dynamic analysis is that it allows us to discern between the short -and long-run effects. Supposing that equation (8) includes additional explanatory variable x this can be written as

$$y_{it} = \beta_1 y_{it-1} + \beta_2 x_{it} + \eta_i + v_{it}, \qquad |\beta| < 1 \tag{11}$$

In equation (11), the coefficient β_2 is the estimated coefficient and is known as the short-run multiplier which represents only a fraction of the desired change (Greene, 2002, p. 568). The long-run effect can then be calculated algebraically as product of the coefficient β_2 and the long-run multiplier $\frac{1}{1-\beta_1}$. The standard error and the corresponding t-statistic for coefficient obtained this way can be then calculated using delta-method (Greene, 2002, p. 569; Papke and Wooldridge, 2005, p. 413). However, we must bear in mind that the results obtained with the long-run coefficients are valid only under the assumption of the system's stability, i.e. lack of structural breaks over course of time which is however major simplification.

The above mentioned properties of system dynamic panel GMM estimator make it suitable methodology for the analysis of determinants of quality upgrading in this chapter for several reasons. As we outlined, there are reasons to expect a correlation between several of the variables and the error term. To control for this we treat the lagged dependent variable as predetermined and capital and innovation intensity, wage premium, EU15 market share and intra-firm trade as well as the two financial variables as endogenous. Our model also includes annual time dummies to control for potential sources of cross-sectional dependence. The examination of descriptive statistics in Section 4 implies that non-normality and heteroscedasticity may be present. While the normality is not among requirements of GMM dynamic panel estimators, the latter issue can be controlled for with use of two-step estimator. As in such case, standard errors tend to be downward biased we also apply previously mentioned Windmeijer's correction.

Predetermined and endogenous variables have been instrumented with their own lags and lagged differences while exogenous variables entered instrumentation matrix as own instruments. Our choice of instruments had to meet all relevant model diagnostics but between several alternative sets of instruments which satisfied above condition we decided for those outcomes which made more economic sense. However, in all considered specifications the major variables of interest retained their signs and significance suggesting the robustness of our model. Finally, the dependent variable and most of explanatory variables enter our model in logarithmed form. However, several right-hand side variables also take value of zero and were thus used in non-logarithmic form. We now move to interpret our main findings. We begin with a discussion about model diagnostics.

The main results of estimation and model diagnostics are presented in Table 8 while detailed printouts of estimation can be found in the Appendix. We can see that there is insufficient evidence to reject the null hypothesis of valid overidentifying restrictions in the Hansen's test for the validity of instruments. Similar to the estimations in previous chapters, the computed p-value is well above the most conservative threshold suggested in the literature (0.25). The

difference-in-Sargan-tests for subsets of instruments for the levels equation and for the lagged dependent variable also do not provide sufficient evidence to reject the null hypothesis of valid overidentifying restrictions (see Appendix). Former implies that the steady-state assumption can be accepted and that the system GMM estimator should be preferred to the difference one while the latter diagnostic suggests that our model is not likely to suffer from cross-sectional dependence.

We also checked for the first and second order autocorrelation. As expected, the relevant diagnostics reject the null hypothesis of no first order autocorrelation but not the one of no second order autocorrelation. In addition, the comparison of magnitude of coefficient on the lagged dependent variable with magnitudes obtained in OLS and panel FE estimations shows that our coefficient lies between the former two (Appendix). Finally, the number of instruments relative to the number of groups of observations is relatively low.

Table 8: Dynamic panel system GMM estimations for quality upgrading of Croatian export to EU15 market, 2002-2007 (Dep. variable: ln (Ruev))

	SR	LR
Lagged dependent variable	0.63(0.000)***	-
RESTRUCTURING		
Capital Intensity: ln*(Kl)*	0.26(0.018)**	0.71(0.027)**
Innovation Intensity: (*Inne*)	0.01(0.031)**	0.02(0.021)**
Wage Premium: ln *(WPremium)*	-1.86(0.000)***	-5.03(0.001)***
SPILLOVERS		
Import Intensity: *(Imp)*	0.03(0.0022)**	0.09(0.019)**
Number of Competitors: ln *(Comp)*	0.02(0.547)	0.05(0.566)
EU15 Market Share: ln *(Eums)*	-0.11(0.165)	-0.29(0.267)
Intra-Firm Trade: *(IFT)*	-0.20(0.380)	-0.54(0.412)
ACCESS TO FINANCE		
Leverage: *(Lev)*	-0.04 (0.030)**	-0.11(0.006)***
Subsidies: *(Subs)*	-0.0001(0.801)	-0.0002(0.798)
Constant term(*cons*)	-2.44(0.000)***	-
MODEL DIAGNOSTICS		
Number of observations	529	-
Number of groups	91	-
Wald test	422.53	-
Prob>chi2	0.000	-
Hansen J Statistic	33.54	-
Prob> chi2	0.789	-
Arellano-Bond test for AR(1) in first differences	-3.19	-
Prob>chi2	0.001	-
Arellano-Bond test for AR(2) in first differences	0.51	-
Prob>chi2	0.609	-
Instrument count	57	-

*Note: p-values in brackets where ***, ** and * denote statistical significance of variables at 1%, 5% and 10% level of significance respectively. p-values are obtained from two-step dynamic panel procedure with Windmeeijer's corrected robust standard errors. Model includes year dummy variables.*

Having examined the diagnostics we can move to discuss main findings from Table 8. All the discussion of the effect of individual variables is ceteris paribus and we start with the short run estimates. The positive and highly significant coefficient on the lagged dependent variable suggests that the relative quality of Croatian exports to EU15 market is positively related to its past realisations. The magnitude of coefficient implies that a one percent improvement in relative export unit value in the previous period leads to about 0.6% improvement in the current period. Such a finding is consistent with the propositions of the endogenous growth literature which postulates that quality upgrading is a gradual process taking place over time.

All three restructuring variables are significant but only two of them have the expected sign. The coefficient on capital intensity indicates that one percent increase in capital/labour ratio leads to 0.29% improvement in the relative quality of Croatian exports to the EU15 market. Similarly, an additional euro of innovation output per employee (innovation intensity) improves the relative quality of Croatian export to EU15 market by about 0.7%. These findings are in line with predictions from the transition literature that investment in new machinery and equipment and in development of new production processes and new products should improve the international competitiveness of producers from transition economies. More importantly, they support the Austrian, evolutionary and endogenous growth literature about the relation between innovation and technology on one hand, and the ability to compete through quality on the other. However, the coefficient on wage premium, our proxy for the quality of human capital is statistically significant with negative sign. This probably means that the variable captures the cost component of wages rather than human capital. Hence, the ability of industries to reduce costs of labour leaves producers with more funds which can be invested in upgrading of quality.

Among the four measures of spillovers we obtain a statistically significant and positive coefficient only on import intensity. It implies that if imports in an industry relative to average for the whole manufacturing increases by one hundredth of an unit, it would lead to improvement in the relative quality of export by about 0.03%.[4] This finding may be interpreted as the evidence for several hypotheses mentioned in the transition and international trade literature. First, it may imply that imports of intermediate inputs and technology play important roles in shaping the competitiveness of transition economies as proposed in Hoekman and Djankov (1997). Second, it may also suggest that the stronger presence of importers on final goods market provides the entire industry with the knowledge and technology spillovers which have a beneficial impact on the relative quality of its exports, a process which is similar to the mechanism of learning discussed by Hausmann et al. (2007). Finally, it may mean that the pressure of foreign competitors forces domestic firms to look for new ways to differentiate themselves, leading them to the quality segments of the market with a consequent impact on the structure of their exports (Fernandes and Paunov, 2009).

Access to subsidies does not seem to have had a significant role in quality upgrading of Croatian exports. However, we do obtain negative and statistically significant coefficient on our measure of leverage. The coefficient is small suggesting that a decline in the debt to asset ratio per firm of one hundredth of unit leads to a 0.04 percent increase in the relative sophistication of Croatian exports to EU15 market.[5] This finding may be taken as the evidence that borrowing acts as a constraint for strategic activities of firms such as improvements in the quality of their exports.

[4] Having in mind descriptive statistics of this variable we consider movement for 0.01 unit to represent sufficiently marginal change.

[5] Again we consider movement for 0.01 to represent sufficiently marginal change.

Finally, the last column of Table 8 gives the long-run coefficients calculated from the results of the estimation. As it can be seen all the coefficients retain their significance and they are about 2.7 times higher than their short-run counterparts. We interpret this as the evidence that the outcomes of actions undertaken by firms in our sample are completely realised only in the long run.

7. CONCLUSION

Several economic schools postulate that for the ability of country to grow and to provide its citizens with better standard of living, the structure of its exports is far more important than the ability to compete on international markets. It has been argued that the ability to compete in high quality segments of the market gives higher potential for growth of the economy than competitive profiles based on standardised price-competitive products. For this reason, a substantial body of literature has attempted to explain the channels through which less developed and transition economies can improve the level of sophistication of their exports. In the same spirit, our objective was to investigate changes in the structure of Croatian exports to the EU15 market in the advanced stage of transition. To tackle this issue we traced the evolution of changes in trade patterns both across and within the Croatian manufacturing industries.

The results of the investigation are mainly in line with findings of previous literature about competitive profiles of transition economies and potential channels for improvements in the relative sophistication of nation's exports. Over the years, Croatian exporters to EU15 market have shifted from low technology intensive towards high technology intensive industries. It was established that the main reason for this was the loss of competitiveness in the former and competitiveness gains in the latter group of products. However, our analysis of within-industry trade implies that Croatian firms mainly compete in terms of prices. Although the Croatian manufacturing is reorienting towards the more technologically intensive sectors our evidence suggests that, within these sectors, the Croatian trade with EU15 has all the characteristics of vertical intra-industry trade, a pattern typical for exchange between developed and developing economies. Finally, the last part of our investigation showed that technology and innovations play a key role in improvements in the relative quality of exports alongside with import-led spillovers, thus confirming the predictions from the trade and growth literature

The results of this analysis can be understood as evidence of the adverse effect exercised by specific characteristics of Croatian transition on its competitiveness. To this end, observed structure of Croatian exports to EU15 market may be explained with the delayed restructuring of its firms and industries while our findings about channels for quality upgrading may show the way for improvements in the overall competitiveness of the Croatian economy.

BIBLIOGRAPHY

Abd-El-Rahman, K. (1991). Firms' Competitive and National Comparative Advantages as Joint Determinants of Trade Composition. *Review of World Economics , 127* (1), pp. 83-97.

Aturupane, C., Djankov, S., & Hoekman, B. (1997). Determinants of Intra-Industry Trade between East and West Europe. *Policy Research Working Paper (1850)* . Washington, D.C.: World Bank.

Barff, R., & Knight, P. (1988). Dynamic Shift-Share Analysis. *Growth and Change , 19* (2), pp. 1-9.

Bastos, P., & Silva, J. (2010). The Quality of a Firm's Exports: Where You Export to Matters. *Journal of International Economics , 82* (2), pp. 99-111.

Benacek, V., Prokop, L., & Visek, J. A. (2006). Determining Factors of Trade and Specialisation in Transition: Econometric Testing of the Czech Exports and Imports, 1993-2001. *Social Science Studies (PPF-017)* . Prague: Charles University.

Brooks, E. (2006). Why Don't Firms Export More? Product Quality and Colombian Plants. *Journal of Development Economics , 80*, pp. 160-178.

Cuaresma, J. C., & Worz, J. (2005). On Export Composition and Growth. *Review of World Economics , 141* (1), pp. 33-49.

Dulleck, U., Foster, N., Stehrer, R., & Worz, J. (2005). Dimensions of Quality Upgrading: Evidence from CEECs. *Economics of Transition , 13* (1), pp. 51-76.

Fernandes, A., & Paunov, C. (2009). Does Tougher Import Competition Foster Product Quality Upgrading? *World Bank Policy Research Working Paper (4894)* . The World Bank.

Fischer, C. (2007). Food Quality and Product Export Performance. An Empirical Investigation of the EU Situation. *Contributed Paper Prepared for Presentation at the 105th EAAE Seminar.* Bologna: European Association of Agricultural Economists.

Fontagne, L., & Freudenberg, M. (1997). Intra-Industry Trade: Methodological Issues Reconsidered. *Working Paper (1997-01)* . CEPII Research Center.

Fontagne, L., Freudenberg, M., & Peridy, N. (1998). Intra-Industry Trade and the Single Market: Quality Matters. *CEPR Discussion Paper (1959)* . C.E.P.R. Discussion Papers.

Fukao, K., Ishido, H., & Ito, K. (2003). Vertical Intra-Industry Trade and Foreign Direct Investment in East Asia. *Journal of the Japanese and International Economies , 17* (4), pp. 468-506.

Greenaway, D., Hine, R., & Milner, C. (1995). Vertical and Horizontal Intra-Industry Trade: A Cross Industry Analysis for the United Kingdom. *The Economic Journal , 105* (433), pp. 1505-1518.

Greene, W. (2002). *Econometric Analysis* (5th Edition ed.). Upper Saddle River, New Jersey, USA: Prentice Hall.

Grossman, G. M., & Helpman, E. (1994). Endogenous Innovation in the Theory of Growth. *The Journal of Economic Perspectives , 8* (1), pp. 23-44.

Guerson, A., Parks, J., & Torrado, M. (2007). Export Structure and Growth: A Detailed Analysis for Argentina. *World Bank Policy Research Working Paper (4237)* . The World Bank.

Hausmann, R., Hwang, J., & Rodrik, D. (2007). What You Export Matters. *Journal of Economic Growth , 12* (1), pp. 1-25.

Havlik, P. (2005). Structural Change, Productivity and Employment in the new EU Member States. *WIIW Research Report (313)* . Vienna: The Vienna Institute for International Economic Studies.

Havlik, P. (2000). Trade and Cost Competitiveness in the Czech Republic, Hungary, Poland and Slovenia.

Havlik, P., Landessman, M., & Stehrer, R. (2001). *Competitiveness of CEE Industries: Evidence from foreign Trade Specialization and Quality Indicators.* Vienna: The Vienna Institute for International Economic Studies.

Hesse, H. (2009). Export Diversification and Economic Growth. In R. Newfarmer, W. Shaw, & P. Walkenhorst (Eds.), *Breaking Into New Markets: Emerging Lessons for Export Diversification.* World Bank Publications.

Hoekman, B., & Djankov, S. (1997). Determinants of the Export Structure of Countries in Central and Eastern Europe. *The World Bank Economic Review , 11* (3), pp. 471-87.

Hummels, D., & Klenow, P. (2005). The Variety and Quality of a Nation's Exports. *The American Economic Review , 95* (3), pp. 704-723.

Iacovone, L., & Javorcik, B. (2008). Multi-Product Exporters: Diversification and Micro-Level Dynamics. *World Bank Policy Research Working Paper Series (4723)* . The World Bank.

Imbriani, C., Morone, P., & Testa, G. (2008). Exporting Quality: Is It the Right Strategy for the Italian Manufacturing Sector? *MPRA Paper (13327)* . University Library of Munich.

Kandogan, Y. (2004). How Much Restructuring did the Transition Countries Experience? Evidence from Quality of their Exports. *William Davidson Institute Working Paper (637)* . Flint, Michigan, USA: The William Davidson Institute.

Klette, T. J., & Griliches, Z. (2000). Empirical Patterns of Firm Growth and R&D Investment: A Quality Ladder Model Interpretation. *Economic Journal , 110* (463), pp. 363-87.

Krugman, P., & Obstfeld, M. (2003). *International Economics: Theory and Policy* (6 ed.). Boston, Massachussetts , USA: Pearson Education Inc.

Lelarge, C., & Nefussi, B. (2007). *Exposure to Low-Wage Competition, Activity Changes and Quality Upgrading: An Empirical Assesment.* Retrieved 1. 12., 2011, from http://iri.jrc.ec.europa.eu/concord-2007/papers/strand4/Lelarge%20+%20Nefussi.pdf

Liu, X., & Shu, C. (2003). Determinants of Export Performance: Evidence from Chinese Industries. *Economics of Planning , 36* (1), pp. 45-67.

Marin, D. (2006). A New International Division of Labor in Europe: Outsourcing and Offshoring to Eastern Europe. *Journal of the European Economic Association , 4* (2-3), pp. 612-622.

Monfort, P., Vandenbusche, H., & Forlani, E. (2008). Chinese Competition and Skill-Upgrading in European Textiles: Firm-Level Evidence. *LICOS Discussion Papers (19808)* . LICOS - Centre for Institutions and Economic Performance, K.U.Leuven.

OECD. (2007). *OECD Science, Technology and Industry Scoreboard.* OECD.

Ram, R. (1985). Exports and Economic Growth: Some Additional Evidence. *Economic Development and Cultural Change , 33* (2), pp. 415-425.

Rojec, M., & Ferjancic, M. (2006). Overview of Export Performance of "New Europe": Theoretical Underpinnings and Empirical Evidence. In J. Winiecki (Ed.), *Competitiveness of New Europe Papers from the Second Lancut Economic Forum.* United Kingdom: Routledge.

Roodman, D. (2009a). A Note on the Theme of Too Many Instruments. *Oxford Bulletin of Economics and Statistics , 71* (1), pp. 135-158.

Roodman, D. (2009b). How to Do xtabond2: An Introduction to Difference and System GMM in Stata. *The Stata Journal , 9* (1), pp. 86-136.

Schott, P. (2008). The Relative Sophistication of Chinese Exports. *Economic Policy , 23* (1), pp. 5-49.

Selting, A., & Loveridge, S. (1994). Testing Dynamic Shift-Share. *Regional Science Perspectives , 24* (1), pp. 23-41.

Sohn, C.-H., & Lee, H. (2010). Trade Structure, FTA and Economic Growth: Implications to East Asia. *Review of Development Economics , 14* (3), pp. 683-698.

Verhoogen, E. (2007). Trade, Quality Upgrading and Wage Inequality in the Mexican Manufacturing Sector. *CEPR Discusssion Paper (6385)* . C.E.P.R. Discussion Papers.

Wilson, P., Chern, T. S., Ping, T. S., & Robinson, E. (2005). A Dynamic Shift-Share Analysis of the Electronics Export Market 1988-2001: Can the NIEs Compete with China? *SCAPE Policy Research Working Paper Series (0507)* . National University of Singapore, Department of Economics, SCAPE.

APPENDIX

Table A1:EU15 market share of Croatian manufacturing industries divided by their technological intensity 2001-2007 (in %)

	2001	2007
Low-technology intensive industries	0.10	0.09
Medium low-technology intensive industries	0.06	0.08
Medium high-technology intensive industries	0.04	0.07
High-technology intensive industries	0.04	0.10

Source: Eurostat Comext Database

Table A2: Number of observations for dataset in Chapter Six

Year	*Observations*
2002	*86*
2003	*89*
2004	*89*
2005	*88*
2006	*89*
2007	*88*

Table A3: Descriptive statistics for dynamic panel system GMM estimation for quality upgrading of Croatian export to EU15 market, 2002-2007 (Dep. Variable: ln(Ruev))

	Ruev		Kl		Inne		WPremium		Lev	
	Mean	Std.Dev	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.
2002	1.15	1.21	240	190	4.54	17.26	0.98	0.31	0.04	0.17
2003	1.14	0.88	261	238	4.27	15.83	0.99	0.29	0.07	0.31
2004	1.40	1.50	261	200	4.20	15.42	0.99	0.29	0.15	0.94
2005	1.39	1.68	279	228	4.6	16.40	0.99	0.29	0.06	0.26
2006	1.10	0.84	307	271	5.32	18.04	1.01	0.31	0.34	2.67
2007	1.09	0.83	336	378	5.79	18.70	1.00	0.29	0.09	0.52
	Subs		Imp		Comp		IFT		EUMshare	
	Mean	Std.Dev	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.
2002	70	329	1.04	2.96	1.06	1.48	0.14	0.18	0.001	0.002
2003	68	302	1.01	2.95	1.02	1.48	0.16	0.19	0.001	0.002
2004	70	244	1.01	2.76	1.02	1.47	0.16	0.20	0.001	0.003
2005	68	214	1.02	3.30	1.03	1.48	0.15	0.20	0.001	0.002
2006	81	213	1.02	3.32	1.02	1.49	0.16	0.21	0.001	0.002
2007	77	234	0.71	0.91	1.03	1.50	0.17	0.22	0.001	0.002

Table A4: Correlation among variables used in dynamic panel system GMM estimation for quality upgrading of Croatian export to EU15 market 2002-2007 (Dep.variable: ln(Ruev))

	ruev	L. ruev	kl	Inne	WPremium	Imp	Comp
ruev							
--.	1.0000						
L1.	0.8112	1.0000					
kl	-0.1813	-0.1438	1.0000				
Inne	0.0392	0.0512	0.2797	1.0000			
WPremium	-0.1676	-0.1229	0.3670	0.3986	1.0000		
Imp	0.0855	0.1047	0.2355	0.0584	0.3543	1.0000	
Comp	-0.0290	-0.0077	-0.0688	-0.0408	-0.0121	0.0752	1.0000
EUMS	0.2671	0.2489	-0.2779	0.0030	-0.2081	-0.0165	-0.0044
IFT	-0.0813	-0.0840	0.1237	0.1885	0.2384	0.2199	0.0020
Lev	-0.2020	-0.1951	0.0919	-0.0147	-0.0309	-0.0338	-0.0691
Subs	-0.0741	-0.0760	0.0804	0.0161	0.1016	0.1294	0.0318
yr3	-0.0123	-0.0223	-0.0489	-0.0137	-0.0131	0.0067	-0.0028
yr4	0.0497	-0.0176	-0.0375	-0.0156	-0.0026	0.0064	-0.0028
yr5	0.0571	0.0877	0.0048	-0.0049	-0.0014	0.0081	0.0006
yr6	-0.0304	0.0441	0.0649	0.0141	0.0228	0.0087	-0.0027
yr7	-0.0184	-0.0151	0.0914	0.0266	0.0088	-0.0416	0.0005

	EUMS	IFT	Lev	Subs	yr3	yr4	yr5
EUMS	1.0000						
IFT	-0.0425	1.0000					
Lev	-0.0181	-0.0759	1.0000				
Subs	0.2065	-0.0560	-0.0162	1.0000			
yr3	-0.0065	0.0097	-0.0206	-0.0077	1.0000		
yr4	0.0371	0.0082	0.0089	-0.0045	-0.2023	1.0000	
yr5	-0.0202	-0.0108	-0.0246	-0.0076	-0.2009	-0.2009	1.0000
yr6	-0.0106	0.0094	0.0814	0.0146	-0.2023	-0.2023	-0.2009
yr7	0.0265	0.0189	-0.0122	0.0088	-0.2009	-0.2009	-0.1995

	yr6	yr7
yr6	1.0000	
yr7	-0.2009	1.0000

Table A5: Printout of dynamic panel system GMM estimation for quality upgrading of Croatian export to EU15 market 2002-2007 (Dep.variable ln(Ruev))

```
. xtabond2 ruev l.ruev kl Inne wpremium Imp comp eumshare IFT Lev Subs yr3-yr7,
> gmm(l.ruev, lag(1 .) coll) gmm(kl wpremium eumshare IFT Subs Lev, lag(2 4) c
> oll) gmm(Inne, lag(2 5)) iv(Imp comp yr3-yr7) twostep robust
Dynamic panel-data estimation, two-step system GMM
------------------------------------------------------------------------------
Group variable: NACE                            Number of obs      =       529
Time variable : Year                            Number of groups   =        91
Number of instruments = 57                      Obs per group: min =         2
Wald chi2(15) =    422.53                                      avg =      5.81
Prob > chi2   =     0.000                                      max =         6
------------------------------------------------------------------------------
             |              Corrected
        ruev |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        ruev |
         L1. |   .6295546   .1090828     5.77   0.000     .4157561     .843353
             |
          kl |   .2641292   .1116442     2.37   0.018     .0453105    .4829479
        Inne |   .0074026   .0034279     2.16   0.031     .0006839    .0141212
    wpremium |  -1.862003   .3825103    -4.87   0.000    -2.611709   -1.112297
         Imp |    .032085   .0140502     2.28   0.022     .0045471    .0596229
        comp |    .020207   .0335772     0.60   0.547    -.0456031    .0860172
    eumshare |  -.1057862   .0761993    -1.39   0.165    -.2551341    .0435617
         IFT |  -.1990455   .2268125    -0.88   0.380    -.6435898    .2454988
         Lev |  -.0412872   .0190325    -2.17   0.030    -.0785902   -.0039842
        Subs |  -.0000748    .000296    -0.25   0.801    -.0006549    .0005053
         yr3 |   .0714369   .0589374     1.21   0.225    -.0440783    .1869521
         yr4 |   .1458695   .0601595     2.42   0.015     .027959     .2637801
         yr5 |   .0139618   .0504663     0.28   0.782    -.0849504     .112874
         yr6 |   -.030063   .0611177    -0.49   0.623    -.1498515    .0897255
         yr7 |   .1009653   .0666955     1.51   0.130    -.0297554     .231686
       _cons |  -2.435804   .6715224    -3.63   0.000    -3.751964   -1.119644
------------------------------------------------------------------------------
Arellano-Bond test for AR(1) in first differences: z =  -3.19  Pr > z =  0.001
Arellano-Bond test for AR(2) in first differences: z =   0.51  Pr > z =  0.609
------------------------------------------------------------------------------
Sargan test of overid. restrictions: chi2(41)   =  44.94  Prob > chi2 =  0.310
  (Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(41)   =  33.54  Prob > chi2 =  0.789
  (Robust, but can be weakened by many instruments.)

Difference-in-Hansen tests of exogeneity of instrument subsets:
  GMM instruments for levels
    Hansen test excluding group:     chi2(29)   =  27.34  Prob > chi2 =  0.553
    Difference (null H = exogenous): chi2(12)   =   6.20  Prob > chi2 =  0.906
  gmm(L.ruev, collapse lag(1 .))
    Hansen test excluding group:     chi2(36)   =  30.56  Prob > chi2 =  0.725
    Difference (null H = exogenous): chi2(5)    =   2.98  Prob > chi2 =  0.703
  gmm(kl wpremium eumshare IFT Subs Lev, collapse lag(2 4))
    Hansen test excluding group:     chi2(17)   =  16.30  Prob > chi2 =  0.503
    Difference (null H = exogenous): chi2(24)   =  17.25  Prob > chi2 =  0.838
  gmm(Inne, lag(2 5))
    Hansen test excluding group:     chi2(21)   =  19.99  Prob > chi2 =  0.522
    Difference (null H = exogenous): chi2(20)   =  13.55  Prob > chi2 =  0.853
  iv(Imp comp yr3 yr4 yr5 yr6 yr7)
    Hansen test excluding group:     chi2(34)   =  30.87  Prob > chi2 =  0.622
    Difference (null H = exogenous): chi2(7)    =   2.67  Prob > chi2 =  0.914
```

Long-run coefficients

```
. nlcom (lrkl: _b[kl]/(1-_b[l.ruev])) (lrInne: _b[Inne]/(1-_b[l.ruev])) (lrwpre
> mium: _b[wpremium]/(1-_b[l.ruev])) (lrImp: _b[Imp]/(1-_b[l.ruev])) (lrcomp: _
> b[comp]/(1-_b[l.ruev])) (lreumshare: _b[eumshare]/(1-_b[l.ruev])) (lrIFT: _b[
> IFT]/(1-_b[l.ruev])) (lrLev: _b[Lev]/(1-_b[l.ruev])) (lrSubs: _b[Subs]/(1-_b[
> l.ruev]))
------------------------------------------------------------------------------
        ruev |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        lrkl |   .7130043   .3231574     2.21   0.027     .0796275    1.346381
      lrInne |   .0199829   .0086407     2.31   0.021     .0030474    .0369183
  lrwpremium |  -5.026389   1.482952    -3.39   0.001    -7.932922   -2.119857
       lrImp |   .0866119   .0367806     2.35   0.019     .0145233    .1587006
      lrcomp |   .0545479   .0950547     0.57   0.566    -.1317559    .2408517
  lreumshare |   -.285565   .2574233    -1.11   0.267    -.7901055    .2189755
       lrIFT |  -.5373139    .655618    -0.82   0.412    -1.822302    .7476738
       lrLev |  -.1114528   .0405334    -2.75   0.006    -.1908969   -.0320087
      lrSubs |  -.0002019     .00079    -0.26   0.798    -.0017503    .0013465
------------------------------------------------------------------------------
```

Table A6: Comparison of coefficients on lagged dependent variable obtained with OLS, dynamic panel system GMM and fixed effects estimation techniques

	Coef.	Std.Error	z	P>|z|
Specification 1				
Fixed Effects (FE)	0.18	0.07	2.69	0.008
System GMM	0.63	0.11	5.77	0.000
Ordinary least squares (OLS)	0.74	0.04	18.72	0.000

NEW MARKETING AND COMMUNICATION MANAGEMENT EFFORTS IN THE HOTEL SECTOR: THE CASE OF HIGH-QUALITY HOTELS OF DALMATIA

Maja Šerić
"V Segles" scholarship holder
University of Valencia/International Economics Institute
Calle Serpis 29, 3rd floor, Valencia 46022, Spain
Phone: +34 963 82 87 20; Fax: +34 96 382 84 34
E-mail: Maja.Seric@uv.es

Irene Gil Saura
University of Valencia/Marketing and Market Research Department
Avda. dels Tarongers, s/n, 46022 Valencia, Spain
Phone: +34 963 82 83 12; Fax: +34 963 82 83 33
E-mail: Irene.Gil@uv.es

Alejandro Mollá Descals
University of Valencia/Marketing and Market Research Department
Avda. dels Tarongers, s/n, 46022 Valencia, Spain
Phone: +34 963 82 83 34; Fax: +34 963 82 83 33
E-mail: Alejandro.Molla@uv.es

Key words: *Integrated Marketing Communications, Information and Communication Technology, Loyalty programs, Hotels, Dalmatia.*

ABSTRACT

Changes produced in the market have led to changes in the practice of marketing and communication management, as one single marketing communication tool could not achieve marketing communication purposes by itself. Consequently, it was necessary to develop more efficient communication disciplines, which is why the Integrated Marketing Communications (IMC) approach appeared. Considered among many academics and practitioners as the major marketing communications development, the expansion of IMC is inevitable and welcome. On the other hand, Information and Communication Technology (ICT) is one of the most significant driving forces of this approach, as it centers on consumer orientation and creation of databases, the basic characteristics of IMC. Conceived as an important factor of strategy creation, ICT will certainly lead a new world in the hotel sector. Additionally, information about customer's needs and its subsequent storing in a database are crucial to the development of loyalty programs, widely recognized as a critical success factor.

Thereby, the purpose of this research is to study in greater detail the implementation of IMC, ICT, and loyalty programs in the tourism sector, specifically in hotels. No studies were found until now regarding the application of all these concepts in Croatia, the country whose tourism sector has been developing strongly. The same also refers to high-quality hotels, which has made this investigation particularly interesting.

The empirical study was conducted in 17 high-quality hotels in Dalmatia, the largest region on the coast of Croatia. Descriptive statistics analysis showed a high degree of IMC and ICT, and more moderate degree of loyalty programs implementation in Dalmatian first-class (four-stars) and luxury (five-star) hotels. Comparing first-class and luxury hotels, apparently, some ICT applications increased, while IMC and loyalty programs implementation decreased with the hotel category. However, the Mann-Whitney U nonparametric test revealed that differences between these two groups were not statistically significant.

After the introduction, an overview of IMC, ICT, and loyalty conceptualization and measurement is presented. Research questions are proposed, followed by methodology and results. Finally, conclusions, implications, limitations, and future research possibilities are pointed out.

The findings of this study are expected to provide useful information to hotel managers, in order to provide new management possibilities and gain competitive advantages.

1. INTRODUCTION

Croatia considers tourism as one of the main strategic tools for its development (Bunja, 2003). According to data released by Croatian Bureau of Statistics – CROSTAT, in the period from January to December 2010 the number of tourist arrivals in all commercial accommodation facilities in the country increased by 3.2% and the number of tourist nights increased by 2.6%, as compared to the same period of 2009. Tourists spent 56.416.379 tourist nights (9.6% by domestic and 90.4% by foreign tourists). While the number of domestic tourist nights decreased by 5.8%, the number of foreign tourist nights increased by 3.6%. Regarding the structure of foreign tourist nights, most of them (74.4%) were spent by tourists from: Germany (22.5%), Slovenia (11.5%), Italy (9.3%), Austria (8.7%), the Czech Republic (8.2%), Poland (5.7%), the Netherlands (4.4%), and Slovakia (4.1%) (CROSTAT, February, 2011).

Croatia has 588 categorized hotels with 52.637 accommodation units (rooms and suites). 25 properties are five-star hotels (16 of them in Dalmatia), 160 properties are four-star hotels (77 of them in Dalmatia), 306 properties are three-star hotels, and 97 properties are two-star hotels (Ministry of Tourism - Republic of Croatia, March 2011).

However, the hotel sector of the country is still mainly managed by the personnel employed from the former economic and educational systems, which leads to an urgent need to engage new employees that have the necessary expertise and are capable of managing the business activities according to international management standards and present market conditions (Bunja, 2003).

It is well known that changes produced in the market have led to changes in the practice of marketing and communication management (Kitchen et al., 2004). Consequently, one single marketing communication tool could not achieve marketing communication purposes by itself (Garber & Dotson, 2002). This is why at the beginning of the 1990s the Integrated Marketing Communications (IMC) approach appeared. ICT has been one of the most significant driving forces of this change, as it centers on consumer orientation and creation of databases, the basic characteristics of IMC (Schultz, 2003). In other words, if the ideas of integration, coordination, and customer orientation are not new, the fact that new technologies have made

it possible to put these classical ideas into actual practice is new (Kliatchko, 2005; 2008). Moreover, new technologies have facilitated the creation of new tactics such as development of customer loyalty programs, which has be strongly considered and practiced among many companies in different sectors (Uncles et al., 2003). As Palmer et al. (2000) pointed out, through the implementation of loyalty programs, a company can collect information about its customers (Hamilton & Howcroft, 1995), which has a valuable role in the planning, implementation, and control of marketing programs.

Therefore, this article aims to study in greater detail the IMC, ICT, and loyalty programs development, considered as new marketing and communication management possibilities. It intends to study their implementation and development in high-quality hotels in Dalmatia, which is the largest of the three tourist regions on the coast of Croatia region.

2. LITERATURE REVIEW

2.1. Embracing the integration of marketing communications through new technologies

Since the early 1990s the communication integration has become the central topic in marketing communication literature (Cornelissen & Lock, 2000; 2001). Specifically, the approach of Integrated Marketing Communications (IMC) has been of great interest and importance for marketing practitioners and academics alike (Anantachart, 2004; Grove et al., 2007; Shimp, 2007; Christensen et al., 2009).

According to IMC approach, advertising can no longer be considered as the most important marketing communication tool. Instead, it adopts the holistic view of marketing communications in order to achieve mayor impact through the integration of all elements of promotional mix such as: advertising, sales promotion, events and experiences, public relations and publicity, direct marketing, interactive marketing, word of mouth marketing, and personal selling (Keller, 2009).

The advancements in Information and Communication Technology (ICT) are considered as one of the most significant driving forces of the integration approach (Schultz & Kitchen, 2000; Semenik, 2002; Kim et al., 2004; Kitchen et al., 2004; De Pelsmacker et al., 2005; Holm, 2006; Gurău, 2008; Kliatchko, 2009). In other words, integration had not appeared before because it was not achievable without ICT (Duncan, 2002). Moreover, Schultz (1999) stated that IMC "appears to be the natural evolution of traditional mass-media advertising, which has been changed, adjusted, and redefined as a result of new technologies" (p. 337).

Thereby, the recent rapid development of new technologies changed the classical communication process (Gurău, 2008), providing innovative communication channels on one hand and creation of database on the other (Kliatchko, 2005). As Gurău (2008) stated, new communication channels refer especially to the Internet, characterized by three specific characteristics which differentiate it from other communication channels: (a) interactivity (i.e. the Internet permits a direct interaction between audience and software applications); (b) transparency (i.e. the online information can be usually accessed by any Internet user); and (c) memory (i.e. the information published on the web can be stored). These options are transforming the profile and the behavior of online audiences. Marketing communication practitioners should therefore adapt to the new realities of how audiences get and use information. Therefore, owing to new technologies IMC programs are able to capture precise

data on customers. Moreover, management of database is of crucial importance for IMC approach, as it centers on well-defined target (Kliatchko, 2005).

Several denominations that reflect the synergy between the IMC and new technologies have been found in the literature:

- Interactive Integrated Marketing Communication (Peltier et al., 2003).
- Integrated Web-based Marketing Communication (Barker & Angelopulo, 2004; Angelopulo & Barker, 2005).
- Online Marketing Communications (Jensen & Jepsen, 2008).
- Integrated Online Marketing Communication (Gurău, 2008).
- Interactive Marketing Communications (Keller, 2009).

The basic idea of these approaches is the interactive nature of new media and the creation of personalized messages consistent with the communication campaign theme (Peltier et al., 2003).

2.1.1. Integrated Marketing Communications: conceptualization and measurement

In 1991, Schultz defined IMC as "the process of managing all sources of information about a product/service to which a customer or prospect is exposed which behaviorally moves the consumer toward a sale and maintains customer loyalty" (Duncan & Caywood, 1996: 18). The concept can also be considered as "a cross-functional process for creating and nourishing profitable relationships with customers and other stakeholders by strategically controlling or influencing all messages sent to these groups and encouraging data-driven purposeful dialogue with them" (Duncan, 2002: 7).

In his revision of seven IMC definitions examined by Kerr et al. (2008), Kliatchko (2009) pointed out their following common hallmarks:

- Coordination and synergy of marketing communication disciplines, channels, and tools.
- Consistency and coordination of marketing communication messages for maximum communication impact.
- Understanding and building profitable relationships with multiple audiences/stakeholders and its brands.
- IMC measurement from communication effects to behavioral and financial results.
- Strategic management of marketing communications planning.

Although all IMC definitions that have been emerging since the origin of the concept usually embrace these common hallmarks, the definitions proposed in last ten years focused

especially on the centrality of multiple stakeholders that IMC programs are directed to and on the drive for measurability and profitability (Kliatchko, 2009).

Due to the marketing communications landscape of today, the concept of measuring results continues to be a major challenge for the companies (Kitchen et al., 2004; Kliatchko, 2008). Among limited proposals of IMC measurement instruments (Table 1), the scale proposed by Duncan and Moriarty's (1997) is the most practiced in the literature (e.g. Reid, 2002; 2005; Hočevar et al., 2007; Winter & Sundqvist, 2009). It consists in five IMC dimensions: (a) interactivity, (b) mission marketing, (c) organizational infrastructure, (d) strategic consistency, and (e) planning and evaluation. Reid (2005) reduced this scale into three normative constructs, collapsing the last three dimensions into one, named "cross-functional strategic planning". Subsequently, Hočevar et al. (2007) combined "organizational infrastructure" and "strategic consistency" into one dimension, called "strategic organization".

Moreover, Phelps and Johnson (1996) proposed five dimensions to operationalize the concept: (a) direct marketing, (b) one-voice, (c) coordinated marketing communication campaigns, (d) increased responsibilities, and (e) response goals. Ewing et al. (2000) employed only four of these dimensions, omitting "coordinated marketing communication campaigns" dimension.

On the other hand, Low (2000) measured IMC through a three item scale: (a) integration, (b) strategic consistency, and (c) message consistency, while Wang et al. (2009) identified three IMC factors: (a) public relations, (b) advertisement, and (c) direct sale & promotion.

Based on previous definitions and studies on IMC, Lee and Park (2007) identified four IMC dimensions: (a) unified communications for consistent message and image, (b) differentiated communications to multiple customer groups, (c) database-centered communications for tangible results, (d) and relationship fostering communications with existing customers. As the same authors pointed out, this scale represents an improvement over the previous because it was designed specifically for the development of IMC scale and not for another purpose. Moreover, its procedures are more rigorous in methodology and it results to be more comprehensive than other scales. Finally, this scales needs to be validated in European context.

Table. 1. IMC measurement scales

AUTHORS	DIMENSIONS	ITEMS	METHOD	SAMPLE
Phelps & Johnson (1996)	1. Direct marketing 2. One-voice 3. Coordinated marketing communication campaigns 4. Increased responsibilities 5. Response goals	4 4 3 3 2	Factor analysis	101 publicly traded corporations
Duncan & Moriarty (1997)	1. Interactivity 2. Mission marketing 3. Organizational infrastructure 4. Strategic consistency 5. Planning and evaluation	4 3 4 3 6	N/A*	N/A*
Ewing et al. (2000)	1. Direct marketing 2. One-voice 3. Increased responsibilities 4. Response goals	4 4 3 3	Bivariate correlation analysis. Stepwise regression.	80 leading Australian public companies
Low (2000)	1. Integration 2. Strategic consistency 3. Message consistency	1 1 1	Bivariate correlation analysis. Stepwise multiple regression analysis.	421 U.S. companies practicing IMC
Reid (2005)	1. Interactivity 2. Mission marketing 3. Cross-functional strategic planning	2 2 11	Confirmatory factor analysis. Path analysis. Stepwise multiple regression analysis.	169 consumer goods and consumer services organizations in Australia
Lee & Park (2007)	1. Unified communications for consistent message and image 2. Differentiated communications to multiple customer groups 3. Database-centered communications for tangible results 4. Relationship fostering communications with existing clients	5 5 4 4	Exploratory factor analysis. Regression analysis.	155 companies from different sectors: 78 - manufacturing; 19 - financial service: 25 - physical distribution; 14 - information and communications; 19 – others
Wang et al. (2009)	1. Direct sale & promotion 2. Public relations 3. Advertisement	9 6 5	Descriptive statistics. Varimax rotation. ANOVA.	197 visitants of Lukang - a Taiwan heritage destination

Note. * N/A = Not applied

2.1.2. Integrated Marketing Communications in the tourism sector

Managers' opinions regarding the implementation of IMC have been broadly considered in the literature, especially in advertising and PR agencies (e.g. Eagle & Kitchen 2000; Kim et al., 2004; Kitchen et al., 2004; Swain, 2004; Li & Kitchen, 2005; Jiménez et al., 2006; Eagle et al., 2007; Kerr & Drennan, 2010). These studies point out that marketing communications' practitioners are familiar with the concept, they perceive it positively (Kim et al., 2004) and recognize its value (Eagle & Kitchen, 2000; Kerr & Drennan, 2010). Moreover, they believe that it will improve marketing communications know-how and they identify the benefits of integration such as: (a) mayor efficacy, (b) message impact and creativity, (c) competitive advantages (Jiménez et al., 2006), (d) stimuli to loyalty creation (Reid, 2005), and so on.

However, the need for integration in the tourism context has proven to be as necessary as in other sectors. Tourism markets and the media have grown more fragmented and consumers

thus find themselves with fragmented media images in a confusing marketing environment. This is why tourism marketers must coordinate all communication messages and sources in order to deliver a consistent, unified message through their promotional activities (Hudson, 2008).

Nevertheless, little research has been done on IMC implementation in tourism related sectors (e.g. Kulluvaara & Tornberg, 2003; Skinner, 2005; Elliott & Boshoff, 2008; Wang et al., 2009). Skinner (2005) thus analyzed the messages that the nation's key stakeholders sent out on web pages and in key documents while promoting Wales. The results indicated that the "one-voice" principle of IMC was not respected, due to the inconsistent promotion of the country based on different images and weak messages. Wang et al. (2009) studied the role of IMC on selection of heritage destination among 197 visitors of Lukang. The authors identified three factors of IMC: (a) public relations, (b) advertisement, and (c) direct sale & promotion and showed that the influence of each factor changed within different demographic groups. Two studies focused on opinion of managers operating in the tourism industry (i.e., Kulluvaara & Tornberg, 2003); Elliott & Boshoff, 2008). Thus, Elliott and Boshoff (2008) interviewed 316 managers in small tourism enterprises in South Africa in order to analyze the impact of different business orientations on IMC. The findings revealed positive impact on IMC implementation of: (a) market orientation, (b) entrepreneurial orientation, and (c) pro-active competitor orientation. Only the study of Kulluvaara and Tornberg (2003) was related to hotels, although limited to a case study of Icehotel (i.e. a hotel built of ice and snow and a Swedish tourist attraction) and a description of its successful IMC strategy, provided by its marketing assistant.

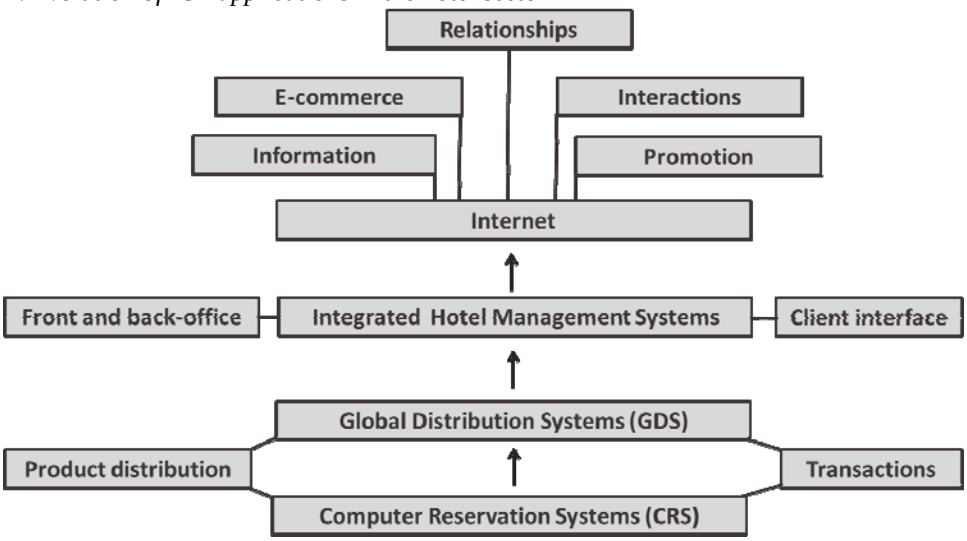
2.2. Evolution of Information and Communication Technologies in the hotel sector

ICT advancement represents an important source of competitive advantage (Gil et al., 2007) that provides companies with new management possibilities (Berenguer et al., 2009). It is defined as "the extent to which a firm adopts the most sophisticated technology. It measures the degree of proactive adoption and implementation of advanced IT to find customer solutions ahead of competitors" (Wu et al., 2006: 495). Moreover, it can be considered as "a term that encompasses all forms of technology utilized to create, capture, manipulate, communicate, exchange, present, and use information in its various forms (business data, voice conversations, still images, motion pictures, multimedia presentations, and other forms, including those not yet conceived)" (Ryssel et al., 2004: 198).

As Sánchez et al. (2001) pointed out, at the early beginning hotel firms were not inclined to use ICT. However, since 1970's they start to invest in technologies, specifically in Computer Reservation Systems (CRS), later on developed in Global Distribution Systems (GDS), created for the product distribution and transactions. Subsequently, Integrated Hotel Management systems were developed, meant to facilitate the operations of front-office (i.e. reservation, client accounts, reception management, room management, etc.) and back-office operations (i.e. accounting, yield management, human resources, data mining, cash, etc.), and to permit the control of different interfaces with clients (i.e. electronic keys, payment cards, energy management, room calls charging, etc.). However, the real revolution came with Internet, especially due to the role it plays in information and commercialization of the product. Hotels use Internet in order to promote and distribute their products and services (Buhalis & Main, 1998; Olsen & Connolly, 2000) and to stimulate the interaction and creation of personalized long-lasting relationships with their customers (Frey et al., 2003; Murphy et al., 2003; Lagrosen, 2005; Jang, et al., 2006; Ming-Chu, 2009). Therefore, its impact on

relationship marketing is remarkable (Moller & Halinen, 2000; Gummesson, 2002; Sheth, 2002; Ruiz et al., 2010b), as it facilitated the storing and processing of a great amount of information about the clients, in order to carry out personalized marketing campaigns (Shapiro & Varian, 2000).

Figure 1. Evolution of ICT applications in the hotel sector



Source: adapted from Sánchez et al. (2001)

Hence, from the 1990s the use of ICT in the hotel sector has started to be considered not only in terms of productivity, but also in terms of intangible benefits such as client service and satisfaction (Law & Jogaratnam, 2005) and as an incentive to establish intra-company, inter-company, and customer relationships (Jang et al., 2006; Daghfous & Barkhi, 2009). Still, mangers' doubts around the efficacy of ICT investments seem to persist (Luck & Lancaster, 2003). The studies of Frey et al. (2003) and Murphy et al. (2003), carried out in 200 Swiss hotels, revealed that possible clients had less than a one in 10 chance of receiving a quick, courteous, and personal reply. Moreover, the study of Law and Jogaratnam (2005) evidenced that hotel managers did not seem to realize the importance of IT as a crucial component of business strategy. In addition, Ruiz et al. (2010a) noted that, due to the complexity of CRM solutions, the level of understanding of their possibilities, their value and the way they work is low (Magnini et al., 2003) and that successful hotels will be those that use the ICT effectively, with the aim of instantly satisfying clients' variable desires and needs (Olsen & Connolly, 2000).

2.2.1. ICT measurement in the hotel sector

The ICT application in hotels has been evaluated through many different technological solutions (Ruiz et al., 2010a). Based on the research of previous studies, Ruiz et al. (2010a) grouped the main ICT facilities applied in hotels into: (a) in-house ICT (i.e. hotel hardware and software, network connectivity technologies, business integrated processes), and (b) ICT for external use (i.e. electronic marketing and sales solutions, Customer Relationship Management, ICT solutions related to customers, electronic supply management). The catalogue of the main ICT applications implemented in hotels is presented in Table 2.

Table 2. Catalogue of the main ICT applications implemented in hotels

IN-HOUSE ICT	ICT FOR EXTERNAL USE
Hotel hardware	**Electronic marketing and sales**
PC	Advertising/promotional supports:
Laptop	- promotional CD/DVD
PDA	- informative web
3G mobile	- informative e-leaflet
GPS	- e-Magazine
Telesecurity system	- multimedia (3D, virtual tour)
LCD screens	Online order reception:
Touch-screens	- hotel booking system without payment facilities
In-room TV:	- hotel booking system with payment facilities
- digital satellite TV	- computer reservations system (CRS)
- cable TV	- global distribution systems (GDS)
- digital terrestrial TV	- booking system of tourist destinations
- Interactive TV	- dynamic packages
In-room DVD	- electronic distribution to corporate customers
Piped music	- m-commerce
Phone:	Self-service technologies:
- analogical/digital telephony	- check-in/check-out solutions
- analogical/digital switchboard	- call center
Ambient intelligence	- voice recognition applications
Hotel software	**Customer relationship management (CRM)**
Office software	Customer information system (CIS)
Specific departmental software	E-mail marketing/direct marketing
Information analysis and report management	Viral marketing
Project management	Loyalty program
Simulators	
Expert systems	
Web security	
Network connectivity	**ICT solutions related to C2C communications**
Internet connection through	Searchers and metasearchers
RTC/RDSI/ADSL/cable/MTU/PLC/LMDS	Price comparison/predictor
Local area network (LAN) through cable	Virtual web communities 2.0
Wi-Fi local area network (W-LAN)	Auction webs
Bluetooth	
World Wide Interoperability (WiMAX)	
Business integrated processes	**Electronic supply management**
Intranet	Online order remittance/reception
ERP systems	Use of ICT for supply management
Online monitoring of production time	ICT systems connected to providers
Electronic invoicing	Online warehouse management

Source: Ruiz et al. (2010a), adapted from Buhalis (1998), eBusiness W@tch (2006), Observatorio (2007a) and Buhalis and Law (2008)

2.3. Understanding the conceptualization of loyalty for appropriate development of loyalty programs

In order to design and evaluate properly the loyalty programs, it is crucial to define and understand loyalty firstly (Palmer et al., 2000; Uncles et al., 2003; Jones & Taylor, 2007; Moliner, 2011). As Moliner et al. (2011) have recently pointed out, loyalty is the multidimensional construct which can be conceptualized from three main perspectives: (a) behavioral, (b) attitudinal, and (c) compound, considered as a combination of the first two perspectives (Bowen & Chen, 2001; Zins, 2001). Oliver (1997) considered loyalty from the behavioral point of view, defining it as a "a deeply held commitment to rebuy or repatronize a

preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing despite situational influences and marketing efforts having the potential to cause switching behavior" (p. 392). However, this definition of loyalty does not differentiate loyal customers from those who usually buy a product or service. Therefore, many researchers consider loyalty from the attitudinal perspective, as the simple repeat purchase might be provoked by inertia, indifference, or change costs (Reichheld, 2003). Berné (1997) thus defined loyalty as "a promise of the individual referred to his behavior which entails future purchase likelihood or less likelihood of changing to another brand or service provider" (Moliner et al., 2011: 3). As Zins (2001) underlined, the behavioral perspective is centered on past experience, whereas the attitudinal perspective is focused on future actions.

All three perspectives of the loyalty conceptualization were considered and evaluated in the hospitality industry:

- Behavioral loyalty - measured through intention to return/repeat purchase (e.g. Ekinci et al., 2008; Wilkins et al., 2010).
- Attitudinal loyalty - assessed through intention to recommend and intention to repurchase (e.g. Kandampully & Suhartanto, 2000; 2003).
- Compound loyalty - considered as combination of behavioral and attitudinal loyalty (e.g. Kim & Kim, 2005; Kayaman & Arasli, 2007).

In addition, Uncles et al. (2003) developed the following models which provide a platform for thinking about a loyalty continuum:

- Model 1: Customer brand commitment (i.e. attitudinal loyalty to the brand, mainly seen as single-brand loyalty - "monogamy").
- Model 2: Customer brand acceptance (i.e. behavioral loyalty to the brands, mainly seen as divided-loyalty to a few brands - "polygamy").
- Model 3: Customer brand buying (i.e. week loyalty or no loyalty, relationship between attitude and behavior are moderated by contingency variables such as individual's current circumstances and/or purchase situations effects; these variables are considered as co-determinants of buying brand(s) - "promiscuity").

While Models 1 and 3 are two extremes, Model 2 can be considers as a norm. According to the loyalty continuum proposed, Uncles et al. (2003) discussed the loyalty programs, identifying at one extreme (a) programs for niche brand, that presume customers are committed to "a favorite brand", at other extreme (b) promotional programs, that cater to the divided customer loyalty, and in between (c) loyalty programs, best described as "for the brands people already buy".

Shoemaker and Lewis (1999) noted that loyalty programs are meant to get and keep customers. Thereby, companies create them in order to protect market share and steal high-value customers from competitors, as well as to retain and grow high value customers, and to moderate both value customers and "non-high value" customers (i.e. if "non-high value" customers perform similar characteristics as the best customers, the company can reward them in order to make them more loyal).
More specifically, in line with the conceptualization of loyalty proposed by Uncles et al. (2003), advocates of the attitude loyalty pretend to increase sales through enhancement of

beliefs about the brand and through the strengthening of the customer emotional commitment to the brand. Instead, if behavior loyalty is the one to be achieved, managers should maintain their share of category sales by matching competitor initiatives and avoiding supply shortages. In this case, as customers habitually buy brands, they might participate in loyalty programs, but they will not be as influenced by them as the customers who have strong attitudes toward the brand. Therefore, as no significant changes in customer attitudes and behavior will occur, loyalty programs are designed mainly to match competitors or generate publicity. Finally, supporters of the contingency approach emphasize different strategies such as: avoiding stock-outs, extending opening hours, providing the appropriate assortment mix, or using price promotions. Here, the impact of loyalty programs is very limited, as companies are likely to stimulate greater loyalty if they are able to respond directly to the contingent factors (Uncles et al., 2003).

2.3.1. Development of loyalty programs through information management

It is well known that one of the main objectives of marketing actions is to increase consumer loyalty and to maintain permanent relationships with customer (Moliner et al., 2011). As Moliner et al. (2011) have recently noted, loyalty programs help to increase levels of commitment (Gruen et al., 2000) and satisfaction (Geyskens et al., 1999), thereby encouraging repeat purchase behavior (Berry, 1995). Therefore, satisfied loyal customers who are committed to the company not only repeat purchase but also make positive recommendations, attracting thus new customers (Veloutsou et al., 2005). Moreover, as Palmer et al. (2000) pointed out, many studies have suggested that it is more profitable to retain existing customers, than constantly capturing new ones (Reichheld & Sasser, 1990; Hamilton & Howcroft, 1995).

A great area of concern in loyalty programs development is related to data collection through loyalty program databases (Uncles et al., 2003). A properly designed database enables firms to keep track of guests' preferences and to provide customized service (Shoemaker & Lewis, 1999). Likewise, Palmer et al. (2000) considered hotels' positioning in terms of two key dimensions of loyalty programs: (a) their information intensity and (b) their capacity and willingness to customize their services in order to satisfy the needs of individual customers. The study analyzed 12 medium and larger-sized UK hotels and reveled that customization and information intensity were closely correlated with each other. Moreover, the findings suggested that different categories of hotels require different approaches to the development of their loyalty programs. Precisely, one mayor hotel group, operating within the luxury environment, was characterized by high levels of customization, but with low levels of information management, which is why managers within this segment should embrace creativity to differentiate their loyalty programs. As in the luxury hotel market the customization is a guest expectation (Palmer et al., 2000), we will focus on the hotel's supply of information about customers.

As Palmer et al. (2000) underlined, information management has a crucial role in development of loyalty programs (Hamiliton & Howcroft, 1995; Christy et al., 1996). Loyalty programs that store individual customers' demographic status and spending patterns can contribute significantly to a company's knowledge base. However, many hotels do not seek to obtain information about customers, but use their loyalty programs in order to give rewards in proportion to their expenditure (Ranby, 1995). These programs can be considered as limited, as they offer less opportunity to develop one-to-one marketing relationships with each customer and are less likely to develop affective loyalty. Furthermore, even where

information about customers is collected, this is usually of a behavioral rather than an attitudinal nature.

Therefore, the real challenge in the context of customer loyalty is not only to develop structured information systems, but to use the collected information effectively in order to customize services according to individual customers' preferences. This will provide superior value to the customer and will stimulate repeat purchase (Shoemaker & Lewis, 1998; Palmer et al., 2000).

3. RESEARCH QUESTIONS AND METHODOLOGY

The purpose of this article is to analyse in greater detail the IMC, ICT, and loyalty programs concepts in Dalmatian first-class (four-star) and luxury (five-star) hotels.

As we have previously pointed out, IMC approach has been widely accepted and implemented as a new paradigm all over the world (Peltier et al., 2003; Edmiston-Strasser, 2009; Kitchen & Schultz, 2009). However, further contributions are needed to consolidate the concept (McGrath, 2005). This especially refers to tourism related sectors, as the literature review showed little empirical evidence on IMC in this specific area. Therefore, the first research question is proposed:

Q1: Examine the implementation of IMC in high-quality Dalmatian hotels and observe whether there are differences between the first-class and the luxury hotels.

New technologies are considered as one of the most important background factors of IMC. The literature review has evidenced the considerable impact of ICT on the hotel sector, as it represents an important source of competitive advantage (Gil et al., 2007). Therefore, successful companies will be those who implement new technologies effectively (Olsen & Connolly, 2000). Furthermore, an urgent need to adopt new management activities within the hotel sector of Croatia was underlined (Bunja, 2003). In line with these considerations, the second research question is proposed:

Q2: Examine the implementation of ICT in high-quality Dalmatian hotels and observe whether there are differences between the first-class and the luxury hotels.

Finally, effective data analysis and information management are crucial for development of loyalty programs (Shoemaker & Lewis, 1998; Palmer et al., 2000), created to obtain committed, satisfied, and loyal customer (Moliner et al., 2011). Therefore, the third research question is proposed:

Q3: Examine the development of loyalty programs in high-quality Dalmatian hotels through information intensity and observe whether there are differences between the first-class and the luxury hotels.

The empirical study was conducted during April and May 2010 in Dalmatia, which is the largest of the three tourist regions on the coast of Croatia. Due to the characteristics of the Croatian hotel sector, a census for the study was selected on the basis of the hotels' connection to the Association of Hoteliers of Split and Dalmatia and the firm Marcon, both innovators and globally relevant Croatian sources of know-how, focused on the promotion and development of tourism in the area. Similarly, hotels in the Dubrovnik city area were approached. The census consisted of 17 high-quality hotels situated in Dalmatia, particularly

in: the Split city area (Split, Podstrana, Solin, and Trogir) and the Dubrovnik city area (Dubrovnik and Cavtat). Nine hotels were luxury and eight were first-class hotels. The respondents were as follows: a) six hotel managers; b) seven marketing and sales managers c) two marketing assistants; d) one manager assistant; e) one PR manager; and f) one food and beverage manager (two hotels had two respondents at one time, while two other hotels had only one respondent).

The data were collected through a structured questionnaire. The initial version was pre-tested on two hotel directors and subsequently reduced in order to shorten its duration. The revised questionnaire consisted of closed questions measured by 5-point Likert-type scales and was written in Croatian and English. It was mainly administered through personal interviews (in two hotels it was administered through telephone interviews, whereas in another two hotels it was self-administered).

In order to measure IMC implementation, Lee and Park's scale (2007) was used, examining four IMC dimensions: (a) unified communications for consistent message and image; (b) differentiated communications to multiple customer groups; (c) database-centered communications for tangible results; and (d) relationship fostering communications with existing customers. The scale consisted of 18 items: 5 items were used to measure the first dimension, 5 the second, 4 the third, and 4 the last dimension. ICT implementation was measured through the adapted scale of Ruiz et al. (2011): (a) 17 items assessed hotels' hardware equipment; (b) 5 measured connection; (c) 7 applied to software equipment; and (d) 12 items evaluated ICT equipment for guest service during his/her stay in the hotel. Finally, loyalty programs development was operationalized through the adapted scale of Palmer et al. (2000), using 10 items to measure information intensity.

4. RESEARCH RESULTS

Due to the small census of 17 hotels, descriptive statistics and nonparametric tests were carried out for data analysis, using SPSS software – version 17 (Table 3, 4, & 5). When comparing the two hotel categories, we first performed the Kolmogorov-Smirnov test in order to check the normality of data distribution. As a great part of items had critical values lower than .05, we concluded that data were not normally distributed (Camacho, 2002). Therefore, we performed the Mann-Whitney U test, comparing two independent samples, as this test is a nonparametric method that should be used when data do not show normal distribution and when the sample is small (Corder & Foreman, 2009).

The results revealed a high degree of IMC implementation in Dalmatian high-quality hotels. As presented in Table 3, means were greater than 3.99 for all IMC items except the one that measured the differentiation of the buyer and the user within hotels' marketing communications strategy (M=3.59). Hotels seemed to give special attention to: (a) generating a continuous flow of profits from individual customers in the long run by solidifying relationships with them (M=4.82); (b) creation of more than two target customer groups (M=4.76); (c) maintaining existing customers, as well as recruiting new ones (M=4.76); (d) generating continuous business with existing customers and enhancement of their satisfaction level (M=4.76); (e) consistency in all visual components of communication (M=4.71); and (f) inducement of customer's actions (M=4.71).

Comparing first-class and luxury hotels, surprisingly, the results showed that a degree of IMC implementation decreased with the hotel category, completely regarding the first two IMC

dimensions – unified communications for consistent message and image and differentiated communications to multiple customer groups – and partially regarding the last two – database-centered communications for tangible results and relationship fostering communications with existing customers. However, the Mann-Whitney U test revealed that these differences were not statistically significant, as all p values were greater than .05 (Table 3).

Table 3. Descriptive statistics and comparison of the means according to the hotel category: IMC implementation

IMC ITEMS		Mean	SD	Mean rank 4*	Mean rank 5*	U test	
		N=17	N=17	N=8	N=9	U	p
Unified communications for consistent message and image	1. Hotel carefully examines whether its intended message is consistently delivered through all communications tools and channels (e.g. advertising, publicity, packaging, direct mail, POP display, banner, and website)	4,53	,717	10,69	7,50	22,5	,125
	2. Hotel maintains consistency in all visual components of communication (e.g. trademarks, logos, models, and color)	4,71	,470	10,44	7,72	24,5	,162
	3. Hotel maintains consistency in all linguistic components of communication (e.g. slogans and mottos)	4,12	,928	9,63	8,44	31,0	,609
	4. Insuring a consistent brand image is one of the most important goals of the hotel's marketing communications (*marcom*) program	4,53	,874	10,31	7,83	25,5	,208
	5. Hotel does not alter the brand image, even as its context changes, but maintains its consistency from the long-term perspective	4,65	,606	10,19	7,94	26,5	,252
Differentiated communications to multiple customer groups	6. Hotel's *marcom* strategy differentiates the buyer and the user, if the two are not the same	3,59	1,873	10,13	8,00	27,0	,325
	7. Hotel carefully deliberates whether creating more than two target customer groups is desirable	4,76	,437	9,94	8,17	28,5	,327
	8. The issue of whether to maintain a single brand image or to create multiple brand images of the product is thoroughly discussed in the hotel	4,00	1,118	9,88	8,22	29,0	,476
	9. The *marcom* strategy of the hotel is based on a close scrutiny of the stages of the customers' buying process such as brand awareness, information search, showroom visit, and purchase	4,06	1,029	9,75	8,33	30,0	,535
	10. Hotel employs the *marcom* tools that are most appropriate for each stage of the consumers' buying process	4,24	,970	10,94	7,28	20,5	,103
Data-base centered communications for tangible results	11. Hotel's *marcom* activities are designed to induce customer's actions (e.g. telephone order, phone inquiry, showroom visit, and returning a prepaid postcard)	4,71	,470	9,38	8,67	33,0	,715
	12. Hotel follows up on consumer responses to *marcom* activities (e.g. mailing fliers and coupons to those who participated in the company-sponsored events and made a phone inquiry after seeing our advertisements)	4,59	,507	8,25	9,67	30,0	,499
	13. Hotel sees to it that the consumer information that is generated in the course of *marcom* activities is complied	4,65	,606	9,19	8,83	34,5	,857
	14. Hotel integrates customer information collected or generated from different divisions into a unified database	4,29	,849	9,56	8,50	31,5	,634
Relationship fostering communication with existing customers	15. Hotel actively carries out *marcom* activities, which strengthen the relationship with existing customers (e.g. sending birthday cards)	4,24	1,033	9,13	8,89	35,0	,916
	16. Hotel emphasizes that maintaining and strengthening relationships with existing customers is as important as expanding the market share by recruiting the new ones	4,76	,562	9,31	8,72	33,5	,717
	17. Hotel's *marcom* strategy places heavy emphasis on generating continuous business from existing customers by enhancing their satisfaction level	4,76	,437	8,88	9,11	35,0	,896
	18. Hotel makes efforts to generate a continuous flow of profits from individual customers in the long run by solidifying relationships with them	4,82	,393	9,44	8,61	32,6	,611

Furthermore, the results showed relatively high degree of ICT implementation. As presented in Table 4, means greater than 3.99 were related to following ICT items: (a) different hardware items (PC computer=5.00; mobile telephone=4.88; server=4.76; laptop=4.71; home automation systems=4.65; LCD screen=4.59; electronic cash register=4.59; point of sale systems=4.53; telephone exchange=4.47; digital telephone=4.00); (b) some connection items (Internet connection=4.71; Wi-Fi=4.65; local area connection with cable=4.06); (c) almost all software items (office automation programs=5.00; security systems=4.82; informatics invoicing systems=4.65; information analysis=4.29; specific department applications=4.24); and (d) a few items that measured the equipment for guest service during his/her stay in the hotel (LCD screen=4.59; video surveillance=4.53; digital telephone=4.00). However, the results revealed poor adoption of some connection items (WiMAX=1.29; Bluetooth=1.82) and of some equipment for guest service items (stereo in rooms=1.24; touchscreen=1.41; interactive TV=1.82).

Comparing the two hotel categories, the results of the Mann-Whitney U test showed that connection and equipment for guest service during his/her stay in the hotel increased with the hotel category, while the implementation of hardware and software applications decreased. However, the test did not reveal any significant difference between the two hotel categories, as all p values (except fax item) were greater than .05 (Table 4).

Table 4. Descriptive statistics and comparison of the means according to the hotel category: ICT implementation

ICT ITEMS		Mean	SD	Mean rank 4*	Mean rank 5*	U test	
		N=17	N=17	N=8	N=9	U	p
Hardware	1. PC computer	5,00	,000	9,00	9,00	36,0	1,000
	2. Laptop	4,71	,686	8,25	9,67	30,0	,385
	3. Server	4,76	,562	9,31	8,72	33,5	,717
	4. Security copy systems	3,59	1,176	8,94	9,06	35,5	,960
	5. Personal digital assistant	2,53	1,663	7,50	10,33	24,0	,227
	6. Digital telephone	4,00	1,620	8,69	9,28	33,5	,777
	7. Mobile telephone	4,88	,485	9,50	8,56	32,0	,346
	8. Fax	3,94	1,197	11,75	6,56	14,0	,024
	9. Telephone exchange	4,47	,800	10,25	7,89	26,0	,257
	10. Digital camera	3,29	1,160	9,00	9,00	36,0	1,000
	11. LCD screen	4,59	1,064	10,50	7,67	24,0	,083
	12. Touch screen	2,18	1,551	7,44	10,39	23,5	,176
	13. Digital terrestrial TV – DTT	2,24	1,678	9,44	8,61	32,5	,705
	14. DVD	2,65	1,320	9,38	8,67	33,0	,766
	15. Electronic cash register	4,59	1,004	9,75	8,33	30,0	,436
	16. Point of sale systems	4,53	1,007	9,19	8,83	34,5	,857
	17. Home automation systems	4,65	,606	10,50	7,67	24,0	,148
Connection	18. Internet connection	4,71	,849	8,88	9,11	35,0	,864
	19. Local area connection with cable	4,06	1,519	7,25	10,56	22,0	,114
	20. Wi-Fi	4,65	,786	10,50	7,67	24,0	,081
	21. Bluetooth	1,82	,951	9,00	9,00	36,0	1,000
	22. Worldwide interoperability WiMAX	1,29	,686	8,63	9,33	33,0	,664

ICT ITEMS		Mean	SD	Mean rank 4*	Mean rank 5*	U test	
		N=17	N=17	N=8	N=9	U	p
Software	23. Office automation programs	5,00	,000	9,00	9,00	36,0	1,000
	24. Design programs	2,88	1,453	9,00	9,00	36,0	1,000
	25. Security systems	4,82	,529	10,00	8,11	28,0	,169
	26. Informatics invoicing systems	4,65	,786	9,75	8,33	30,0	,436
	27. Specific department applications	4,24	1,348	8,69	9,28	33,5	,777
	28. Information analysis	4,29	1,047	11,13	7,11	19,0	,069
	29. Simulators	2,53	1,625	10,75	7,44	22,0	,151
Equipment for guest service during his/her stay in the hotel	30. Video surveillance	4,53	1,125	9,50	8,56	32,0	,562
	31. LCD screen	4,59	1,064	9,44	8,61	32,5	,613
	32. Touch screen	1,41	1,176	9,00	9,00	36,0	1,000
	33. Satellite digital TV	3,65	1,801	8,00	9,89	28,0	,396
	34. Cable TV	2,71	1,929	10,94	7,28	20,5	,097
	35. Digital terrestrial TV – DTT	2,24	1,751	8,50	9,44	32,0	,650
	36. Interactive TV	1,82	1,380	7,81	10,06	26,5	,256
	37. DVD in rooms	2,00	1,118	8,25	9,67	30,0	,532
	38. Stereo in rooms	1,24	,562	8,50	9,44	32,0	,562
	39. Analogical telephone	2,35	1,835	9,06	8,94	35,5	,956
	40. Digital telephone	4,00	1,732	8,13	9,78	29,0	,399
	41. Ambient intelligence	2,59	1,873	7,06	10,72	20,5	,101

Finally, the results indicated a moderate degree of loyalty programs development, examined through information intensity (Table 5). Thus, items related to analysis of customers' socio-economic characteristics, customers' life-style characteristics, spending patterns of individual customer, aggregate usage of the loyalty program, and criteria for dropping customer from the loyalty programs had mean values lower than 3,99.

Comparing the two hotel categories, surprisingly, information management seemed to be more developed in first-class than in luxury hotels. Luxury hotels had better performance only analyzing the spending patterns of individual customer, aggregate usage of the loyalty programs, and using information in order to tailor promotional offers to individual customer's preferences. Once again, the Mann-Whitney U test did not confirm the statistical significance of differences between first-class and luxury hotels.

Table 5. Descriptive statistics and comparison of the means according to the hotel category: loyalty programs development through information intensity

LOYALTY PROGRAMS ITEMS		Mean	SD	Mean rank 4*	Mean rank 5*	U test	
		N=17	N=17	N=8	N=9	U	p
Information intensity	1. Customers' socio-economic characteristics are routinely analyzed	3,53	1,231	9,31	8,72	33,5	,804
	2. Customers' life-style characteristics are routinely analyzed	3,41	1,228	9,63	8,44	31,0	,617
	3. The spending patterns of individual customers are routinely analyzed	3,71	1,160	8,69	9,28	33,5	,802
	4. Aggregate usage of the loyalty program is routinely analyzed	3,53	1,419	8,94	9,06	35,5	,960
	5. Criteria exist for dropping customers from the loyalty program	2,53	1,546	9,06	8,94	35,5	,960
	6. Information is used effectively to generate new customers	4,47	,717	10,19	7,94	26,5	,298
	7. Information is used effectively to retain customers	4,71	,470	10,44	7,72	24,5	,162
	8. Information is used effectively to increase existing customers' expenditure	4,29	,772	9,75	8,33	30,0	,531
	9. Information is used to tailor promotional offers to individual customers' preferences	4,29	,772	8,88	9,11	35,0	,917
	10. Information is used to provide services in accordance with individual customers' preferences	4,24	,752	9,25	8,78	34,0	,835

5. CONCLUSIONS, IMPLICATIONS, LIMITATIONS, AND FUTURE RESEARCH POSSIBILITIES

The purpose of this study was to examine new marketing and communication management possibilities. More specifically, it aimed to contribute to IMC, ICT, and loyalty programs research in Dalmatian high-quality hotels. The results of descriptive statistic analysis demonstrated a high degree of IMC and ICT implementation and a moderate degree of information management, which is crucial for design of loyalty programs. Some differences have been observed between first-class and luxury Dalmatian hotels regarding the implementation of the studied variables. However, the nonparametric Mann-Whitney U test revealed that these differences were not statistically significant.

The findings of this study have important implications for hotel managers. In order to respond efficiently to market requirements, a company needs to integrate its different promotional tools and embrace both flexibility and customization (Gurău, 2008), as well as variety and diversity (Christensen et al., 2008; 2009). Furthermore, it has to try to balance its many voices with the efforts to assure clarity and consistency in its overall expression (Christensen et al., 2008; 2009; Gurău, 2008; Torp, 2009). Dalmatian luxury hotels should take in consideration these aspects, as according to results of this study, first-class hotels showed better IMC performance.

In addition, the rapid evolution of ICT has offered new instruments for management within the hospitality industry (Buhalis & Law, 2008). Hotel managers should put all their attention

in this direction. As Ruiz et al. (2010a) noted, the strategic use of new technologies represents one of the main opportunities for the hotel industry at present. In particular, hotels can make use of ICT to develop a deep knowledge of customer variable needs, behaviors, and preferences, encouraging thus loyalty (Minghetti, 2003).

Furthermore, understanding and measuring loyalty is essential in the hotel context, as helps companies to improve delivery of their services to customers (Moliner et al., 2011). Specifically, loyalty programs based on a supply of information about customers' needs are of a great importance. Dalmatian high-quality hotels seemed to overlook this aspect. Only one of 17 hotels revealed that it had fully developed loyalty program. This might be a missed opportunity for other hotels. If hotel uses effectively collected data (not merely stores it), it will be able to get to know the consumer better and to provide him customized, rather than standardized services. Therefore, managers should recognize the value of the information management. As Palmer et al. (2000) pointed out, if information intensity and customized service reach high degrees, loyalty will likely to be of both an attitudinal and behavioral nature thus resulting in "true" customer loyalty.

As all other papers, this one has some limitations, which should be considered as opportunities for the future research. The small hotel census is the main one. It should be noted that Croatia in general and Dalmatia in particular have a low number of high-quality hotels. Furthermore, this study centered on the first-class and luxury hotel segment in Dalmatia, linked to the Association of Hoteliers of Dalmatia and Marcon firm, as these companies are characterized by more advanced management. However, the fact that a great part of the Croatian hotel management personnel (high-quality hotels inclusive) is still anchored to the former economic and educational system shouldn't be ignored as this might have influenced the quality of the replies. Therefore, future studies need to concentrate on areas that have a bigger hotel census characterized, in addition to more innovative management. Moreover, as this study was focused on managers' opinion only, future studies should adopt a consumer-centric approach, as consumer opinions and perceptions are an integral part of business and marketing strategies (Gurău, 2008; Kitchen & Schultz, 2009; Kliatchko, 2009). Particularly, another key dimension of loyalty programs - service customization, and its perception from the consumer perspective, should be approached. In addition, future research should also focus on causal relationships between the studied constructs.

ACKNOWLEDGEMENT

The authors are very grateful for the support of the project SEJ2007-66054/ECON and ECO2010/17475 of the Spanish Ministry of Science and Innovation.

BIBLIOGRAPHY

Anantachart, S. (2004): **Integrated Marketing Communications and Market Planning: Their Implications to Brand Equity Building,** ***Journal of Promotion Management*****,** 11(1): 101-125.

Angelopulo, G.C. and Barker, R. (2005): **Integrated Web-based marketing communication: An institutional tracking study,** ***Communicatio*****,** 31(1): 107-121.

Barker, R. and Angelopulo, G.C. (2004): **The integrated Web-based marketing communication model: A South African case-study, *International Journal of Technology, Policy and Management*,** 4(1): 53-62.

Berenguer Contrí, G., Gil Saura, I. and Ruiz Molina, M.E. (2009): **La utilización de las tecnologías de la información y la comunicación en las relaciones proveedor-minorista, *Boletín de Estudios Económicos*,** LXIV(197): 227-244.

Berné, C. (1997): **Modelización de la poscompra: satisfacción y lealtad**. In: J.M. Múgica and S. Ruiz, eds.: **El comportamiento del consumidor**. Barcelona: Ariel, pp. 163-180.

Berry, L. (1995): **Relationship marketing of service growing interest, emerging perspectives, *Journal of the Academy of Marketing Science*,** 23(4): 236-245.

Bowen, J.T. and Chen, S.L. (2001): **The relationship between customer loyalty and customer satisfaction, *International Journal of Contemporary Hospitality Management*,** 13(5): 213–217.

Buhalis, D. (1998): **Strategic use of information technologies in the tourism industry**, ***Tourism Management***, 19(5): 409–421.

Buhalis, D. and Law, R. (2008): **Progress in information technology and tourism management: 20 years on and 10 years after the internet – the state of e-tourism research, *Tourism Management*,** 29(4): 609–623.

Buhalis, D. and Main, H. (1998): **Information technology in peripheral small and medium hospitality enterprises: strategic analysis and critical factors, *International Journal of Contemporary Hospitality Management*,** 10(5): 198-202.

Bunja, D. (2003): **Modernizing the Croatian tourism industry, *International Journal of Contemporary Hospitality Management*,** 15(2): 126-128.

Camacho Rosales H. (2002): **Estadística con SPSS para Windows. Versión 11,** Madrid: RA-MA.

Christensen, L.T., Firat, A.F. and Cornelissen, J. (2009): **New tensions and challenges in integrated communications, *Corporate Communications, An International Journal*,** 14(2): 207-219.

Christensen, L.T., Firat, A.F. and Torp, S. (2008): **The organization of integrated communications: Toward flexible integration, *European Journal of Marketing*,** 42 (3/4): 423-452.

Christy, R., Oliver, G. and Penn, J. (1996): **Relationship marketing in consumer markets, *Journal of Marketing Management*,** 12: 175-87.

Corder, G.W. and Foreman, D.I. (2009): **Nonparametric Statistics for Non-Statisticians: A Step-by-Step Approach,** New Jersey: Wiley.

Cornelissen, J.P. and Lock, A.R. (2000): **Theoretical Concept or Management Fashion? Examining the Significance of IMC,** ***Journal of Advertising Research*****,** 40(5): 7-15.

Cornelissen, J.P. and Lock, A.R. (2001): **The appeal of integration: managing communications in modern organizations,** ***Marketing Intelligence & Planning*****,** 19(6): 425-431.

Croatian Bureau of Statistics - CROSTAT (2011): **Tourism-cumulative data: January – December 2010,** http://www.dzs.hr/default_e.htm. [Accessed 18.02.2011].

Daghfous, A. and Barkhi, R. (2009): **The strategic management of information technology in UAE hotels: An exploratory study of TQM, SCM, and CRM implementations,** ***Technovation***, 29(9): 588-595.

De Pelsmacker, P., Geuens, M. and Van den Bergh, J. (2005): **Marketing Communications - A European Perspective,** Harlow, FT: Prentice Hall.

Duncan, T.R. (2002): IMC: **Using Advertising and Promotion to Build Brands. International Edition,** New York, NY: The McGraw-Hill Companies, Inc.

Duncan T.R. and Caywood C. (1996): **The Concept, Process, and Evolution of Integrated Marketing Communication**, en E. Thorson and J. Moore, eds.: **Integrated Communication: Synergy of Persuasive Voices,** Lawrence Erlbaum Associates, Mahwah, NJ, pp. 13-34.

Duncan, T.R. and Moriarty, S.E. (1997): **Driving brand value. Using integrated marketing to manage profitable stakeholder relationships,** New York, NY: McGraw-Hill.

Eagle, L. and Kitchen, P. J. (2000). **IMC, brand communications, and corporate cultures. Client/advertising agency co-ordination and cohesion,** ***European Journal of Marketing,*** 34 (5/6): 667-686.

Eagle L., Kitchen, P.J. and Bulmer S. (2007). **Insights into interpreting integrated marketing communications. A two-nation qualitative comparison,** ***European Journal of Marketing*****,** 41(7/8): 956-970.

eBusiness W@tch (2006): **ICT and e-business in the tourism industry**, European Commission, Brussels, http://www.ebusiness-watch.org/studies/sectors/tourism/tourism.htm. [Accessed 14.05.2008].

Edmiston-Strasser, D.M. (2009): **An Examination of Integrated Marketing Communication in U.S. Public Institutions of Higher Education,** ***Journal of Marketing for Higher Education*****,** 19(2): 142-165.

Ekinci, Y., Dawes, P.L. and Massey, G.R. (2008). **An extended model of the antecedents and consequences of consumer satisfaction for hospitality services.** ***European Journal of Marketing*****,** 42(1/2): 35-68.

Elliott, R. and Boshoff, C. (2008): **The influence of business orientations in small tourism businesses on the success of integrated marketing communication, *Management Dynamics*,** 17(4): 32-46.

Ewing, M.T., De Bussy, N.M. and Caruana, A. (2000): **Perceived agency politics and conflicts of interest as potential barriers to IMC orientation, *Journal of Marketing Communications*,** 6(2): 107-119.

Frey, S., Schegg, R. and Murphy, J. (2003): **E-mail customer service in the Swiss hotel industry, *Tourism and Hospitality Research*,** 4(3): 197-212.

Garber, L.L.Jr. and Dotson, M.J. (2002): A **method for the selection of appropriate business-to-business integrated marketing communication mixes, *Journal of Marketing Communications*,** 8(1): 1-17.

Geyskens, I, Steenkamp J.B.E. and Kumar, N. (1999): **A meta-analysis of satisfaction in marketing channel relationship, *Journal of Marketing Research*,** 36: 223–238.

Gil, I., Cervera, A. and Frasquet, M. (2007): **Empleo de TIC y efectos relacionales en la cadena logística, *Boletín Económico de ICE*,** 2914: 31-48.

Grove, S.J., Carlson, L. and Dorsch M.J. (2007): **Comparing the application of Integrated Marketing Communication (IMC) in magazine ads across product type and time, *Journal of Advertising*,** 36(1): 37-54.

Gruen, T.W., Summers, J.O. and Acito, F. (2000): **Relationship marketing activities, commitment and membership behavior in professional association. *Journal of Marketing*,** 64: 34-49.

Gummesson, E. (2002): **Total Relationship Marketing (2nd ed.),** Oxford: Butterworth-Heinemann.

Gurău, C. (2008): **Integrated online marketing communication: implementation and management, *Journal of Communication Management*,** 12(2): 169-184.

Hamilton, R. and Howcroft, B. (1995): **A practical approach to maximising customer retention in the credit card industry, *Journal of Marketing Management*,** 11: 151-65.

Hočevar, N., Žabkar, V. and Mumel, D. (2007): **Učinci sudjelovanja vrhovnog menadžmenta u integriranoj marketinškoj komunikaciji. Effects of top management involvement in integrated marketing communications. *Tržište-Market*,** 19(2): 159-171.

Holm, O. (2006): **Integrated marketing communication: From tactics to strategy. *Corporate Communications: An International Journal*,** 11(1): 23-33.

Hudson, S. (2008): **Marketing for Tourism and Hospitality. A Global Perspective (2nd ed.)**, London: SAGE.

Jang, S.S., Hu, C. and Bai, B. (2006): **A canonical correlation analysis of e-relationship marketing and hotel financial performance, *Tourism and Hospitality Research*,** 6(4): 241-250.

Jensen, M.B. and Jepsen, A.L. (2008) **Online Marketing Communications: Need for a New Typology for IMC?, *Journal of Website Promotion***, 2(1): 19-35.

Jiménez-Castillo, D., Sánchez-Pérez, M. and Gázquez Abad, J.C. (2006): **An exploratory study on IMC in Spanish communication agencies: control decisions, barriers, benefits, and its future,** http://www.escp-eap.net/conferences/marketing/2006cp/Materiali/Paper/Fr/JimenezCastilloSanchezPerezGazquezAbad.pdf. [Accessed 09.03.2009].

Jones, T. and Taylor S.F. (2007): **The conceptual domain of service loyalty: how many dimensions?, Journal of Services Marketing**, 21(1): 36–51.

Kandampully, J. and Suhartanto, D. (2000): **Customer loyalty in the hotel industry: The role of customer satisfaction and image, *International Journal of Contemporary Hospitality Management*,** 12(6): 346-351.

Kandampully, J. and Suhartanto, D. (2003): **The Role of Customer Satisfaction and Image in Gaining Customer Loyalty in the Hotel Industry, *Journal of Hospitality & Leisure Marketing*,** 10(1/2): 3-25.

Kayaman, R. and Arasli, H. (2007): **Customer based brand equity: evidence from the hotel industry, *Managing Service Quality*,** 17(1): 92-109.

Keller, K.L. (2009): **Building strong brands in a modern marketing communications environment, *Journal of Marketing Communications*,** 15(2/3): 139-155.

Kerr, G. and Drennan, J. (2010): **Same But Different – Perceptions of Integrated Marketing Communications Among Marketing Communication Partners in Australia, *Journal of Promotion Management*,** 16(1): 6-24.

Kerr, G., Schultz, D.E., Patti, C. and Kim, I. (2008): **An inside-out approach to integrated marketing communication. An international analysis, *International Journal of Advertising*,** 27(4): 511-548.

Kim, I., Han, D. and Schultz, D.E. (2004): **Understanding the Diffusion of Integrated Marketing Communication, Journal of Advertising Research,** 44(1): 31-45.

Kim H.B. and Kim, W.G. (2005): **The relationship between brand equity and firms' performance in luxury hotels and restaurants", *Tourism Management*,** 26(4): 549-560.

Kitchen, P.J. and Schultz, D.E. (2009): **IMC: New horizon/false dawn for a marketplace in turmoil?, *Journal of Marketing Communications*,** 15(2/3): 197-204.

Kitchen, P.J., Brignell, J., Li, T. and Jones, G.S. (2004): **The Emergence of IMC: A Theoretical Perspective, *Journal of Advertising Research*,** 44(1): 19-30.

Kliatchko, J. (2005): **Towards a new definition of Integrated Marketing Communications (IMC),** ***International Journal of Advertising*****,** 24(1): 7-34.

Kliatchko, J. (2008): **Revisiting the IMC construct: A revised definition and four pillars,** ***International Journal of Advertising*****,** 27(1): 133-160.

Kliatchko, J. (2009): **IMC 20 Years After: A Second Look At IMC Definitions,** ***International Journal of Integrated Marketing Communications*****,** Fall: 7-12.

Kulluvaara, C. and Tornberg, J. (2003): **Integrated Marketing Communication and Tourism. A Case Study of Icehotel,** BS thesis, Luleå University of Technology, Sweden.

Lagrosen, S. (2005): **Effects of the Internet on the marketing communication of services companies,** ***Journal of Services Marketing*****,** 19(2): 63-69.

Law, R. and Jogaratnam, G. (2005): **A study of hotel information technology applications,** ***International Journal of Contemporary Hospitality Management*****,** 17(2): 170-180.

Lee, D.H. and Park, C.W. (2007): **Conceptualization and Measurement of Multidimensionality of Integrated Marketing Communications,** ***Journal of Advertising Research*****,** 47(3): 222-236.

Li, T. and Kitchen, P.J. (2005): **Perceptions of integrated marketing communication: A Chinese ad and PR agency perspective,** ***International Journal of Advertising*****,** 24(1): 51-78.

Low, G.S. (2000): **Correlates of Integrated Marketing Communications,** ***Journal of Advertising Research*****,** 40(3): 27-39.

Luck, D. and Lancaster, G. (2003): **E-CRM: Customer relationship marketing in the hotel industry,** ***Managerial Auditing Journal*****,** 18(3): 213-231.

Magnini, V.P., Honeycutt Jr., E.D. and Hodge, S.K. (2003): **Data Mining for Hotel Firms: Use and Limitations,** ***Cornell Hotel and Restaurant Administration Quarterly*****,** 44(2): 94-105.

Ming-Chu, K. (2009): **The construction model of customer trust, perceived value and customer loyalty,** ***Journal of American Academy of Business, Cambridge*****,** 14(2): 98-103.

Minghetti, V. (2003): **Building customer value in the hospitality industry: towards the definition of a customer-centric information system,** ***Information Technology and Tourism*****,** 6(2): 141-152.

Ministry of Tourism - Republic of Croatia (2011): **List of categorized tourist object, hotels, camps and marinas in Republic of Croatia,** http://www.mint.hr/default.aspx?id=371. [Accessed 30.03.2011].

Moliner-Velázquez, B., Gil-Saura, I. and Ruiz-Molina, M.E. (2011): **Conceptualizing and measuring loyalty: Towards a conceptual model of tourist loyalty antecedents, *Journal of Vacation Marketing*,** 17(1): 65-81.

Moller, K. and Halinen, A. (2000): **Relationship Marketing Theory: Its Roots and Direction, *Journal of Marketing Management*,** 16(1-3): 29-54.

Murphy, J., Olaru, D., Schegg, R. and Frey, S. (2003): **The Bandwagon Effect: Swiss Hotels' Web-site and E-mail Management, *Cornell Hotel and Restaurant Administration Quarterly***, 44(1): 71-87.

Observatorio de las Telecomunicaciones y la Sociedad de la Información – Entidad Pública Empresarial Red.es (2007a): **Diagnóstico tecnológico del sector de turismo rural,** http://www.conocimientoytecnologia.org/pdf/gestion_conocimiento/orsi/estudios _actualidad/8_diag_trural_2007.pdf. [Accessed 03.10.2008].

Oliver, R.L. (1997): **Satisfaction: A Behavioral Perspective on the Consumer,** New York: McGraw-Hill.

Olsen, M.D. and Connolly, D.J. (2000): **Experience-based Travel, *Cornell Hotel and Restaurant Administration Quarterly*,** 41(1): 30-40.

Palmer, A., Mcmahon-Beattie, U. and Beggs, R. (2000): **A structural analysis of hotel sector analysis programs, *International Journal of Contemporary Hospitality Management*,** 12(1): 54-60.

Peltier, J.W., Schibrowsky, J.A. and Schultz, D.E. (2003): **Interactive integrated marketing communication: combining the power of IMC, the new media and database marketing, *International Journal of Advertising*,** 22(1): 93-115.

Phelps, J. and Johnson, E. (1996): **Entering the quagmire: Examining the "meaning" of integrated marketing communications, *Journal of Marketing Communications*,** 2(3): 159-172.

Ranby, D. (1995): **The loyalty scheme panacea, *Insights*,** September: 49-52.

Reichheld, F.F. (2003): **The one number you need to grow, *Harvard Business Review*,** 81(12): 46-54.

Reichheld, F.F. and Sasser, W.E. (1990): **Zero defections: quality comes to services, *Harvard Business Review*,** 68: 105-111.

Reid, M. (2002): **Building Strong Brands Through the Management of Integrated Marketing Communications, *International Journal of Wine Marketing*,** 14(3): 37-52.

Reid, M. (2005): **Performance auditing of integrated marketing communications (IMC) actions and outcomes, *Journal of Advertising*,** 34(4): 41-54.

Ruiz Molina, M.E., Gil Saura, I. and Moliner Velázquez, B. (2010a): **Information and communication technologies in rural hotels, *International Journal of Sustainable Economy*,** 2(1): 1-15.

Ruiz Molina, M.E., Gil Saura, I. and Moliner Velázquez, B. (2010b): **The Role of Information Technology in Relationships between Travel Agencies and their Providers, *Journal of Hospitality and Tourism Technology*,** 1(2): 144-162.

Ruiz Molina, M E., Gil Saura, I. and Moliner-Velázquez, B. (2011): **Does technology make a difference? Evidence from Spanish hotels, *Service Business*,** 5(1): 1-12.

Ryssel, R., Ritter, T. and Gemünden, H.G. (2004): **The impact of information technology deployment on trust, commitment and value creation in business relationships, *Journal of Business & Industrial Marketing*,** 19: 197-207.

Sánchez Pérez, M., Marín Carillo M.B. and Sánchez Fernández, R. (2001): **Utilización de las tecnologías de la información en la industria hotelera: un análisis empírico, *Papers de Turisme*,** 29: 67-89.

Schultz, D.E. (1999): **Integrated Marketing Communications and how it relates to traditional media advertising**. In J.P. Jones, ed.: **The Advertising Business: Operations, Creativity, Media Planning, Integrated Communications**. London: Sage, pp. 325-338.

Schultz, D.E. (2003): **Evolving marketing and marketing communication into the twenty-first century.** In D. Iacobucci and B. Calder, eds.: **Kellogg on Integrated Marketing. New Jersey**, NJ: Willey, pp. VII-XXI.

Schultz, D.E. and Kitchen, P.J. (2000): **A Response to "Theoretical Concept or Management Fashion?", *Journal of Advertising Research*,** 40(5): 17-21.

Semenik, R.J. (2002): **Promotion and Integrated Marketing Communications,** Cincinnati, OH: South-Western, Thomson Learning.

Shapiro, C. and Varian, H. (2000): **Information Rules. A Strategic Guide to the New Economy,** Barcelona: Antoni Bosch.

Sheth, J.N. (2002): **The future of relationship marketing, *Journal of Services Marketing*,** 16(7): 590-592.

Shimp, T.A. (2007): **Integrated marketing promotions in advertising and promotion (7th ed.),** Mason, OH: South-Western, Thomson Learning.

Shoemaker, S. and Lewis, R.C. (1999): **Customer loyalty: The future of hospitality marketing, *Hospitality Management*,** 18(4): 345-370.

Skinner, H. (2005): **Wish you were here? Some problems associated with integrating marketing communications when promoting place brands, *Place Branding*,** 1(3): 299-315.

Swain, W.N. (2004): **Perceptions of IMC after a decade of development: Who's at the wheel and how can we measure success?, *Journal of Advertising Research*,** 44(1): 46-65.

Torp, S. (2009): **Integrated communications: From one look to normative consistency, *Corporate Communications: An International Journal*,** 14(2): 190-206.

Uncles M.D., Dowling G.R. and Hammond, K. (2003): **Customer loyalty and customer loyalty programs, *Journal of Consumer Marketing*,** 20(4): 294-316.

Veloutsou C., Gilbert, R.G., Moutinho, L.A. and Good, M.M. (2005): **Measuring transaction-specific satisfaction in services, *European Journal of Marketing*,** 39(5/6): 606-628.

Wang, Y.J, Wu, C. and Yuan, J. (2009): **The Role of Integrated Marketing Communications (IMC) on Heritage Destination Visitations, *Journal of Quality Assurance in Hospitality & Tourism*,** 10(3): 218-231.

Wilkins, H., Merrilees, B. and Herington, C. (2010): **The determinants of loyalty in hotels, *Journal of Hospitality Marketing & Management*,** 19(1): 1-21.

Winter, S. and Sundqvist, S. (2009): **IMC strategies in new high technology product launches, *Marketing Intelligence & Planning*,** 27(2): 191-215.

Wu, F., Yeniyurt, S., Kim, D. and Cavusgil, S.T. (2006): **The impact of information technology on supply chain capabilities and firm performance: A resource-based view, *Industrial Marketing Management*,** 35: 493-504.

Zins, A.H. (2001): **Relative attitudes and commitment in customer loyalty models, International, *Journal of Service Industry Management*,** 12(3): 269-294.

ECONOMIC CRISIS EXIT BY A SMALL EU COUNTRY: REDISCOVERING THE POST-KEYNESIAN PERSPECTIVE ON INCOMES AND PRICE POLICY

Maks Tajnikar
Professor
University of Ljubljana, Faculty of Economics
Kardeljeva pl. 17, 1000 Ljubljana, Slovenia
Phone: ++ 386 (1) 5892 574; Fax: ++ 386 (1) 5892 698
E-mail: maks.tajnikar@ef.uni-lj.si

Petra Došenovič Bonča
Teaching Assistant
University of Ljubljana, Faculty of Economics
Kardeljeva pl. 17, 1000 Ljubljana, Slovenia
Phone: ++ 386 (1) 5892 448; Fax: ++ 386 (1) 5892 698
E-mail: petra.d.bonca@ef.uni-lj.si

Nina Ponikvar
Assistant Professor
University of Ljubljana, Faculty of Economics
Kardeljeva pl. 17, 1000 Ljubljana, Slovenia
Phone: ++ 386 (1) 5892 567; Fax: ++ 386 (1) 5892 698
E-mail: nina.ponikvar@ef.uni-lj.si

Ksenja Pušnik
Assistant Professor
Faculty of Economics and Business, University of Maribor
Razlagova 14, 2000 Maribor, Slovenia
Tel.: +386 (0)2 2290 256
E-mail: ksenja.pusnik@uni-mb.si

Key words: *economic crisis, effective demand, incomes policy, price policy, Slovenia*

ABSTRACT

The recent economic crisis has become a global phenomenon. However, the path to the economic crisis, its materialisation and persistence are also country-specific and can only be studied by considering a country's past economic development, existing institutional environment and the economic policies it has implemented.

This paper explores the case of Slovenia as an EU and EMU member that has no influence on monetary and exchange rate policies and can therefore only use fiscal, incomes and price policy tools to shape its economic policy. The authors' objective is to demonstrate that for a small economy, which is part of the EU and the EMU, incomes and price policies are crucial for overcoming its economic crisis. The authors highlight the need to rediscover the role and importance of both incomes and price policy as advocated by post-Keynesian economics. They believe that the case of Slovenia can be useful for several other economies with similar characteristics to those of Slovenia.

1. INTRODUCTION

The authors' objective is to demonstrate that for a small economy which is part of the EU and the EMU, incomes and price policies are crucial for overcoming its economic crisis. We do so by exploring the case of Slovenia and considering limitations related to the possibilities of implementing various macroeconomic policies in EMU countries. Namely, such countries cannot conduct individual monetary and exchange rate policies. To some extent, the country-level price policy is also limited by the Single European market competition policy. As a result, an EMU member country can only conduct its fiscal policy within the limits set by the Maastricht criteria, incomes policy and price policy to some extent. It is important to note that these limitations affect larger and smaller EMU countries in differing ways. Larger EU and EMU countries have the power to influence EU and EMU economic policies designed for all member states (Magnette and Nicolaidis, 2003). That is why EU economic policies are tailored more to the needs of such countries. Yet smaller countries are also restricted in implementing their economic policies because of their negligible political and economic impact on EU and EMU economic policies. Monetary, exchange rate and partly price policies are thus truly exogenous for smaller EU and EMU member countries. Accordingly, they can only shape fiscal, incomes and partly price policies to alter their economic conditions.

For small EMU member countries this situation will be somewhat altered by the Euro-Plus Pact (European Council, 24/25 March 2011) that is introducing certain changes to all three mentioned economic policies, i.e. incomes, price and fiscal policies. Namely, by proposing changes such as a review of the wage-setting agreement in both private and public sectors, promoting the "flexicurity" labour market model, cutting taxes on labour, proposing debt brakes and creating a common base for corporate tax it highlights the importance of incomes, price and fiscal policies. The Euro-Plus pact also aims to prevent and correct excessive macroeconomic imbalances. As such, it proposes further limitations on the scope of fiscal policy measures that can be applied at the level of national economies. Namely, financial penalties are proposed for serious repeated violations of fiscal discipline and in cases of serious macroeconomic imbalances (European Council, 15 March 2011).

In this paper we discuss the case of Slovenia, a country that has approximately 2 million inhabitants and whose GDP amounted to €35.4 billion in 2009 (SORS, 2011). We base the analysis of this case on the post-Keynesian tradition of economic analysis. In so doing, we note that the economy is a historical process (Robinson, 1980, p. 87, Davidson, 1981). Consequently, the path to the economic crisis, its materialisation and persistence are also country-specific and can only be studied by considering the country's past economic development, existing institutional environment and implemented economic policies. We argue that incomes and price policies are the key to an efficient exit from the crisis for a small EMU member country. We also highlight how challenging it is to develop effective crisis exit strategies. This is because the crisis-driving forces only existed in the pre-crisis period and can no longer be affected by economic policy measures. Economic policy can thus only target the consequences of such factors. Accordingly, in this paper we study not just the crisis and crisis exit periods but also the pre-crisis period.

2. SLOVENIA'S PRE-CRISIS PERIOD

Slovenia's pre-crisis period refers to the period from 2005 to the start of 2008. This period was characterised by fast economic growth with economic growth rates rising up to 2007. Economic growth measured by the real GDP growth rate exceeded 4 percent already in 2004. In 2005 it rose to 4.5 percent, in 2006 it was 5.9 percent and it reached 6.9 percent in 2007 (SORS, 2011). The authors believe that this rapid growth created excess demand accompanied by full capacity utilisation. They also believe this led to the overheating of the Slovenian economy.

The high economic growth Slovenia enjoyed in the 2005-2007 period can be explained by observing the dynamics of effective demand elements (Keynes, 1936; Eichner, 1979). The real GDP growth rate is strongly linked to the real export growth rate (Burbidge, 1979). In Slovenia, the real export growth rate rose from 10.6 percent in 2005 to a staggering 12.5 and 13.7 percent in 2006 and 2007, respectively. However, the real export growth rate was also high in 2004 (12.4 percent) when economic growth was 4.3 percent (SORS, 2011). The dynamics of economic growth in the 2005-2007 period also correlated with the dynamics of household consumption. Yet increasing household consumption is more a consequence of economic growth rather than its determinant (Passinetti, 1974). In addition, household consumption was fairly stable in the analysed period. As such, it cannot be used to explain changes in real GDP growth rates. A similar conclusion can be drawn for government consumption. It was also fairly stable in the studied period with the exception of 2006 when its growth rate rose to 4 percent, and 2007 when government consumption decreased and its growth rate amounted to 0.7 percent (SORS, 2011). The dynamics of government expenditure were thus only similar to the dynamics of economic growth in 2006. In the 2005-2007 period, the share of gross investment in GDP ranged from 27.2 to 31.7 percent. The increase in gross investment most significantly contributed to an increase in real GDP growth rates in the studied period, especially in 2006 and 2007 when real gross investment growth rates reached 8.2 and 18.2 percent, respectively (SORS, 2011). Further, as shown in subsequent sections of the paper the decline in gross investment in 2008 and 2009 led to an economic decline. The described dynamics of the elements of effective demand reveal the key role of gross investment in economic growth. This is in line with the post-Keynesian explanation that investments are an independent determinant of economic growth rather than a factor that is explained by acceleration principles (Dougherty, 1980).

The prevailing effect of investment on economic growth compared to exports in the analysed period is also evident from the structural changes seen in the Slovenian economy. In Slovenia's pre-crisis period the highest economic growth was characteristic of those sectors tied to domestic demand and investment activity such as construction, trade and services. The share of construction in GDP, for example, equalled 5.8 percent in 2005 and went up to 7.3 percent in 2008 (SORS, 2011). Nonetheless, the data indicate that both GDP per unit of capital and GDP per unit of labour increased. The wage-profit frontier that shows the levels of real incomes of households and the state per employee that can be earned at a given profit rate (Tajnikar, 2000; Tajnikar and Ponikvar, 2006) therefore shifted upwards. This shift was a result of the increased utilisation of both capital and labour due to higher short-term effective demand. Exports, household demand and investment demand contributed to a short-term increase in effective demand (Robinson and Eatwell, 1973; Howard, 1979). The outlined characteristics of the Slovenian economy demonstrate that in the pre-crisis period the economy was operating at full capacity utilisation.

The latter conclusion is also supported by the characteristics of the Slovenian labour market. The capital growth rate, measured by the ratio of gross investment and capital, rose from 7.4 percent in 2000 to 10.1 percent in 2008. This capital growth triggered stronger demand in the labour market. As a result, the ILO unemployment rate dropped from 7 percent in 2000 to a record 4.4 percent in 2008. Despite the immigration of foreign workers, the fast economic growth created labour market imbalances resulting in nominal wage growth. In the 2000-2008 period nominal wages increased by a factor of 1.8 (SORS, 2011). The labour market thus also provides evidence that in the pre-crisis period the economy was operating at full capacity utilisation.

The described overheating of the economy operating at full capacity utilisation also resulted in inflation caused by the nearly 80 percent increase in nominal wages (SORS, 2011). However, the upward shift of the wage-profit frontier enabled an increase in real wages despite the rise in real profit rates (Kaldor, 1955-1956). In the 2000-2008 period, real wages went up 20.3 percent (SORS, 2011). Because nominal wages increased more than real wages, the whole 2000-2008 period was characterised by inflationary pressures (Kregel, 1972).

It is precisely inflation that reveals the limitations of a small EU and EMU member state. Due to the discussed overheating process typical of the Slovenian economy, Slovenia's inflation rate (5.5 percent) substantially exceeded the average EU inflation rate (3.7 percent) (EUROSTAT, 2011). In 2008, Slovenia had the highest inflation rate in the eurozone. This negatively affected the competitiveness of its export sector already prior to the onset of the economic crisis. This is in line with the post-Keynesian explanation of export determinants (Arestis and Driver, 1987).

In the pre-crisis period the propensity to save remained almost unaltered although the growth rate of capital was increasing. This means that the increase in the growth rate of capital had to be funded by foreign savings, thereby increasing the country's external debt (Kalecki, 1954). In 2005, gross external debt rose by approximately €5 billion and amounted to €20.5 billion; in 2007 it totalled €34.8 billion and €39.2 billion in 2008. This growth in external debt was mainly due to the larger indebtedness of the corporate sector and households. Namely, in the 2005-2008 period the external debt of the private sector rose by €18.5 billion while public and publicly guaranteed external debt grew by only €5.4 billion (SORS, 2011). Still, in 2008 household debt represented only 30 percent of Slovenian GDP. This share is much higher in other EMU member states where it ranges from 40 to 85 percent of GDP (Kazalniki zadolženosti, 2010). In 2008, 53 percent of household debt involved liabilities to banks (Bank of Slovenia, 2010) which were, as the data show, not used for final consumption. Instead, households used them for investments. Nonetheless, the most important element of the debt increase is the increased corporate indebtedness. In 2008, the equity share in financial sources of Slovenian firms was around 40 percent (IMAD, 2010) whereas on average this share equalled 48 percent in the European Union. In addition, in Slovenian firms the share of short-term debt was higher (14 percent) than the European average of 11 percent. In the same period, government debt did not grow significantly. In 2008 it amounted to €8.4 billion, representing 22.6 percent of GDP (IMAD, 2010), and did not exceed the Maastricht criteria of 60 percent indebtedness.

In the 2005-2008 period, Slovenian economic growth was evidently the consequence of the high investment rates. The underutilised production capacities at the beginning of the pre-crisis period, rising real profit rates, increasing effective demand that improved capacity utilisation, greater economic efficiency and labour productivity which resulted in higher real

wages and the availability of financial sources strengthened optimistic expectations in the corporate sector and stimulated high levels of investment. All of these processes were possible in the conditions of the relatively easy availability of financial sources in global financial markets. These processes also resulted in the Slovenian economy overheating, mostly reflected in low unemployment in the labour market and inflationary pressures. What is important for our story is that these processes were only characteristic of the Slovenian economy. Such processes can only take place in national economies with similar limitations set by the economic environment and domestic institutional system.

3. SLOVENIA'S CRISIS PERIOD

The economic shutdown in Slovenia in 2009 involving a radical decline in GDP growth rates was partly the result of external influences and partly the overheating of the economy in the pre-crisis period that pushed its growth to its upper limits. The GDP growth rate dropped from 3.7 percent in 2008 to -8.1 percent in 2009 (SORS, 2011).

In explaining GDP the dynamics of household consumption played a minor role. Even though growth of household consumption was negative in 2009, we cannot use it to explain trends in GDP growth. Namely, according to the acceleration principle the negative growth of household consumption was simply a result of the economic downturn. Government expenditure also played a negligible role in explaining GDP dynamics as it remained stable at the level characteristic of the 2007-2008 period. The opposite holds true for export demand. The export growth rate fell to -17.7 percent in 2009 (SORS, 2011). This clearly indicates that the economic slowdown and full onset of the crisis in Slovenia in 2009 emerged as a consequence of a drop in export demand resulting from crises in Slovenia's export markets. Export demand has thus been determined by exogenous factors that have emerged due to the global economic crisis.

The decreasing investments also significantly contributed to the economic slowdown already in 2008. In 2008, the investment growth rate equalled 4.8 percent and in 2009 it plummeted to -32 percent (SORS, 2011). As the global economic crisis developed, limitations in accruing foreign debt were recognised as one of the main reasons for the slowdown in investment activity. However, the impact of the global economic crisis on the Slovenian economy was enhanced by internal imbalances that themselves pushed the growth of Slovenia's economy to its upper limits. Namely, in 2009 both households and firms stopped accruing more debt. Only general government debt increased in this period. In 2009, general government debt expanded by more than €4 billion and reached €12.5 billion, i.e. 35.9 percent of GDP (IMAD, 2010). In the pre-crisis period, conditions developed that made it impossible to expect that the business sector and households could maintain the intense investment activity and thereby offset the fall in export demand that happened when the crisis stated in Slovenia. In 2008, i.e. in the period when the crisis began in Slovenia, the business sector was over-indebted and households were too cautious to continue investing. Economic growth stopped as a result of the major disparity between the financial means needed to finance investments and the propensity to save. This disparity led to increased indebtedness, especially in the business sector, that reached a critical point of endangering the business sector's liquidity.

The impact of the overheating economy was not revealed only through the indebtedness of potential investors but also through labour market conditions. Namely, prior to the crisis significant imbalances existed in the labour market. Low unemployment rates and the low

availability of additional labour hindered further economic growth because the increase in labour productivity was not large enough to offset the existing labour shortage. As a result, the labour market posed one of the main obstacles to further economic growth. Circumstances in the labour market hindered economic growth not only because of the labour shortage but also because it decreased the price competitiveness of the Slovenian economy within the eurozone. The available capacities posed another limit on further economic growth. Namely, foreign and domestic effective demand led to full capacity utilisation and additional investments were, partly due to their inadequate structure, unable to expand capacities to respond to increased domestic and foreign effective demand.

As a result, there was a radical decrease in both investment activity and the capital growth rate. Consequently, real profit rates decreased from 8.4 percent in 2008 to 7.2 percent in 2009. However, the decrease in real profit rates was alleviated by the fast reduction of the propensity to save in 2009 (25.2 percent) in comparison to 2008 (21.7 percent). The decline in all elements of effective demand led to reduced capacity utilisation and to the reduced efficiency of capital and lower labour productivity. This means that the wage-profit frontier shifted downwards. As a result, earnings excluding profit per employee decreased from €27,540 in 2008 to €27,112 in 2009 despite the decline in real profit rates due to the trimmed down investment activity. The latter also eased pressures in the labour market. The increased unemployment decreased nominal wages. Nominal earnings excluding profit per employee dropped from €31,120 in 2008 to €30,909 in 2009. This created weak deflationary conditions in 2009 and the inflation rate decreased from 2.1 percent in 2008 to 1.8 percent in 2009 (SORS, 2011).

The above discussion shows that the economic crisis in Slovenia was inevitable and would have emerged even without the impact of the global economic crisis. In the absence of the global economic crisis the Slovenian economic crisis would have developed as a result of the labour market imbalances, fully utilised production capacities and high level of indebtedness of the business sector.

4. SLOVENIA'S CRISIS EXIT PERIOD

The characteristics of both the pre-crisis and crisis period in Slovenia and the factors that created these characteristics are also playing a key role in the crisis exit period. In Slovenia, the crisis exit period is marked by very low economic growth. In 2010, the GDP growth rate equalled 1.2 percent and lagged behind both the EU (1.8 percent) and eurozone (1.7 percent) averages (EUROSTAT, 2011). It was also lower than the growth rate of the world economy (IMF, 2011). A review of individual elements of effective demand clearly shows the sources of low economic growth. In 2010, household consumption practically stagnated and only grew by about 0.5 percent. Investment in fixed assets decreased by 21.6 percent in 2009 over 2008 and in 2010 it dropped again by 6.7 percent. Government consumption increased by a little over 1 percent. The growth of export demand was higher and exports rose 7.8 percent (SORS, 2011). The production of firms fully dependent on exports increased even more, i.e. by 25 percent (IMAD, 2010).

An outline of the effective demand elements shows that in Slovenia the crisis exit period is on one hand marked by a further slowdown of investment in fixed assets that is the main obstacle to increasing economic growth and, on the other, marked by export growth with exports being the only element of effective demand that contributed to the positive economic growth in

2010. Alarmingly though, exports are not following the economic conjuncture of Slovenia's export markets and the Slovenian economy is losing its market share in the main export markets such as Germany and France (IMAD, 2010). This indicates the Slovenian economy is not reviving its growth as intensely as developed foreign economies, even though these foreign economies represent its main trading partners. The decreasing share of Slovenian exports in foreign markets indicates that those factors that in the crisis exit period are hindering investments, household consumption and government consumption are also negatively affecting the only external determinant of Slovenia's economic growth, i.e. exports. The impact of exports on economic growth is thus less than it could be if exports were following the conjuncture of Slovenia's export markets.

As indicated by both the pre-crisis and crisis periods, household consumption growth cannot play a key role in reviving Slovenian economic growth. Namely, household consumption depends on economic growth. During times of economic decline or growth household consumption can decrease or increase both labour and production capacity utilisation, thereby negatively or positively affecting real wage rates and inflation. As such, household consumption cannot independently impact economic growth. The impact of government consumption on economic growth is also limited. Even though the state was not accruing debt in the pre-crisis period, the rapid increase in general government debt in the crisis period became an insurmountable obstacle to further rises in government consumption. During the crisis period, a fast expansion of general government debt resulted because the salaries of employees in the public sector remained at the pre-crisis level and because social transfers grew along with the increasing unemployment. The higher general government debt is also increasing interest payments. This further limits the possibility of government consumption to increase effective demand in Slovenia and to impact its economic growth.

The above discussion demonstrates that the revival of the Slovenian economy depends on exports and investments. In the crisis exit period, investment activity remains low and continues to be determined by a factor from the pre-crisis period, i.e. the high indebtedness of the business sector. Regardless of the conditions for obtaining credit the banking system is offering, the business sector is unable to accrue additional short- and long-term debt because of its high indebtedness created during the overheating of the Slovenian economy. As a result, the business sector cannot engage in more intense investment activity. Some minor increase in investment would only be possible in this period if households engaged in investment activity. Namely, households are not as indebted as the business sector. However, in 2010 households remained pessimistic and cautious about obtaining additional credit especially due to the growing threat of unemployment. On the one side, the low investment rate in 2010 was thus a consequence of the low confidence of households and over-indebtedness of the business sector. Both determinants of investment activity developed prior to the crisis due to the circumstances of that time. On the other side, the low investment rate was the result of the high level of government indebtedness and rigidity of government expenditures that prevented government intervention in the form of state investments. In 2010, the low investment rate was thus the main barrier to more significant economic growth in Slovenia.

In Slovenia, internal economic characteristics that developed prior to the crisis also decreased the Slovenian economy's export orientation, thereby reducing the impact of the economic revival of foreign markets on Slovenian exports. We can identify two factors that contributed to this situation. First, due to the low domestic economic growth some firms that were operating in both domestic and foreign markets were forced to declare a business failure. Such firms were mostly already over-indebted in the pre-crisis period. The most noticeable

examples of such firms were firms that were subject to leveraged management buy-outs. Second, as already mentioned, the inadequate adjustment of Slovenian exports to the state of affairs in export markets was due to the Slovenian economy's reduced competitiveness caused by inflationary pressures from the pre-crisis period. The crisis period did not eliminate the discrepancy between domestic inflation and inflation in the eurozone. Namely, the lower investment rate resulted in higher real wage rates due to lower profit rates.

Despite the modest economic growth (1.2 percent in 2010), unemployment did not adjust to economic growth. The unemployment rate rose by 1.3 percentage points (SORS, 2011). This was primarily a result of intense cost pressures, especially in the case of exporting firms that became price uncompetitive due to inflation. This was also a result of the business failure of some firms that grew most intensely in the pre-crisis period due to the overheated effective demand.

To summarise, in 2010 Slovenia was characterised by weak business activity determined primarily by factors that shaped the Slovenian economy in the pre-crisis period and which no longer characterised the Slovenian economy in 2010. The high level of indebtedness of the business sector, excessive growth of some sectors in times of economic overheating, accruing of debt to finance management buy-outs, growth of real wage rates, depletion of the labour market and inflation all developed in the pre-crisis period and were no longer characteristic of the crisis period. However, even though these factors did not typify the crisis period their consequences still have an impact on the crisis exit path. As 2010 clearly shows, their consequences slowed Slovenia's economic growth down during the crisis exit period.

5. ECONOMIC POLICY

Based on the above explanation of the economic situation in the pre-crisis, crisis and crisis exit periods, and by taking into account that Slovenia is a small EU and EMU member economy, it is possible to evaluate the economic policy.

As discussed, the pre-crisis period was marked by the overheating of the Slovenian economy. The causes of the economic overheating, that later resulted in specific causes of the onset of the Slovenian crisis, could be properly addressed if the Slovenian government had all economic policy measures at its disposal. As an EU and EMU member state, Slovenia does not have the possibility to use its own monetary policy and exchange rate policy tools. This is also why in the pre-crisis period the Slovenian government was unable to apply monetary or exchange rate policy measures to prevent the global crisis from impacting the Slovenian national economy. For the same reason, Slovenia was incapable of stopping the pressures induced by the global crisis but which were at the same time typical only for the Slovenian economy. Thus, in the pre-crisis period Slovenia could only use fiscal, incomes and price policies to stop the economy overheating, to prevent the creation of the country-specific economic conditions that resulted in the national crisis and to isolate the Slovenian economy from the negative influence of the global crisis.

Indisputably, Slovenian economic policymakers did not exploit all of the advantages of fiscal policy. Higher tax rates could have prevented the extreme growth of some elements of effective demand. In these conditions the government should have led a policy of a high government budget surplus that would have decreased both investment demand and household demand. In the 2005-2008 period, investment demand in Slovenia increased by

over €4 billion and household demand by €1.5 billion (SORS, 2011). In order to prevent the economy from overheating due to internal Slovenian economic processes, fiscal policy actions should have at least partly reduced the mentioned increase in domestic effective demand. Needless to say, such a government surplus would have been beneficial in the crisis period when the government incurred additional debt totalling approximately €4 billion.

In the pre-crisis period, the Slovenian government should also have stimulated savings and stopped pressures on the labour market. To do that, both incomes and price policy measures were available. The government's incomes policy and partly also fiscal policy could have increased the propensity to save. A higher propensity to save would have decreased the growth of foreign indebtedness and prevented the circumstances of full capacity utilisation. Namely, the fully utilised capacities brought the export-driven economic growth to a standstill. At the same time, appropriate incomes policy tools could have stopped the rise in nominal wages. This would have prevented the inflation tendencies which subsequently decreased the relative competitiveness of the Slovenian economy.

We must acknowledge that the described ways of using the fiscal, incomes and price policy represent the only possible economic policy mix for a small EU and EMU member country that does not have the possibility of applying its own monetary or exchange rate policy. This is especially important if economic conditions within a small national economy differ from the economic situation in larger national economies that dictate both the monetary and exchange rate policies in the eurozone. In such circumstances, fiscal, incomes and price policies hold great significance. It is unreasonable to expect that the proper implementation of these three economic policies could have completely eliminated the internal processes which strengthened the negative external shocks or that these policies could have isolated the national economy from the impact of the global economy.

The Slovenian government could have employed the described fiscal, incomes and price policy measures, yet it did not. The economic conditions in Slovenia which led to the government's inability to alleviate the crisis also continue to determine the characteristics of the post-crisis period. In the post-crisis period, the corporate sector is still unable to invest because of its high indebtedness and the household sector is not investing due to its precautionary motive. However, the government is unable to replace the loss of private investment sources with public investment because of the fast growth of its debt and budget deficit from the crisis period. Accordingly, in Slovenia we have no power to change the investment element of effective demand due to the economic situation in the pre-crisis period and partly also because of the conditions during the crisis period. The passive tax policy from the pre-crisis period that did not generate reserves for the crisis period is incapable of supporting the investment activity without creating a dangerous level of government indebtedness. We therefore cannot expect that either investment demand, government expenditures or household consumption as elements of effective demand will lead the Slovenian economy to an economic revival.

The key factor of economic growth is therefore exports. As a result, economic policy must help exporters regain their competitiveness in export markets. Namely, this is the only possibility for exports to grow faster compared to the domestic Slovenian market. It is thus crucial to prevent the low level of competitiveness that resulted from the fast increase in prices in the pre-crisis period. Thus only deflation could have a substantial effect on exports and deflation is related to a restrictive incomes policy that would decrease nominal wage levels. The latter is partly linked to incomes policy in the public sector and partly to the

incomes policy in the labour market. It is important to note that the public sector incomes policy would also allow a certain part of the government budget to be used for other purposes, thus enabling the financing of government investments and the neutralisation of the negative investment dynamics in the economy.

The described price and incomes policies clearly do not form part of the contemporary economic policy mix. An important question is therefore whether we are able to bring them back into the toolbox of contemporary economic policy. Our analysis namely shows that in the period of seeking to exit the crisis, incomes and price policies that have not been discussed in theory nor used in economic practice for a long time are again gaining in importance (Davidson, 1991).

BIBLIOGRAPHY

Arestis, P., Driver, C., (1987): **The effects of income distribution on consumer imports**, ***Journal of Macroeconomics,*** 1: 83-94

Bank of Slovenia (2010): **Financial Accounts of Slovenia 2004-2009**, Ljubljana: Bank of Slovenia.

Brelih, M. and Repovž, A., (2010) **Kazalniki zadolženosti. 20. Statistični dnevi: Merjenje blaginje in napredka družbe - Izzivi pri uporabi in razumevanju podatkov** (in Slovenian) http://www.stat.si/StatisticniDnevi/Docs/Radenci%202010/Brelih,%20Repovz%20-%20Kazalniki%20zadol%C5%BEenosti-prispevek.pdf [Accessed 20.3.2011]

Burbidge, J. B., (1979): **The International Dimension**, in A. Eichner (ed.), ***A Guide to Post-Keynesian Economics***, London: Macmillan, 1979, pp. 139-150.

Davidson, P., (1981): **Postkeynesian Economics**, in D. Bell and I Kristol (eds.), ***The Crisis in Economic Theory***, New York: Basic Books.

Davidson, P., (1991): **Controversies in Post Keynesian Economics**, Aldershot: Edward Elgar.

Dougherty, C., (1980): **Interest and Profit**, London: Methuen and Co.

Eichner, A., (1979): **Introduction**, in A. Eichner (ed.), ***A Guide to Post-Keynesian Economics***, London: Macmillan, pp. 3-18.

European Council (2011) **Conclusions - 24/25 March 2011**, Brussels: European Council.

European Council (2011) **Council reaches agreement on measures to strengthen economic governance**, 15 March 2011, Brussels: European Council.

EUROSTAT (2011) **Economy and Finance Statistics and External trade Statistics 2004-2010**, http://epp.eurostat.ec.europa.eu [Accessed March and April 2011]

Howard, M.C., (1979): **Modern Theory of Income Distribution**, London: Macmillan.

IMAD (2010): **Economic Issues 2010**, Ljubljana: Institute of Macroeconomic Analysis and Development.

IMF (2011): **World economic outlook update**, January 2011, Washington: International Monetary Fund.

Kaldor, N., (1955-56): **Alternative Theories of Income Distribution**, ***Review of Economic Studies***, 23: 83-100

Kalecki, M., (1954): **Theory of Economic Dynamics, An Essay on Cyclical and Long-Run Changes in Capitalist Economy**, London: Allen & Unwin.

Keynes, J.M., (1936): **The General Theory of Employment, Interest and Money**, London: Macmillan.

Kregel, J.A., (1972): **Post-Keynesian Economic Theory and the Theory of Capitalist Crisis**, ***Bulletin of the Conference of Socialist Economists***, Winter: 59-84

Magnette, P. and Nicolaidis, K., (2003): **Large and Small Member States in the European Union: Reinventing the Balance.** ***Groupement d'Etudes et de Recherches, Research and European Issues*** No. 25, May 2003.

Passinetti, L.L., (1974): **Growth and Income Distribution, Essays in Economic Theory**, Cambridge: Cambridge University Press.

Robinson, J. and Eatwell, J., (1973): **An Introduction to Modern Economics**, London: McGraw-Hill.

Robinson, J., (1980): **Time in Economic Theory**, ***Kyklos*****,** 33: 219-229

SORS – Statistical Office of the Republic of Slovenia (2011) **Database STAT-SI 2004-2010**, http://pxweb.stat.si [Accessed March and April 2011]

MICRO AND MACROECONOMIC VARIABLES IN PREDICTING FINANCIAL DISTRESS OF COMPANIES

Ivana Tomas
Faculty of Economics Rijeka, University of Rijeka,
Ivana Filipovića 4, 51000 Rijeka, Croatia
Phone: +385/51 355-129
E-mail: ivana.tomas@efri.hr

Mira Dimitrić
Faculty of Economics Rijeka, University of Rijeka,
Ivana Filipovića 4, 51000 Rijeka, Croatia
Phone: +385/51 355-149
E-mail: dimitric@efri.hr

Key words: *financial distress, financial ratios, macroeconomic variables*

ABSTRACT

Although the company is not in itself an isolated economic unit and the circumstances in the macroeconomic environment inevitably affect its financial condition, most of the developed models used to predict business failures are based solely on the financial performance of companies. Such models represent a microeconomic approach to predicting company's financial distress. In recent years there has been a growing interest in exploring the predictive power of macroeconomic variables. Developing models based on both micro and macroeconomic aspects of a company and its environment is a logical future step in predicting financial distress.

This paper provides an overview of the main theories and literature review that deal with bankruptcy and explore the basic characteristics of associated predictive models. Authors suggest that the future work should be done in performing research in Croatia and transitional countries using macroeconomic aspect in prediction of company's failure.

1. INTRODUCTION

Recent developments in the country and the world in general, show that in times of financial crisis more and more companies have a negative rate of return and face problems of insufficient liquidity resulting in insufficient funds to cover current liabilities, or insolvency. In times of crisis, companies fail to pay their liabilities to creditors and thus try solving their financial problems by taking bank loans which further lead to insolvency, and result in company failure.

There are many definitions that define the failure of a company. It is generally believed that there are two main reasons of company failure. First, the failure of a company may occur due to their withdrawal from uneconomic operations even though they are actually capable of

covering their liabilities. Insolvency is another reason why companies cease their operations. However, in these cases companies are cannot pay their obligations to creditors (Dunis, Triantafyllidis, 2002).

Altman (1971) was among the first to make the distinction between the terms "failure", "insolvency" and "bankruptcy". The term *failure* implies the inability to achieve an adequate return on investment. The company can be operational for years before they cease their business operations. Insolvency means that the company cannot pay its liabilities when they fall due, which may be a temporary situation (technical insolvency), while permanent insolvency means that the liabilities exceed the value of company assets. Bankruptcy is the judicial proceeding of settling debts to creditors by cashing the debtor's assets and distributing thus collected funds to creditors. During bankruptcy, it is possible to develop a bankruptcy plan or restructuring plan in order to maintain the activities of the debtor. If the restructuring plan fails, the company enters the last stage, the liquidation stage, during which all company's assets are sold and distributed among creditors and the bankrupt company ceases to exist legally.

There are various scientific methods and models, at both micro and macro level, that are developed in order for stakeholders to get the information on whether a business entity is heading for bankruptcy, and what chances it has for further business operations. Most of the authors have based their works on analyzing various financial ratios, i.e. they used the microeconomic approach in predicting a company's bankruptcy. In doing so, they used previous research results to derive models which would be applicable to a country's specific conditions. The derived models are based, for the most part, on multivariate techniques of statistical analysis, among which the mostly used are multiple discriminant analysis, logit and probit analyses.

Recently in economic literature on finance, significant attention has been paid to the changes and effects of the macroeconomic environment on business failure and company insolvency. The number of unsuccessful firms is higher in recession times, than in times of economic prosperity, which inevitably proves that macroeconomic variables should be included in predicting insolvency and eventual company failure. Nevertheless, the majority of research predicting business failure and insolvency begins with the microeconomic approach, and only some take into consideration the influence and movement of macroeconomic variables.

Describing all the models, articles and methods would require an enormous amount of space, and so only the most relevant works will be mentioned. The purpose of this paper is to offer a general overview of research which, when predicting bankruptcy, base themselves on the generally accepted microeconomic approach (financial ratios) or on the less known macroeconomic approach which uses macroeconomic indicators in predicting bankruptcy.

The paper is organized into four parts. The introduction highlights the topicality of the matter, as well as the importance of introducing a macroeconomic variable into models for predicting company's financial difficulties. Following, the authors give a brief overview of the most relevant authors researching US and European companies, who have exclusively founded their models on financial ratios (the microeconomic approach), as well as an overview of significant authors analyzing the aforementioned problem within Croatia. The next part contains a more detailed analysis of the works published by some of the most significant representatives, who have studied the effects of macroeconomic indicators on the possibility of financial difficulties arising within a company, i.e. they treat the aforementioned problem from a macroeconomic aspect. The authors of this paper analyzed the most common

macroeconomic variables that have been used in previous research to develop models predicting bankruptcy, based on macroeconomic or combined financial and macroeconomic variables. The combination of these variables has additionally enhanced the prediction of corporate failure and insolvency. Finally, the authors open give suggestions for future research in the field of predicting corporate bankruptcy and insolvency of business entities operating in Croatia.

2. PREDICTING FINANCIAL DIFFICULTIES AND BANCRUPTCY OF COMPANIES ON MICROECONOMIC LEVEL USING FINANCIAL RATIOS

Microeconomic literature on business failure and the prediction of financial difficulties primarily deals with the company's financial aspects. The first model for predicting bankruptcy and financial difficulty was developed in the United States, with the purpose of developing a system of early warning and to provide the reasons of financial distress. Moreover, the explanatory variables used in these models encompass a series of financial ratios and internal data extracted from financial reports and are organized into five main groups: liquidity, efficiency, cost-effectiveness, indebtedness and profitability.

The first modern univariate statistical model was developed by Beaver in 1966. He based his model of predicting financial difficulties on financial ratios on a sample of 79 companies for the period from 1954 to 1964. (Beaver, 1966). Beaver suggested the use of multiple discriminant analyses in future research, which was accepted by Altman who, in 1968, expanded Beaver's research and applied the multivariate analysis. Altman thus developed the z-score model with five variables in predicting a company's bankruptcy grouping companies into "healthy" companies and those in danger of bankruptcy (Altman, 1968). Furthermore, in 1977, Altman, Hedelman and Narayanan created the ZETA model for predicting a company's financial difficulties. This model resulted in significant advancements by achieving 90% accuracy in predicting a company's bankruptcy for a year ahead, and 70% accuracy for five years in advance (Altman, Haldeman, Narayanan, 1977).

In 1980, Ohlson published a research paper in which he used the logit model for predicting a company's financial difficulties, i.e. logistical regression which aims to eliminate the problems in the application of earlier methods. His research sample included 2,163 manufacturing companies during 1970 to 1976. He split the sample into two groups; the first group included 105 firms that went bankrupt during this period, and the second group counting 2,058 firms which continued their operations. He chose to use 9 financial indicators that were most frequently used in prior research. Moreover, the discriminant analysis on the same sample showed less accuracy then logistical regression (Ohlson, 1980).

Johnsen and Melicher improved the ZETA model accuracy by 14.2% and the Beaver model by 14.3% by applying a multinomial logit model in predicting a company's financial difficulties (Johnsen, Melicher, 1994,).

Predicting financial difficulty was mostly researched on samples including medium and large companies, as these financial reports were more easily acquired. Robert O. Edminster was one of the first to research the prediction of financial difficulties for small companies. He formed a sample of 562 small firms and used the 19 most commonly mentioned financial ratios suitable for predicting financial difficulties. (Edminster, 1972).

An extremely thorough overview of the research in predicting bankruptcy and financial difficulties in the United States and the world was published by Bellovary, Giacomino and Akers (2007). They analyzed the studies dealing with predicting bankruptcy by using financial ratios from 1930 to 2007. They gave an insight into the historical development of certain models and methodologies and analyzed the features, numbers and frequency of factors used in predictions. From the 1930s to mid 1960s, univariate models (one factor/ratio) were predominant, among which, the most known was Beaver's univariate model for predicting financial difficulties. The most frequently used method for predicting bankruptcy in 1960s and 1970s was the method of multivariate discriminant analysis (Altman, 1968). Following these periods, researchers began to place more emphasis on the use of logistic regression and neuron networks for predicting a company's eventual bankruptcy. In addition, they also analyzed the accuracy of predicting bankruptcy by using individual models and concluded that the multivariate analysis and the method of neuron networks are the most accurate in predicting a company's bankruptcy. Their findings also showed that model accuracy is not directly correlated with the number of factors included by the model i.e. a higher number of factors do not mean that the model is more precise, as some models with only two factors show the same accuracy rate as models with 21 factors. The contribution of this research is manifold: 1) It offers a summarized statistic on the number of utilized factors and methods; 2) It specifically depicts the frequency of most commonly used factors in research; 3) It shows the prediction accuracy of certain models throughout decades; 4) It offers an overview of research based on samples from firms outside the United States and 5) It gives an overview of models developed in the United States and beyond, for both industrial and other domains.

Various researches have shown that in different countries different variables have proven to be relevant for predicting bankruptcy and financial distress. By using the discriminant analysis Dvoraček et.al. (2008) developed a model for predicting liquidity in the Czech Republic, in which they identified eight financial ratios and divided them into three groups significant for predictions: (a) business activities: receivables/current assets, reserves/current assets, (b) economic development: capital/total assets and (c) capital structure: the index of fixed assets, the index of current assets, index of receivables, the index of profit, the index of capital. The final model correctly classified 70% insolvent companies and 100% healthy companies (Šarlija, et.al. 2009, p. 23).

The financial failure of firms in Spain was researched by Andreev (2005), who emphasized the following coefficients: current liabilities/total liabilities, working capital/total assets, sales/cash, gross income/sales and total liabilities/capital. By implementing the logistic regression, he developed a model which correctly classified 95.3% healthy and 27.1% insolvent companies. On the other hand, discriminant analysis correctly classified 65.7% healthy companies and 68.2% insolvent companies. Ciampi and Gordini (2008) performed a research on companies in Northern and Central Italy, and developed a model for predicting risks for small and medium sized manufacturing companies. They single out the following financial ratios as relevant: ROA, ROE, loans/total income, total liabilities/capital and the coefficient of high liquidity ratio. Through the application of discriminant analysis, 75.5% precision was achieved, while logistic regression yielded 80% precision. Appiah and Abor (2009) used the following indicators in predicting the non-liquidity of companies in Great Britain: liabilities/capital, profit/capital, net profit/sales, and current assets/current liabilities. Their model's precision rate was 97.3% (Šarlija et.al. 2009).

In 2003, Mramor and Valentić published their research, in which they had formulated models for predicting the liquidity of very small companies in Slovenia (with a maximum of five

employees). Along with financial data, the authors also used information gathered from the Slovenian Credit Bureau for their predictions. They showed that if the analysis is based on just the financial coefficients, without the data provided by the credit bureaus, the predictions will prove incorrect in 70% of insolvency cases. However, when healthy companies are considered, it is possible to achieve accurate results even without the Credit Bureau data.

Research of predicting financial failures are relatively rare in Croatia for many reasons. Namely, doing business within a market environment is relatively new and as such bankruptcies have been a novelty until recently. The data is relatively scarce and the key participants are often unavailable. Also, due to the insufficient knowledge on econometric modeling and lack of training within the business and partially the academic community, the circle of potential users is relatively small (Sajter, 2009).

Pejić-Bach (2007) was among the first to treat this issue based on a sample of fifthteen companies, seven of which, are in bankruptcy, and carried out a model with two ratios and depicted the general application of this method in predicting bankruptcy. According to Sajter (2009), the aforementioned contains several discussable moments. However, one should take into account that these are the first papers in Croatia that deal with the problems in predicting liquidity, and as such acknowledge certain limitations.

Among the first to research the application of Altman's Z-score and Kralicek's model on firms in Croatia was Deverić, who, in 2002, arrived to the conclusion that a simplified implementation of these models is inappropriate for Croatia, and as such, that their prediction power is much lower than for those carried out on corporations in the United States.

In 2003, Novak published the first research in which he applied the discriminant analysis, the logit model and the methods of multidimensional scales on a sample of 38 banks, for which he calculated eight ratios. Novak focused his research on predicting business difficulties in the Croatian banking sector. The results showed that some banks that had been in crises were restructured, others underwent bankruptcy and some turned to collaboration/merger with a strategic partner.

In 2005, for the purpose of predicting business difficulties, Crnkovic applied the methods of discriminant analysis and multidimensional scales, as well as logit models to predict possible failures of companies working with a Croatian bank.

In 2006, Vitezić emphasized the need for including qualitative indicators in financial analysis. Her work highlights the role of management and concludes that there is no fail-proof model for predicting failure and bankruptcy.

In their work *Going concern estimation in transitional environment- empirical evidence from Croatia* Zenzerović and Peruško (2006) depict the most commonly used quantitative methods in developing models for predicting bankruptcy and give an overview of the most significant international authors dealing with predicting bankruptcy and their contributions. The authors emphasize the need for formulating prediction models for business entities operating within transitional economies, as well as the necessity for including qualitative indicators within these analyses.

In 2008, Zenzerović developed more models which have made it possible to realistically assess the financial stability of a firm in a transitional environment, such as Croatia. He grouped these models into five different groups. The first group dealt with models for

assessing going concern for all business entities, the second with models for assessing going concern for SMEs and third for large entities. The fourth and fifth groups related to models for assessing going concern for business entities involved in production and service sector. The author formed a sample of 110 business entities in Croatia and applied the discriminant analysis and logistical regression.

The following author that should be mentioned when discussing predicting bankruptcy in Croatia is Sajter (2005). He used the same methods as Novak and Crnković for predicting the Croatian banking crisis in 1990s. In 2008, Sajter carried out econometric research using financial ratios of companies based in Eastern Croatia by applying the methods of multidimensional scales, logit models and discriminant analysis and thus provided the data needed for assessing the bankruptcy risks.

Aljinović Barać (2008) developed a model for estimating firms' efficiency based on the date found in cash flow statements, taking into account the specific features of the capital market and financial reporting in Croatia. Thus, she initially started from the assumption that facts reported within balance sheets and P&Ls are more prone to tampering than the facts extracted from reports on cash flow. Thus, she developed her model based on cash flow data.

In 2009, Šarlija, Harc and Penavin published their research in which they, through the application of logistical regression, created a statistical model predicting short-term illiquidity of Croatian companies. The model is specific for Croatian companies, and the results indicate that these firms will be illiquid in a year. The analysis used 29 variables and the final model consists of 16 variables relating to financial indicators and 2 variables relating to the industry and county the company operates in. The precision of the developed model for liquid companies was 68.16% and 74.22% for those illiquid. The authors also concluded that there are differences in liquidity of Croatian firms and that they vary depending on the industry and county the company operates in (Šarlija, et.al. 2009).

Table 1 in the Appendix gives an overview of the most significant authors and their papers offer a scientific and professional contribution in predicting financial failure and the possibility of bankruptcy in Croatia.

Transitional countries and thus Croatia still lack experience in open market conditions and as such are faced with difficulties in setting up and applying legal regulative in the field of protecting creditors' rights. Therefore,, predicting financial failures within companies represents a particularly actual and interesting field of scientific research for the aforementioned countries.

3. PREDICTING FINANCIAL DIFFICULTIES AND BANCRUPTCY OF COMPANIES ON MACROECONOMIC LEVEL USING MACROECONOMIC INDICATORS

3.1. The effect of macroeconomic variables on a corporative sector

The earliest research explaining the role of the corporative sector in financial crisis was published by Fisher in 1933 when he analyzed the correlation of debt and price volatility. His theory states that companies that are highly in debt start to feel financial pressure in times of recession. To be able to pay creditors, they are forced to sell their assets and withdraw

deposits. This results in the decrease of asset values/prices which in turn reduces the net worth of all companies and consequently increases the probability of bankruptcy. If deposits and loan repayment decrease, they cause further disturbances in money markets and drop of prices. Furthermore, if this is accompanied by the rise in real interest rates it additionally makes the situation of already indebted firms even more difficult (Vlieghe, 2001a, 2001b).

Fisher's theory was rejected a few times the following 40 years, however in the late 70s, authors such as Mishkin (1978) and Bernanke (1983) revived Fisher's theory by proving that the debt in the corporative sector played the key role in the great economical crisis of 1929. Mankiw (1986) found that a small rise in the interest rates can bring about the collapse in the credit market and may result in a financial is situations of asymmetric information. Bernank and Getler present a model in 1990 which showed that the drop in firm's value can result in limited access to loans which furthermore results in the decrease in investments. In 1997, Kiyotaki and Moore showed that the decline in collateral value influences credit limits and thus the demand for investments, which once again effects macroeconomic fluctuations (Vlieghe, 2001b).

The financial position of the corporative sector influences the willingness of banks to lend finances, which directly influences the aggregate demand. This can be explained by the fact that if banks limit credits or raise interest rates, it makes it almost impossible for firms to take out loans to their expensiveness. This furthermore results in a greater probability of bankruptcy for two reasons; firstly, businesses with limited access to loans due to insufficient funds can find themselves in a situation in which they cannot pay their liabilities (liquidity crisis) and secondly, due to the rise of interest rates, or rather the rise in capital costs, the value of the company decreases. From the above cited, it can be concluded that the financially sensitive corporative sector can further deepen and prolong the recession, and may become the rigger of a more severe depression.

3.2. Prediction of financial difficulties and corporate bankruptcy using macroeconomic indicators

In previously presented studies a big step forward was made in foreseeing insolvency and probability of business bankruptcy. However, these studies were based on the presumption that the danger of business bankruptcy can be foreseen solely by looking at financial indicators and capital structure of firms while neglecting the influence of the macroeconomic environment.

Altman (1971) was the first to recognize and research the influence of the macroeconomic environment in foreseeing the insolvency and the probability of bankruptcy by researching the interrelation of the rate of decline of businesses in USA and other various macroeconomic factors such as credit availability, economic cycles and investor confidence (measured by the FTSE index). He noticed that one of the most important causes of bankruptcy is "credit squeeze", especially in times of restrictive monetary policy and debt policy which place small businesses last. In 1983 he additionally researched the role of aggregate economic factors in the possibility of bankruptcy of American businesses in the period immediately after the Second World War. He concluded that the possibility of insolvency and business failures rises in times of decreased economic growth (measured by GNP), tight money supply (M2) and low investor expectations. He discovered that a higher bankruptcy rate has a negative influence on the GDP, stock market performance and tight money supply.

Desai and Montes (1982) concentrated on the influence of monetary variables on business failures. They examined the effect of the interest rate and money supply growth on business failures in the UK from 1945 to 1980. They concluded that the aforementioned variables have a significant influence on the prediction of bankruptcy and found that interest rates have a positive effect on failures, while money supply has a negative one.

Wadhwani (1986) studied the variables which influence the liquidation rate of companies. He discovered that inflation is a significant variable in reporting the disturbances in businesses since the rise in nominal interest rates and thus costs of interest can result in insolvency if the rise interest cost is not followed by a proportional rise in revenues. Furthermore, Wadhwani took the liquidation rate of a business as the dependant variable. The liquidation rate is measured as the ratio of compulsory and creditor's voluntary liquidations divided by the number of active companies. Furthermore, as explanatory variables he used various macroeconomic factors and financial ratios. He came to the conclusion that real wages, real input prices, capital gearing, the real and nominal interest rates, and measures of aggregate demand are significant in foreseeing the liquidation rate of firms. The rate of new company registrations and the measures of standard deviation of prices have not shown significant. The fact that the real and nominal interest rates showed themselves as significant variables in predicting the bankruptcy has been used as a proof that the inflation directly influences the liquidation rate.

The next author that deals with this issue is Hudson who used various measures of profitability, the real interest rates and the birth rate of new companies as explanatory variables of compulsory and creditor's voluntary liquidations. He studied the corporate bankruptcy of 1830 businesses in the UK from 1978 to 1981. He found that real interest rates have a negative coefficient which he explained as a proof of negative selection on credit markets; in recession times at higher interest rates only the high-debt businesses will take additional loans since they are the first which meet the insufficient financial resources. Therefore, at high real interest rates the loans are redirected towards the high-risk businesses where there is a higher possibility of bankruptcy. Hudson also concluded that in young companies, i.e. the companies that have less experience, there is a larger possibility of bankruptcy.

Levy and Bar-Niv (1987) did an empirical research in the USA, also using the macroeconomic approach in predicting the financial distress and corporate bankruptcies. They found that the probability of corporate failure increases with the intensity of oscillations in the output and the inflation rate. Using the observations in the period immediately after the Second World War (from 1947 to 1982) they noticed that the rate of corporate bankruptcy grows proportionally with the increase of dispersion (volatility) of the real GNP and GNP deflator, and declines with the covariance of these two variables. Later they found that the probability of the corporate failure might be lower in years when the real GNP and the GNP deflator move in same direction than in periods when they move in opposite directions.

In the same year Davies (1987) did a research which was an extension of Wadhwani's theoretical model. In this research which went on from 1963 to 1983 (annual data) instead of capital gearing he used the debt/GDP ratio, while other independent variables were the same as in the Wadhwani's model. He used an error correction model to avoid the appearance of the spurious regression which is frequently found in non-stationary series. He found that nominal interest rate, real GNP, real input prices and the dept/GNP ratio are significant variables in predicting corporate failures. Davies experimented with various different debt ratios, but

debt/GDP ratio always showed as more significant variable in the explanation of the number of insolvent businesses in regard to the debt/equity ratio which was used by Wadhwani.

Melicher and Heart (1988) used time series analysis in developing a model which explains the influence of changes in financial markets variables on changes of corporate failures. Using the USA data they found that the rise of corporate failures is positively correlated with the expense of short-term credits and volatility of interest rates. They also found that credit conditions represent a significant variable in the explanation of the number of corporate failures.

Research on the influence of macroeconomic variables on the growth rates of companies in financial difficulties was expanded by Post and Moon (1988) by taking into account differences in the development of regions within national economies. They examined the growth rates of the number of companies in financial difficulties between eighteen major cities in the U.S. and concluded that there are significant differences in the rates of companies in the difficulties between these cities. The authors also confirmed that most of the coefficient' signs are in accordance with theoretical expectations, for example that the growth rates of firms in difficulty are inversely related to salaries and labor.

In 1991 Lane and Schary using US data analyzed the impact of changes in macroeconomic variables on the rates of companies in financial difficulties. They observed that in this period the rate of companies in difficulties declined in all of the analyzed industries and that there are large variations in the rates of bankruptcies among states and regions of the US. They also found that the age of the firms has an impact on the probability of occurrence of financial difficulties in companies.

Goudie and Meeks (1987, 1991) made a significant contribution to the subject by introducing models that combine macro and micro approach to predicting the collapse of companies in the UK. This has bridged the gap in the previous literature that studied the insolvency of companies from solely macroeconomic or microeconomic aspect. In addition, besides the ex post predictions of companies in difficulty, they are the first ones who carried out an ex ante analysis, in which they, starting from the CGP model project financial statements and financial data, and perform an analysis of how the companies will deal with future changes. Their model consists of three stages. In the first stage they start with the Cambridge dynamic model (Cambridge Growth Project model) which forecasts the movement of macroeconomic variables through a five-year period. Using the forecasted movements of macro-indicators they project movements of company specific variables such as profits, sales, investments, etc. for 39 industrial sectors. In the second stage the projected variables from the CGP model are used as input variables for creating discriminant functions for each company within the industrial sector while taking into account the movement of variables from the CGP model. This is performed by multiplying the share of each company by the corresponding coefficient from CGP model for the projected year, while taking into account the industrial sector of the analyzed company. In the final stage the authors use previously projected discriminant functions for each company to project the possibility of company's financial difficulty depending on the macroeconomic environment. This model has been proven as extremely flexible one because any future event can be incorporated into the CGP model, which then serves as a basis for projecting the company data and constructing the discriminant function. In their subsequent papers these authors have explored the relationship between the occurrence of bankruptcies and the changes in the foreign exchange rates and proved that the rate of companies in financial trouble grows with the appreciation of the domestic currency.

Hudson and Cuthbertson (1993) explored the determinants of personal bankruptcy in the UK and concluded that a significant number of bankruptcies are caused by events beyond the control of individuals, among which increase in unemployment and interest rates on loans are especially significant. The same authors in 1996 investigated the determinants of compulsory liquidations of companies by taking as independent variables various measures of profitability, the interest gearing (as joint proxy for nominal interest rates and capital gearing) and the lagged birth rate of new companies. Using quarterly data from 1972 to 1989 they found that the profitability and birth rate of new companies are significant variables for explaining the occurrence of bankruptcies while the interest rates have only a short-term effect and do not significantly affect the rate of bankruptcies. In their paper from 1988 they were the first to introduce a dummy variable in the study of bankruptcies. This dummy variable was the temporary effect of the Insolvency Reform Act in 1985-86. This variable proved to be highly significant indicating that the Insolvency Reform Act had an effect on reducing the number of failed companies.

Platt and Platt (1994) investigated the impact of certain macroeconomic variables on the corporate failure, across all the states of the US from 1969 to 1982 year. They used cross-sectional correlated autoregressive model for four subgroups of countries. Furthermore, as explanatory variables they used the real interest rate, real wage costs, profits earned by proprietorships, the change in employment (a proxy variable for business cycle) and the business formation rate. The results obtained confirmed the theoretical expectations according to which the corporate failure rate was negatively related to measures of economic activity (change in employment and profits) and positively related to the cost measures (the logarithm of the real wages and business formation rate).

Pederson and above mentioned authors (1994) studied the effect of deflation in eliminating the bias in data used in bankruptcy prediction models. The sample consisted of companies from the U.S. oil and gas industry in order to avoid the differences that existed between industries. Using logistic regression analysis they developed four models - the probability of bankruptcy as a function of changes in: 1) nominal ratios, 2) real ratios, 3) economic factors and nominal ratios and 4) economic factors together with real ratios. They found that the bankruptcy prediction model with the highest classification accuracy and predictive ability included changes in external economic variables and deflated financial ratios. Oil prices and interest rates represented the external economic variables that were analyzed. Oil prices have shown to be marginally significant and inversely related while interest rates found to be significantly and positively related to the bankruptcy probability (Cheung, 1998).

Young (1995) focused his research on the impact of interest rates on corporate liquidations. He upgraded Wadhwani´s model and included independent variables such as: the growth of new companies, real wages, real inputs prices, unexpected real interest rates movements, nominal interest rates, different debt ratios, aggregate demand and the effect the new Insolvency Act as a dummy variable. He found that following variables were significant in predicting the liquidation rate: the unanticipated component of the real interest rate, the growth rate of new companies, aggregate demand, real input prices, the nominal interest rate and ratio of bank debt to the replacement cost of capital. Unanticipated inflation, the real interest rate, real wages, debt/market ratio, and Insolvency Act dummy have not proved to be significant for explaining the occurrence of corporate liquidations. He also concluded that the higher than expected outturn of real interest rates was the main cause of increasing number of company liquidations in early 1980-that, while raising debt levels, which caused a higher rate of liquidation within the given distribution of shocks were the reason for increased number of liquidations in the early 1990s .

Wickramanayake (1996) published a paper in which he examined the relationship between corporate failures and macroeconomic variables such as the bank advances/GDP ratio, the unemployment rate, the price level and the Australian stock index using annual data from 1973 to 1995 in Australia. Using cointegration approach he concluded that an increase of corporate failure was positively related with the bank advances/GDP ratio, the level of unemployment and the price level, and negatively one with the Australian stock index.

Vlieghe (2001) conducted a study on the determinants that influence corporate failures in the UK using quarterly data for the period from 1975 until 1999. In his analysis he used an autoregressive distributed lag (ARDL) approach and developed the model whereby the rate of corporate liquidations depends on the determinants of profitability (real wages, aggregate demand, real interest rates which have better explanatory power than aggregate profits), the level of indebtedness and inflation. He found the birth rate of new companies, an index of property prices and nominal interest rates have significant short-term influence on the liquidation rate. Property prices are found to be significant because property often shows as collateral for corporate borrowing. The same applies to the birth rate of new companies since younger companies are more likely to fail compared to more established businesses, so the increase of these variables can result in the increase of corporate failures. He also found that significant long-run determinants of the liquidation rate were real interest rates, consistent with the debt-deflation theory, the debt to GDP ratio, deviations of GDP from trend and costs of real wage. Vlieghe, like Cuthberston and Hudson, included a dummy variable in his model which represented a temporary effect of the Insolvency Act in 1985-86 years, but it has not shown significant. Also, the author attributed the increase in the liquidation rate in the late 1980s and early 1990s to the growing trend of increasing level of indebtedness. The decrease in the liquidation rate after 1992 year is explained by the falling real wage costs, real interest rates and the cyclical recovery of GDP. He concludes that during this period macroeconomic variables have greater power in predicting the company failures in relation to the exclusive use of financial ratios.

Dunis and Triantafyllidis (2004) have explored alternative forecasting techniques for predicting the insolvency of companies in the UK. They applied four alternative approaches in developing four models for predicting insolvency: the method of least squares (OLS), autoregressive moving average model (ARMA), logit regression and neural network regression (NNR). The number of insolvencies was set up as dependent variable, while independent variables used in predicting insolvency encompassed were: real GDP, real money supply, the rate of unemployment and the output gap, the consumer price index as a measure of inflation, the FTSE index, 3-month treasury bills as a measure of short-term interest rates, the 10-year government bonds as a measure of long-term interest rates the real exchange rate and terms of trade. Using the mentioned macroeconomic factors as independent variables, these models were designed on a sample of 73 companies in the period from 1980 till 1998 year (quarterly data). After that the models were tested on a sample of 12 companies in the period from 1998 till 2001 and the results showed that compared to the other methods, neural networks achieved the best predictive power of the insolvency of companies in the UK.

Bhattacharjee, Higson, Holly and Kattuman (2002, 2003, and 2007) published several papers in which they examine the impact of macroeconomic and microeconomic variables on business failures. In their research they examine the impact of macroeconomic instability and the role of legal institutions on business failures in UK and US listed firms. They used hazard regression model in studying the impact of various explanatory factors on firm exit (two outcomes; bankruptcy or acquisition) using panel data on listed US and UK companies during 30-years period (1969 – 2000 – US; 1965 – 1998 - UK). In predicting business failures

authors use a combination of explanatory variables such as: 1) firm characteristics (size, age, profitability indicators, and measures of liquidity, debt sustainability and financial structure), 2) industry characteristics (dummy variables) and 3) measures of macroeconomic conditions and stability (output per capita as a measure of business cycles, long-term real interest rate, exchange rate, price instability and long term interest rate instability). They conclude that macroeconomic conditions have a significant impact on exit both in UK and US, although there are considerable differences in the impact of the macroeconomy on companies. They found that macroeconomic instability has a higher impact on increasing the number of corporate bankruptcies in the UK than in the US but that there is a higher impact on reducing acquisition activity in the US than in the UK. Furthermore, macroeconomic instability has a much lower impact in the US than in the UK which is attributed to the differences in bankruptcy codes. Chapter 11 is a bankruptcy code instituted in the US and acts like as safe harbor for companies with financial difficulties in periods of high macroeconomic instability. Companies in the US rarely file directly under Chapter 7 which indicates automatic liquidation, and initially apply for Chapter 11. When filling under Chapter 11 the existing management can propose a reorganization plan and a significant number of companies under Chapter 11 either get reorganized or are acquired by other companies. Although, there is an Insolvency Act introduced in the UK in 1986, whose main goal was to offer similar characteristics as Chapter 11, in practice it has been used relatively rarely and has not changed the pro creditor orientation of the UK system.

In 2007 Bhattacharjee and Mujumdar examined the impact of firm versus industry effects on profitability in Indian industry. Bhattacharjee and Han (2010) studied the impact of both microeconomic factors and the macroeconomy on the financial distress of Chinese listed companies from 1995 till 2006. In these papers authors experimented and researched the similar variables (macroeconomic and microeconomic) and their impact on business bankruptcy taking into consideration different features of the mentioned countries.

Liu (2004) used an error-correction model to investigate the the macroeconomic determinants of corporate failures in UK by modelling the short-term and long-term movement of corporate failure rates over a period 1966-1999. The author found that failure rates in the short and long run are related with the following variables: interest rate, credit, profitability, price, and corporate rate births. The signs of these variables are statistically significant according to economic theory. Liu also suggests that positive impact of interest rates on corporate failure rate in short and long run can be used as a useful monetary policy instrument in lowering corporate failure rates. Also, she confirmed the temporally effect of “dummy” variable that indicates the “Insolvency Act” reform 1986 in reducing corporate failure rates.

The impact of macroeconomic indicators on corporate failure was explored by Hunter and Isachernkova (2006). They developed two models, one using explicitly financial ratios taken from financial statements (accounting ratio-based model), and the other one using various financial ratios and macroeconomic variables (nominal interest rate and real effective exchange rate). The model incorporating the macroeconomic variables exhibited lower prediction errors and showed better prediction accuracy compared to the basic model based on financial ratios alone.

Halim, Mohd Daud, Rizal Mazlan i Marzuki (2008) used the ARDL (Autoregressive Distributed Lag bound test), a robust and recent time series cointegration technique to examine macroeconomic determinants of corporate failures in Malaysia. Using quarterly data from 1991 to 2005 they tested whether the corporate failure in Malaysia can be explained by the movement of following macroeconomic variables: domestic credit aggregate, average

lending rate, consumer price index as measure of inflation, real GDP, the birth rate of new companies and "dummy" variable that indicates Asian financial crisis which started in 1997Q3 and continued until 1998Q3. They found that in the long-run average lending rate, inflation rate and gross domestic product have strong impact on the corporate failure rates. Also, the results indicated that Asian financial crisis makes a significant contribution to the corporate failure rates in Malaysia.

In 2009 Salman, Friedrics and Shukur examined macroeconomic factors that influence corporate failure of Swedish small and medium-sized manufacturing companies. Using ECM (Error Correction Model) which is usually used in time series analysis they found that in the long run corporate failure is negatively related to the level of industrial activity, money supply, GNP and economic openness rate, and positively related to the real wages. They introduced "economic openness rate"as an important variable for small open economy, with positive influence on growth of companies and negative one on bankruptcies.

A review of the most important insolvency and bankruptcy prediction studies in Europe, USA and other countries from macroeconomic point of view is shown in appendix (Table 2).

4. CONCLUSION

A conventional quantitative analysis of business failure implies a detailed overview of financial statements i.e. balance sheet, profit and loss and cash flow. It assumes that all of the relevant and sufficient information about financial and business risks of a company can be found in these statements. However, an exclusive analysis of historical data extracted from financial reports gives us an incomplete picture of the causes of the company's business failure. The cyclic movement of economy and the changes in macroeconomic conditions that have resulted from a systematic risk of economy influence the volatility of cash flows and thus increase the risk of a failure of businesses. The macroeconomic conditions, or in other words, the variables that have an effect on the failure of a business should therefore be included in the explaining and predicting risks of business failure and insolvency.

According to many authors, in order to achieve better accuracy and precision of a model for predicting business failure and insolvency, we should include the following macroeconomic variables: the changes in real GDP, money supply and rate of unemployment, changes in interest rates, foreign currency exchange rate, consumer price index as a measure of inflation, number of newborn businesses, the trade balance, etc. Moreover, the combination of macroeconomic and financial variables can further improve the accuracy of predicting business failures and insolvency in firms. By implementing these variables, the content of financial statements would be more precise and complete.

Previous research dealing with predicting business failure and insolvency in the Republic of Croatia and other countries in the region, mostly use a combination of different financial ratios from financial statements in developing models for predicting business failure, i.e. they start off with the microeconomic approach when predicting business distress. Still, by using this approach it is not possible to completely grasp the complexity of business operations. The cited works of foreign authors indicate the importance of including macroeconomic factors as determinants since they influence the change in the number of insolvent businesses and businesses in difficulties. Thus the recommendation for future research would include the quantitative research testing if and which macroeconomic variables influence business

failures in the Republic of Croatia and neighboring countries, and what effects do the aforementioned variables have an on the countries' economies. Furthermore, it would be desirable to test if the models which include macroeconomic variables result in an increased accuracy and precision in predicting of business failures in relation to those models which, in their predicting, use exclusively financial ratios.

BIBLIOGRAPHY

Altman, I. E. (1968): „**Financial Ratios, Discriminate Analysis and the Prediction of Corporate Bankruptcy**“, *Journal of Finance*, 23, 4, 589-609.

Altman, I. E. (1971): **Company Bankruptcy in America**, D. C. Health and Company, Lexington, Mass.

Altman, E.I., Haldeman, R.G., Narayanan P. (1977): **ZETA Analysis**, *Journal of Banking and Finance*, 1, str. 29-54.

Altman, E.I. (1983): **Why Business Fail**, The Journal of business strategy, 3, 15-21.

Aljinović Barać, Ž. (2008): **Model procjene uspješnosti tvrtke na temelju pokazatelja novčanog tijeka**, doktorska disertacija, Ekonomski fakultet Sveučilišta u Splitu, Split

Andreev, Y.A. (2005): Predicting financial disress of Spanich companies, Working papers, University of Barcelona, Department of Business Economics

Appiah, K.O., Abor, J. (2009): Predicting corporate failure: some empirical evidence from the UK, Benchmarking: An International Journal, Vol, 16, no. 3.

Beaver W. (1966): **Financial Ratios as Predictors of Failure**, Empirical Research in Accounting: Selected Studies, Supplement to the *Journal of Accounting Research*, str. 71-127.

Belak, V., Aljinović Barać, Ž. (2007): **Business excellence (BEX) indeks – za procjenu poslovne izvrsnosti na tržištu kapitala u Republici Hrvatskoj**, RRIF Plus, Zagreb

Belak, V. (2009): **Ispitivanje solventnosti poslovnog partnera**, RRiF, Zagreb, br. 9.

Bellovary, J., Giacomino, D., Akers, M. (2007): A Review of Bankruptcy Prediction Studies: 1930 to Present, *Journal of Financial Education*, Vol. 33, Winter 2007.

Bernanke, BS and Gertler M (1990): „**Financial fragility and economic performance**“, *Quarterly Journal of Economics*, vol. 73.

Bhattacharjee, A., Higson, C., Holly, S., Kattuman, P. (2002): **Macroeconomic Instability and Business exit: Determinants of Failures and Acquisitions of Large UK Firms**, DAE Working Paper 0206, Department of Applied Economics, University of Cambridge.

Bhattacharjee, A., Higson, C., Holly, S., Kattuman, P. (2003): **Business Failure in UK and US Quoted Firms: Impact of Macroeconomic Instability and the Role of Legal**

Institutions, Cambridge Working Papers in Economics, no. 0420, University of Cambridge.

Bhattacharjee, A., Higson, C., Holly, S., Kattuman, P. (2007): **Macroeconomic Conditions and Business Exit: Determinants of Failures and Acquisitions of UK Firms**, *Economica*, 76 (301), 108-131.

Bhattacharjee, A., Majumdar, S.K. (2007): **The impact of firm versus industry effects on profitability in Indian industry**, Mimeo

Bhattacharjee, A., Han, J. (2010): **Financial Distress in Chinese Industry: Microeconomic, Macroeconomic and Institutional Influences**, Department of Applied Economics, University of Cambridge.

Cheung (1998): An integrative and dynamic analysis of business bankruptcy in Australia, University of Wollongong Thesis Collection, Australia

Ciampi F., Gordini N. (2008): Using economic-financial ratios for small enterprise default prediction modelling: an empirical analysis, Oxford Business & Economics, Conference Program, Oxford, UK, str.1-21., June 22-24.

Cuthbertson, K., and Hudson, J. (1996): **The Determinants of compulsory liquidations in the UK**, The Manchester School, 64.

Davis, E. P. (1987): **Rising sectoral debt/income ratios: a cause for concern?**, BIS Economic Papers, vol. 20.

Davis, E. P. (1995): **Debt, Financial Fragility, and Systemic Risk**, revised and expanded edition, New York: Oxford University Press.

Deakin, E. B. (1972): „**A Discriminant Analysis of Predictors of Business Failure**", *Journal of Accounting Research*, 1, (10).

Desai, M. and Montes, E. D. (1982): „**A Macroeconomic Model of Bankruptcies in the British Economy 1945-1980**", *British Review of Economic Issues*, 4, 10, 1-14.

Deverić, O. (2002): **Istraživanje solventnosti hrvatskih poduzeća indikatorima Altmana i Kraliceka**, Magistarski rad, Ekonomski fakultet Zagreb Sveučilišta u Zagrebu, Zagreb.

Dvoracek J., Sousedikova R., Domaracka L. (2008): Industrial Entreprises Bankruptcy, Forecasting, Metalurgija, 47, (1)

Edminster, R. O.: **An Empirical Test of Financial Ratio Analysis for Small Business Failure Prediction**, Journal of Financial and Quantitative Analysis, March, 1972.

Goudie, A.W. (1987): **Forecasting Corporate Failure: The Use of Discriminant Analysis within a Disaggregated Model of the Corporate Sector**, *Journal of the Royal Statistical Society* (A), 150, 1, 69-81.

Goudie, W. A. and Meeks, G. (1991): „**The Exchange Rate and Company Failure in a Macro-Micro Model of the UK Company Sector**“, *The Economic Journal*, 101, 444-457.

Gujarati, N. D. (1995): ***Basic Econometrics***, 3rd edition, McGraw-Hill International, New York.

Halim, A., Mohd Daud, S.N., Rizal Mazlan, A., Marzuki, A. (2008): **Macroeconomic Determinants of Corporate Failures in Malaysia**, *International Journal of Business and Management*, March, 2008.

Hudson, J. (1986): **An analysis of company liquidation,** Applied Economics, 18, 75-89.

Hudson, J. (1987): **The Age, regional and Industrial Structure of company Liquidations**, *Applied Economics*, Vol. 18, no. 2, pp. 219-235.

Hudson, J., Cuthbertson, K. (1993): **The Determinants of Bankruptcies in the U.K.: 1971-1988**, The Manchester School of Economic and Social Studies, Vol. 61, no. 1, pp. 65-81.

Lane, S.J., Schary, M. (1991): **Understanding the Business Failure Rate**, Contemporary olicy Issues, Vol. 9, no. 4, pp. 93-105.

Levy, A., Bar-Niv, R. (1987): **Macroeconomic Aspects of Firm Bankruptcy Analysis**, *Journal of Macroeconomics*, Vol. 9, no. 3, pp. 407-415.

Liu, J. (2004): **Macroeconomic determinants of corporate failures: evidence from the UK**, Applied Economics, 2004, no. 36, pp.939-945

Melicher, R.W., Hearth, D (1988): **A Time Series Analysis of Aggregate Business Failure Activity and Credit Conditions**, Journal of Economics and Business, Vol. 40, no. 4, pp. 319-333.

Mramor, D., Valentičić, A. (2003): **Forecasting the liquidity of very small private companies**, *Journal of Business Venturing*, 18.

Novak, B., Sajter, D., Hadrović Zekić, B. (2006): **Mora li stečaj biti i 'smrt' trgovačkog društva? Odgovori Europske unije i Hrvatske** // *XXVII. Wissenschaftliches Symposium "Wie real ist ein Europa der zwei Geschwindigkeiten"* / Marijanović, Goran ; Wentzel, Dirk (ur.). Osijek ; Pforzheim : Ekonomski fakultet ; Fachhochschule, Hochschule fuer Gestaltung, Technik und Wirtschaft.

Novak, B., Crnković, I. (2007): **Klasifikacija dužnika banke prema razini poslovnih problema na osnovi podataka iz osnovnih financijskih izvješća**, *Ekonomski pregled*, 58, (1-2).

Novak, B., Sajter, D. (2008): **Causes Of Bankruptcy In Europe And Croatia** // *The Future of Monetary and Financial Stability in Europe* / Wentzel, Dirk, Pfeifer, Sanja (ur.). Osijek : Ekonomski fakultet u Osijeku, i Fakultaet fuer Wirtschaft und Recht, Pforzheim.

Ohlson, J. A. (1980): **Financial Ratios and the Probabilistic Prediction of Bankruptcy**, *Journal of Accounting Research*, 18, (1), 109-131.

Pervan, I., Peko, B. (2008): **Financijski pokazatelji u bankarskim modelima za procjenu boniteta trgovačkih društava**, RRiF, Zagreb, no. 9.

Platt, H., Platt, M. (1994): **Business cycle effects on state corporate failure rates**, *Journal of Economics and Business*, Vol. 46, no. 2, pp. 113-127.

Platt, H., Platt, M., Pedersen, J.G. (1994): **Bankruptcy Discrimination with Real Variables**, *Journal of Business Finance and Accounting*, Vol. 21, no. 4, pp. 491-510.

Post, G.V., Moon, S.Y. (1998): **A Pooled Cross-Section Time-Series Approach to Business Failures in 18 U.S. Cities**, *Journal of Economics and Business*, Vol. 40, pp. 45-56.

Robson, M. T. (1996): **Macroeconomic factors in the Birth and Death of U.K. Firms: Evidence from Quarterly VAT Registration**, *Manchester School*, 64, 2, June, 57-69.

Rose, S. P., Andrews, T. W. and Giroux, A. G. (1982): „**Predicting Business Failure: A Macroeconomic Perspective**", *Journal of Accounting, Auditing and Finance*, 3, 20-31.

Sajter, D. (2006): **Poslovna demografija i stečajevi u Europi i Hrvatskoj**, Znanstvene rasprave o suvremenim financijskim temama, Marković, Branimir ; Matić, Branko (ur.), Ekonomski fakultet Sveučilišta u Osijeku, Osijek.

Sajter, D. (2008): **Ekonomski aspekti stečaja i restrukturiranja u stečaju**, doktorska disertacija, Osijek: Ekonomski fakultet u Osijeku, 29.12.2008.

Sajter, D. (2009): **Pregled određenih metoda i istraživanja poslovnih poteškoća odnosno predviđanja stečaja**, *Ekonomska misao i praksa : časopis Sveučilista u Dubrovniku*, 2.

Šarlija N., Harc M., Penavin S. (2009): **Predviđanje nelikvidnosti poduzeća u Hrvatskoj**, Zbornik Ekonomskog fakulteta u Zagrebu, 7, (2).

Vitezić, N. (2006): **Predviđanja stečaja i indikatori ranog upozorenja**, Financijsko restrukturiranje profitnog i neprofitnog sektora u Hrvatskoj, Zbornik radova s 41. simpozija Hrvatske zajednice računovođa i financijskih djelatnika, Pula, 195 – 202.

Vlieghe, G. (2001a): „**Corporate Liquidations in the United Kingdom**", *Financial Stability Review*, 2, 141-147.

Vlieghe, G. (2001b): „**Indicators of Fragility in the UK Corporate Sector**", Bank of England working paper, ISSN 1368-5562.

Wadhwani, B. S. (1986): „**Inflation, Bankruptcy, Default Premia and the Stock Market**", *The Economic Journal*, 96, 120-138.

Wickramanayake, J. (1996): **Business Failures and Economy-Wide Factors in Australia 1973-1995: Empirical Analysis**, Dept. Of Banking and Finance Working Paper, Monash University, Victoria, Australia.

Young, G (1995): „**Company liquidations, interest rates and debt**“, *The Manchaster School*, Suppl.

Zenzerović, R., Peruško, T. (2006): **Kratki osvrt na modele za predviđanje stečaja**, *Ekonomska istraživanja*, 19, 2.

Zenzerović, R. (2008): **Model ocjene vremenske neograničenosti poslovanja poslovnih subjekata u Republici Hrvatskoj**, doktorska disertacija, Pula, Republika Hrvatska, Odjel za ekonomiju i turizam, 427.

Zenzerović, R., Peruško, T. (2009): **Ocjenjivanje pretpostavke vremenske neograničenosti poslovanja u tranzicijskom okruženju – empirijski nalazi u Republici Hrvatskoj**, *Ekonomski pregled,: mjesečnik Hrvatskog društva ekonomista Zagreb*, 60, (7-8).

Zenzerović, R. (2009): **Business' financial problems prediction - Croatian experience**, *Ekonomska istraživanja*, 22, (4).

APENDIX:

Table 1: A review of most important insolvency and bankruptcy prediction studies in Croatia (microeconomic aspect)

Author	Year	Insolvency and bankruptcy prediction studies in Croatia
Pejić-Bach, M	1997	Financial Ratios in Prediction of Business Bankruptcy
Deverić, O	2002	An application of the Altman and Kralicek bankruptcy prediction models in Croatian companies
Novak, B	2003	Bank distress prediction in the Republic of Croatia based on official financial statements
Sajter, D	2005	Early prediction of bank failures in the Republic of Croatia
Zenzerović, R , Peruško, T	2006	Short retrospection on bankruptcy prediction models
Sajter, D		Business demography and bankruptcies in Europe and Croatia
Vitezić, N		Bankruptcy prediction and indicators of early warning
Novak, B , Crnković, I	2007	Classification of bank debtor distress based on official financial statements
Aljinović Barać, Ž	2008	Cash flow ratios model for company´s performance evaluation
Zenzerović, R		Going concern estimation model for business in Republic of Croatia
Sajter, D		Economic aspects of bankruptcy and Restructuring in Bankruptcy
Zenzerović, R	2009	Business' financial problems – Croatian experience; Financial instability prediction in manufacturing and service industry;
Zenzerović, R and Peruško, T		Going concern estimation in transitional environment- empirical evidence from Croatia;
Sajter, D		The survey of certain methods and business difficulties or bankruptcy prediction researches;
Šarlija, Harc i Penavin		Forecasting enterprise illiquidity in Croatia
Vitezić, N		Efficiency of business failure prediction models
Pervan, I, Filipović, D	2010	FP RATING – model for prediction of business partners insolvency
Filipović, D		Developing Accounting and Financial Models for Assessing Creditworthiness of Business Entities
Sajter, D.		Challenges for a Mature Insolvency System in a Transitional Economy: Lessons from Croatia; Procedure and Practice of Bankruptcy Restructuring in the Republic of Croatia

Source: authors

Table 2: A review of insolvency and bankruptcy prediction studies in Europe, USA and other countries (macroeconomic aspect)

Author	Year	Insolvency and bankruptcy prediction studies based on macroeconomic indicators in Europe, USA and other countries
Altman, I E	1971 1980	- examined the relationship between business failures and macroeconomic influences such as credit availability, economic cycles and investor confidence; - indicated that one of the most important causes of failure is „credit squeeze“; - concluded that a company is more likely to fail during slow economic growth (measured by GNP), tight money supply (M2) and low investor expectations
Desai and Montes	1982	- examined the effect of the interest rate and money supply growth on business failures in the UK from 1945 to 1980; - found that interest rates have a positive effect on failures, while money supply has a negative one
Wadhwani	1986	- explored the influence of inflation on corporate liquidations; - found that real wages, real input prices, capital gearing, the real and nominal interest rates, and measures of aggregate demand are significant variables and affects the liquidation rate of firms
Hudson	1986	- studied 1830 failed firms in UK during 1978-1981; - found a negative coefficient on the real interest rates (at higher rates, only borrowers in distress will be forced to borrow) and also concluded that younger, less experienced companies are more likely to fail
Levy and Bar-Niv	1987	- examined corporate failures in the USA using annual data during 1947-1982; - found that corporate bankruptcy is positively correlated with the variances of the real GNP and the GNP deflator and negatively correlated with the covariance of same variables; - later found that the probability of the firm failure might be lower in periods when the real GNP and the GNP deflator move in same direction than in the periods when the progress in opposite directions
Davis	1987	- found that nominal interest rate, real GNP, real input prices and the dept/GNP ratio are significant variables in predicting corporate failure (used annual data during 1969-1983)
Melicher and Heart	1988	- using USA data found that business failure is positively related to and lag behind the cost of short term credit and interest rate volatility
Post and Moon	1988	- studied differences in business failure rates between eighteen major cities in the USA and concluded that there are differences in failure rates among them
Lane and Schary	1991	- found that there are large differences in business failures rates across the U S states and regions
Goudie and Meeks	1987 1991	- tried to bridge a gap between macro and micro approach by introducing macro-micro model in predicting business failure rate; - also found that increased business failure rate is related with an appreciation in the exchange rate

Hudson and Cuthbertson	1988 1993 1996	- analyzed determinants of personal bankruptcies in the UK; - examined the effect of the dummy variable which referred to Insolvency Act introduced in 1985-86 and was found to be significant in a temporary reduction of the liquidation rate; - studied corporate failures in the UK using quarterly data during 1947-1982; - found that measures of profitability and birth rate of new companies are significant variables of compulsory liquidations while interest gearing is significant only in differences (has only a short-run effect)
Platt and Platt	1994	- used panel data approach, pooling state-level data (USA during 1969-1982) into industrial, farm, oil-producing and less industrial sectors; - found that business failure rate is inversely related to measures of economic activity (change of employment and profits) and positively related with cost measures (the logarithm of the real wage) and change in the business formation rate
Platt, Platt, Pederson	1994	- developed bankruptcy prediction model by using the sample containing only American oil and gas producing industry in order to avoid inter-industry distortions; - oil prices found to be marginally significant and negatively related, while interest rates found to be significantly and positively related to bankruptcy prediction
Young	1995	- focused on the effect of interest rates on the corporate liquidations; - variables significant in predicting the liquidation rate: the unanticipated component of the real interest rate, the growth rate of companies, aggregate demand, real input prices, the nominal interest rate and ratio of bank debt to the replacement cost of capital; - unanticipated inflation, the real interest rate, real wages, debt/market ratio, and Insolvency Act dummy were not significant variables
Wickraman-ayake	1996	- used annual data during 1973-1995 in Australia; - found that business failures have a positive relationship with the bank advances/GDP ratio, the level of unemployment and the price level, and a negative one with the Australian stock index
Vlieghe	2001	- found that determinants of profits such as real wages, aggregate demand, real interest rates have better explanatory power than aggregate profits; - found that short-run determinants of the liquidations rate are index of property prices and birth rate of new companies; - long run determinants of the liquidations rate: real interest rates, the debt-to-GDP ratio, the real interest rate, deviations of GDP from trend and real wages
Dunis i Triantafyllidis	2002	- used four alternative modeling approaches in prediction of company insolvencies in UK (during 1980Q1-1998Q1): Ordinary Least Squares, (OLS), ARMA, Logit and neural network regression (NNR); - dependent variable was the number of insolvencies and explanatory variables were: the real gross domestic product, the real money supply, the rate of unemployment, and the output gap as measures of the business cycle, the consumer price index, FTSE stock index, the 3-month Treasury Bill, the 10-year Government Bond yield, the real effective exchange rate, the terms of trade; - found that NNR model achieve better results in predicting UK company insolvencies

Bhattacharjee, Higson, Holly i Kattuman Bhattacharjee, Mujumdar, Bhattacharjee, Han	2004 2007 2010	- explored the impact of macroeconomic instability and the role of legal institutions on business failure in UK and US quoted firms; - used hazard regression models in studying the impact of various explanatory factors on firm exit in UK and US; - found that there are significant differences in the way in which firms in UK and US react on macroeconomic instability; - the effect on bankruptcy is more pronounced in the UK, and on acquisitions more is pronounced in the US, which is attributed to the differences in bankruptcy codes in these two economies; - examined the impact of firm versus industry effects on profitability in Indian industry; - studied the impact of both microeconomic factors and the macroeconomy on the financial distress of Chinese listed companies during 1995-2006
Liu	2004	- used an error-correction model (ECM) to investigate the macroeconomic determinants of UK corporate failures by modeling the short-term and long-term movement of corporate failure rates over the period 1966-1999; - found that failure rates in the short run and in the long run are related with: interest rates, profits, price and corporate birth rates; - confirmed temporally effect of the Insolvency Act 1986 in reducing corporate failure rates
Hunter i Isachernkova	2006	- developed two models in predicting corporate failures: 1. using explicitly financial ratios (accounting ratio-based model) and 2. using various financial ratios and macroeconomic variables (nominal interest rate and real effective exchange rate); - model incorporating the macroeconomic variables exhibited lower prediction errors and showed better prediction accuracy compared to basic model based on financial ratios alone.
Halim, Mohd Daud, Rizal Mazlan i Marzuki	2008	- used the ARDL time series cointegration technique to examine macroeconomic determinants of corporate failures in Malaysia during 1991-2005; - tested whether the corporate failure can be explained by the movement of following macroeconomic variables: domestic credit aggregate, average lending rate, consumer price index as measure of inflation, real GDP, the birth rate of new companies and “dummy” variable that indicates Asian financial crisis; - found that strong impact on the corporate failure rates have average lending rate, inflation rate and gross domestic product in the long-run; - results indicated that Asian financial crisis makes a significant contribution to the corporate failure rates in Malaysia
Salman, Friedrics i Shukur	2009	- using ECM examined macroeconomic factors that influence corporate failure of Swedish small and medium-sized manufacturing companies; - in the long run corporate failure is negatively related to the level of industrial activity, money supply, GNP and economic openness rate, and positively related to the real wages

Source: authors

IS EXPORT-LED GROWTH POSSIBLE IN THE BALKANS?

Milica Uvalic
Department of Economics, Finance and Statistics, University of Perugia
Via Pascoli 20, 06123 Perugia
Phone: ++ 39055244895; Fax: ++390755855299
E-mail: uvalic@unipg.it.

Key words: *Growth model, Trade, Competitiveness, Development, Balkans*

ABSTRACT

The paper explores one of the key issues discussed within the current debate on the new growth model for Eastern Europe which emerged after the outburst of the global economic crisis in 2007-08 – namely the question of export-led growth. Since Eastern Europe is one of the regions that has been most affected by the global economic crisis, the crisis has raised the question whether the transition strategy adopted in the region during the last twenty years has been the most appropriate. These issues are particularly relevant for the Balkan economies since, with the possible exception of Croatia, they are today in a worse economic situation than the Central East European (CEE) countries. The paper aims to contribute to the ongoing debate by analyzing trends in foreign trade of the Balkan countries, illustrating how export performance has been largely unsatisfactory also during the past decade - despite political stabilization, fast trade liberalization, trade recovery, increasing foreign direct investment and other positive developments. The main features of trade performance of the Balkan countries are discussed, as well as the reasons behind unsatisfactory results. The paper also raises the question of future policies that would be necessary to ensure steadier export-led growth in the Balkans, before drawing some concluding remarks.

1. INTRODUCTION

The paper explores one of the key issues discussed within the current debate on the new growth model for Eastern Europe which emerged after the global financial and economic crisis severely hit Eastern Europe in late 2008 – namely the question of export-led growth (see Becker et al. 2010, or Berglof 2010). Since Eastern Europe is one of the regions that has been most affected by the global economic crisis, the crisis has raised the question whether the transition strategy adopted in the region during the last twenty years has been the most appropriate (Nuti, 2009). These issues are particularly relevant for the Balkan economies, since with the possible exception of Croatia, they are in a worse economic situation than the Central East European (CEE) countries. Due to the political events in the 1990s, in comparison with the more advanced economies in CEE, the Balkan countries have experienced major macroeconomic instability, slower economic recovery, they have attracted much lower volumes of FDI, and have been offered privileged access to EU markets and major financial assistance a decade later. These are among the principal reasons that explain their relatively worse economic performance, including insufficient recovery of foreign trade, with respect to the CEE countries (Uvalic, 2010a).

The paper aims to contribute to the ongoing debate by analyzing trade performance of the Balkan countries. The narrow definition of Southeast Europe, often referred to as the Western

Balkans, will be used, which until recently included five countries – Albania, Bosnia-Herzegovina, Croatia, Macedonia and FR Yugoslavia (Montenegro, Serbia, Kosovo). Today, after the split between Montenegro and Serbia in June 2006 and the February 2008 unilateral declaration of Kosovo's independence, the Balkan region includes seven countries. Occasionally, reference will also be made to Bulgaria and Romania, in which case the region will be referred to as Southeast Europe (SEE).

The structure of the paper is as follows. We will start by presenting some of the main features of trade in the Balkan region during the first decade of transition, in order to recall that the political and economic events of the early 1990s have fundamentally influenced regional groupings and trade patterns of all countries (section 2). We will then analyze foreign trade trends of the Balkan countries from 2001 onwards, in order to show that the results have been below expectations (section 3). The main reasons behind relatively unsatisfactory trade performance and insufficient competitiveness of the Balkan countries are discussed in some detail (section 4). The question of future policies that would be necessary to ensure steadier export-led growth in the Balkans is also addressed (section 5), before drawing some concluding remarks (section 6).

2. TRADE IN THE BALKANS DURING THE "LOST" DECADE

The question of limited competitiveness of the Balkan countries in recent years cannot be properly understood without taking into account the specific political and historical context of the region during the 1990s, which has often been referred to as the "lost" decade. The political events of the early 1990s have had a profound impact on international, political and economic relations of the Balkan countries, fundamentally influencing the long-established trade blocks and individual countries' trade patterns. Within the generally unfavorable political and economic environment which prevailed in the Balkans throughout most of the 1990s, the countries in this region have been very negatively affected by a series of external shocks.

When the transition to a market economy started in 1989, most countries in the Balkan region were still part of one country, SFR Yugoslavia, which consisted of six republics (Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, Serbia and Slovenia). Being part of the Yugoslav economic and monetary union and having a common market, the Yugoslav republics had substantial trade and other economic links among themselves (see below). At the same time, Yugoslavia's specific international relations[1] had assured its trade orientation primarily towards the West, so in 1990 the OECD countries accounted for 63.6% of its imports and 59.8% of its exports (Uvalic, 1992). In contrast, Albania was the most closed economy in Europe; after having abandoned the Council of Mutual Economic Assistance in the early 1960s, it had followed an autarkic model of development and had limited economic links with the rest of the world, including its closest neighbors (Uvalic, 2001).

If we consider the wider region of Southeast Europe (SEE), it is interesting to note that despite geographical proximity, in 1989 there was very little trade among the four SEE countries - Albania, Bulgaria, Romania and Yugoslavia (Uvalic, 2001). The most integrated part of the region was Yugoslavia – paradoxically, since many political and economic

[1] Yugoslavia was a non-aligned country, it was not a member of the Council of Mutual Economic Assistance (CMEA) or of the Warsaw Pact, but had privileged relations with the West. Yugoslavia was offered preferential trade arrangements with the European Economic Community already in the early 1970s.

problems had for years pushed in the opposite direction. Since the mid-1970s, there was rising regional autarky and fragmentation of the Yugoslav market, as evidenced by the duplication of factories in many sectors, impediments to the mobility of capital and labor across republican borders, and weak inter-republican integration of enterprises. Nevertheless, inter-republican trade in Yugoslavia has always represented an important part of overall trade for all its republics. Throughout most of the 1970-89 period, "exports" to the other Yugoslav republics were generally more important than exports abroad, clearly suggesting that Yugoslav republics were more integrated among themselves than with the outside world. Particularly in times of deteriorating external conditions, the existence of alternative internal markets in the other republics was an important factor compensating for the temporary loss of foreign markets (Uvalic 1993).

The overall situation in the Balkan region changed dramatically in the early 1990s. Radical political changes which were taking place throughout most of Eastern Europe did not bypass the Balkans. As part of the transition to a market economy, in 1989-91 Albania and SFR Yugoslavia also adopted systemic changes, including radical reforms of the foreign trade system and substantial trade liberalization. However, the process of transition in a large part of the region was interrupted by the break-up of Yugoslavia in mid-1991, which was accompanied by a series of political events that would have very negative economic consequences for most countries.

During the 1991-2001 period, the Balkan region experienced five military conflicts, international isolation, multiple political crises and continuous economic instability. All Balkan countries have gone through a very deep recession in the early 1990s, much more profound than in the Central East European (CEE) countries, and all countries except Bosnia have had negative growth rates also during 1997-2001. Under the unfavourable general conditions, transition-related reforms were reversed or have proceeded at a slower pace than in CEE. While the European Union (EU) decided to actively support the transition in former socialist countries through trade preferences and substantial financial assistance, these measures were not extended to the successor states of former Yugoslavia after its break-up. Political and economic instability in the Balkans impeded closer links with the EU for a whole decade, so the process of Balkan – EU integration has been greatly delayed (see Uvalic, 2010a).

The described events brought important changes in trade patterns of the individual Balkan countries and regional groupings. In sharp contrast with the general trend of fast trade liberalization in CEE, after gaining political independence in 1991-92 the successor states of Yugoslavia introduced trade barriers and other types of restrictions vis-à-vis neighboring countries. The break-up of Yugoslavia led to the end of many traditional trade links in the Balkans, contributing to a drastic reduction in the *overall level* of trade among the newly created states. The NATO 1999 intervention brought further disruptions in trade of all Balkan countries. Through the destruction or damages of infrastructure, transport and communication lines in FR Yugoslavia, the NATO bombing has further divided the Balkans, breaking trade links and creating ecological and transportation problems. Thus the military conflicts, embargoes, politically-motivated trade wars have normally had a direct impact on trade among these countries, contributing to a much lower level of trade in the 1990s than otherwise could have been the case.

Nevertheless, most successor states of former Yugoslavia have maintained some trade with their former trading partners, in a few cases - Bosnia and Herzegovina and FR Yugoslavia – even rather significant (Uvalic, 2001, 2006). The reasons are partly political, considering that

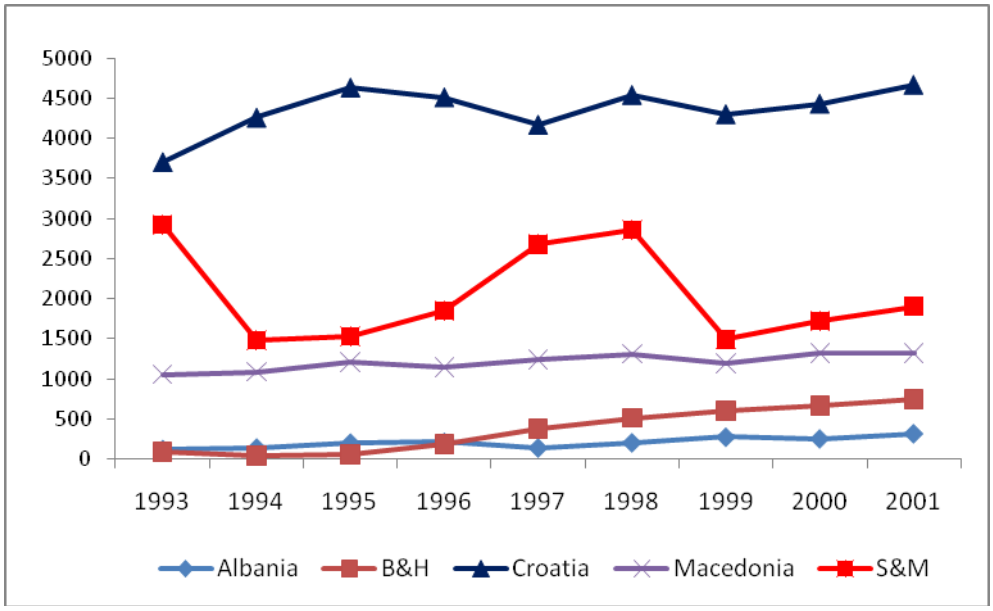
FR Yugoslavia was under international sanctions and a trade embargo during much of the 1990s, while during the war in Bosnia and Herzegovina one of its entities, the Republika Srpska, had very close political and economic ties with Serbia. After the signing of the Dayton Peace Agreement in late 1995 which ended the war in Bosnia, there was a revival of trade especially between Croatia and the Bosnian Federation, and between FR Yugoslavia and the Serb part of Bosnia and Herzegovina (Republika Srpska). Consequently, in 1997-98, both Bosnia and Herzegovina and FR Yugoslavia actually traded more with the other Balkan countries than with the EU (see Uvalic, 2001, 2006).

Because of the military conflicts and various trade embargoes, there was a substantial amount of smuggling in the 1990s, especially across some of the "soft" borders (e.g. between Serbia and Republika Srpska, Albania and Kosovo, Croatia and Herzegovina). A part of trade in the Balkans was therefore illegal trade, sometimes taking place in barter form, thus not registered in any statistics. Probably still today, intra-regional trade in the Balkans is higher than is usually concluded on the basis of still incomplete statistics.

In the meantime, the EU emerged as the most important trading partner of most CEE and many SEE countries, including Albania, Bulgaria and Romania, which relatively quickly managed to reorient their trade from traditional CMEA partners towards primarily the EU. This was not the case with most successor states of former Yugoslavia, Slovenia being the main exception. Although in 1990 Yugoslavia traded mostly with the European Community, it took some of its successor states more than a decade to again reorient their trade towards primarily Western countries.

The negative political and economic environment that prevailed in the Balkans during much of the 1990s has very negatively influenced foreign trade (see Figure 1). During the years of disintegration, in 1991-93, there was strong trade implosion characterized by a drastic reduction of both overall trade volumes and trade among the Yugoslav republics/successor states. The situation would not improve much for practically a whole decade, but would actually deteriorate further for a country like FR Yugoslavia (see Figure 1).

Figure 1. Value of the Balkan countries exports (in thousands of US dollars), 1993-2001



Source: Uvalic (2010b), p. 224, based on IMF and national statistics.

During the 1993-2001 period, all the Balkan countries have had stagnating or declining exports. FR Yugoslavia (Serbia and Montenegro), in particular, registered a remarkable reduction of exports in the early 1990s due to the international trade embargo (lifted only in 1996), and again in 1999 when exports fell by 50%, due to the negative effects of the NATO intervention. Even Croatia, the country that had the highest volume of exports in 1993, did not succeed in expanding its exports significantly during the 1990s. Merchandise exports of Macedonia and Albania were not only stagnant but remained at very low levels. For Bosnia and Herzegovina, there are actually no fully accurate statistics on foreign trade. In the early 1990s this was the consequence of the four-year war on its territory, while thereafter the lack of accurate statistics derives from the country's fragmentation. Since Bosnia is divided into two entities and also has a separate district of Brcko, foreign trade statistics for the whole country remain problematic even today.

3. TRADE RECOVERY IN THE BALKANS AFTER 2001

The general political climate began improving in the Balkan region after the end of the Kosovo war in mid-1999, when there was a radical change in the international strategy towards the region. The EU launched its Stabilization and Association Process specifically for the five Western Balkan countries, which included a number of measures, including a new specific programme of financial assistance (CARDS), substantial trade liberalization through autonomous trade preferences, and the possibility of concluding Stabilization and Association agreements with the EU, also offering prospects of EU membership. The Balkan countries have, in the meantime, re-established political and economic relations with the EU and by now have all concluded Stabilization and Association Agreements (except Kosovo; see Uvalic, 2010b). In addition, the Stability Pact for Southeast Europe (SEE) was created with the aim of mobilizing international financial assistance for all the countries in the SEE region that were negatively affected by the 1999 Kosovo conflict - thus in addition to the Western Balkans, also Bulgaria and Romania. The Stability Pact for SEE has organized several donors conferences and many usefully regional initiatives, including the process of trade liberalization within the SEE region.

During the 2001-09 period, there have been notable improvements in economic performance, also in countries like FR Yugoslavia (Serbia and Montenegro) and Bosnia and Herzegovina that were among the laggards in the 1990s. Since 2001, most Balkan countries have experienced strong growth, the only exceptions being Macedonia that had negative growth in 2001 due to the civil war, and Kosovo that occasionally had negative growth due to its still fragile economic situation. There has also been substantial macroeconomic stabilization in the whole region. Countries like FR Yugoslavia, that in 2001 still had very high inflation due to delayed economic reforms, also succeeded in bringing down inflation to one-digit levels.

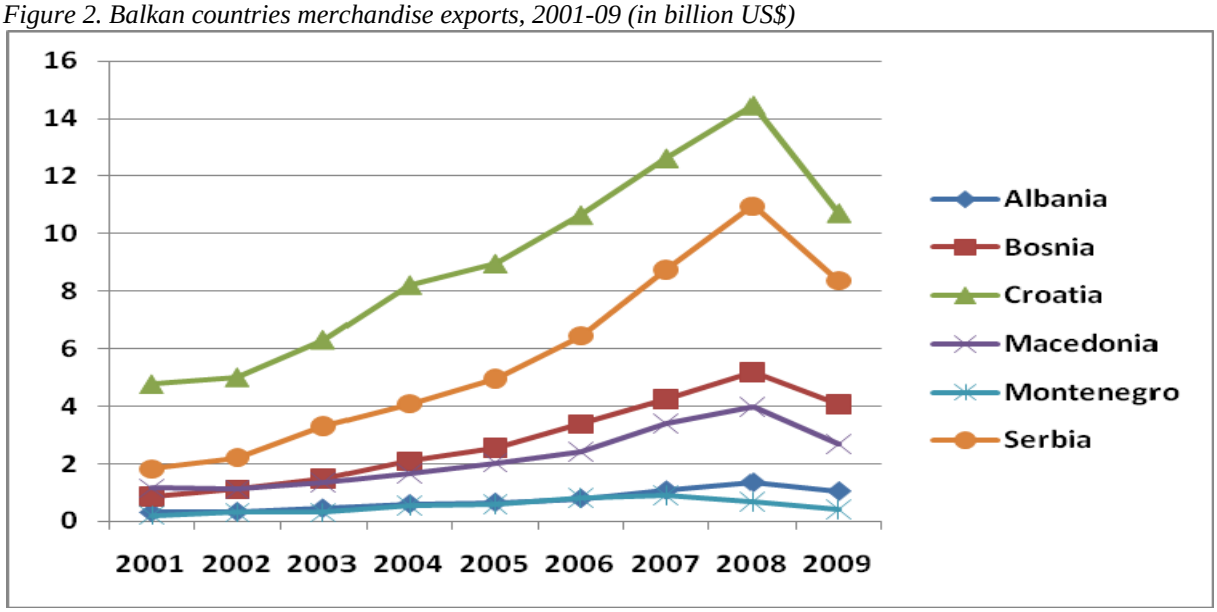
All the Balkan countries have also implemented transition-related economic reforms, so over the last ten years there has been major institutional convergence, in the direction of functional market economies. Although foreign trade liberalization was implemented much earlier in countries like Albania, Croatia and Macedonia, by now the EBRD evaluates all Balkan countries in this area of reform with a high score 4 or 4+ (EBRD, 2010). The Balkan countries have greatly liberalized their trade both with the EU and with other countries in the SEE region, thanks to radical internal reforms, autonomous trade preferences granted by the EU in 2000, and the implementation of the trade-related provisions of the Stabilization and Association Agreements. Regional trade liberalization with the other SEE countries has taken

place within the trade liberalization initiative of the Stability Pact for Southeast Europe, initially through bilateral free trade agreements signed from 2001 onwards among all the SEE countries and today through the CEFTA 2006.

The political stabilization of the Balkan region, the greatly improved macroeconomic performance, and acceleration of institutional reforms after 2001 have all facilitated a significant recovery in foreign trade. For the moment we will focus primarily on exports, for two reasons. First, because the paper is primarily interested in understanding export performance of the Balkan countries, and second, because imports of the Balkan countries have generally been twice the volume of their exports, so statistics on total trade (both imports and exports) may over-exaggerate the positive results of trade expansion.

After 2001, the Balkan countries have notably expanded the volume of their exports, in some cases by four or five times. Until the global economic crisis hit the region quite severely causing a substantial drop in trade/exports in 2009, most Balkan economies have experienced a very fast growth in their merchandise exports. However, there are very remarkable differences among the individual countries, as can be seen from Figure 2 below.

Figure 2. Balkan countries merchandise exports, 2001-09 (in billion US$)



Source: EBRD on-line database.

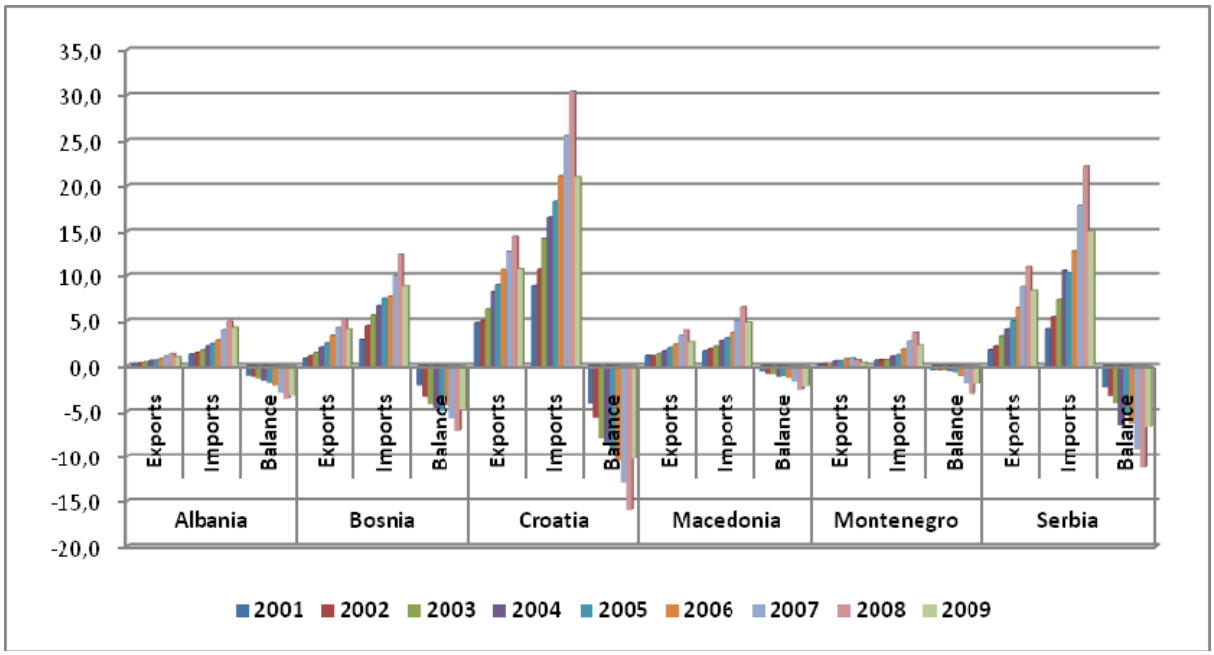
Among the Balkan countries considered, Croatia was the major exporter already in 2001, with a volume of exports more than double those of Serbia, the second largest exporter in the region. During the 2001-08 period, Croatia's volume of exports has more than tripled (from US$ 4.8 billion to almost US$ 14.5 billion), but Serbia increased its exports even faster, by more than five times (from US$ 1.8 billion in 2001 to over US$ 11 billion in 2008).

In the case of the other Balkan countries the increase in exports has also been quite impressive, but given the low starting base the present volumes remain much lower. Bosnia and Herzegovina increased its exports by more than five times, surpassing Macedonia after 2001 that in the 1990s was ahead of Bosnia. The two Balkan countries with the lowest value of exports are Albania and Montenegro, that in 2008 still exported less than US$ 1 billion each, although their exports have also registered a fourfold growth from 2001 to 2008. Exports of all Balkan countries were negatively affected by the global economic crisis, but it

is precisely those countries more integrated into the global economy that were exporting most – Croatia and Serbia – that in 2009 registered the sharpest fall in exports.

While the post-2001 revival of exports by the Balkan countries has clearly been impressive, the revival of trade also brought a very strong growth of imports, that have grown just as fast or even faster than exports. Consequently, all Balkan countries have registered increasing trade deficits (see Figure 3). From already a very low coverage of imports by exports in 2001, the situation progressively worsened over the past decade. This is a major problem for all the Balkan countries, since most are highly dependent on many imported goods.

Figure 3. Balkan countries merchandise exports, imports and trade balance, 2001-09 (in billion US$)



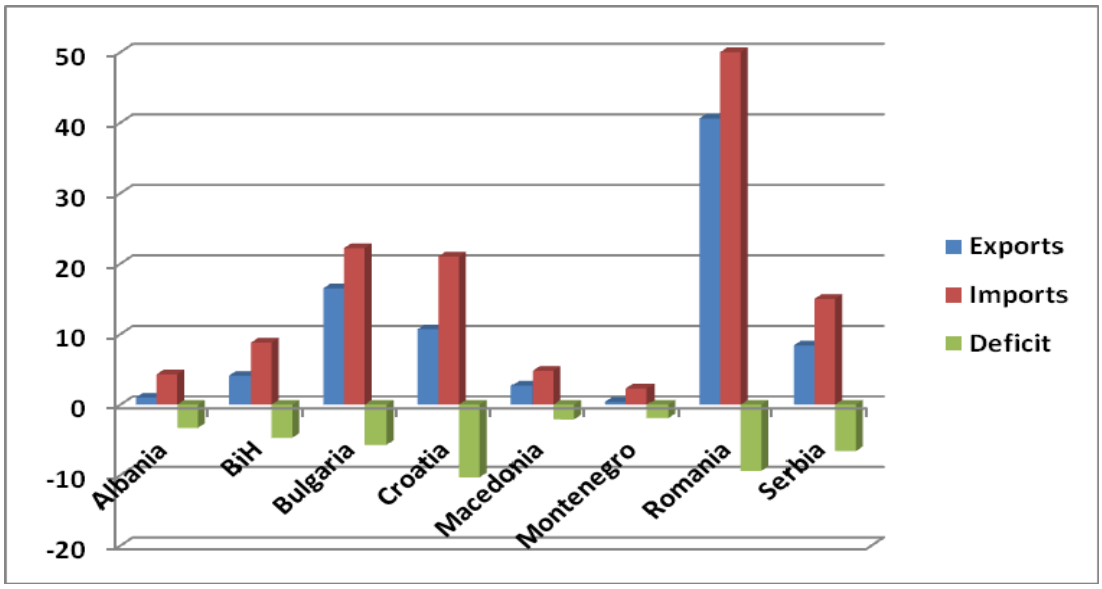
Source: EBRD on-line database.

There were some adjustments of these huge external imbalances over the last few years. When the first effects of the global economic crisis were felt in late 2008, the Balkans were among the countries that were facing major imbalances, as they had among the highest trade and current account deficits in the whole transition region (Prica and Uvalic, 2009). The current account deficits have for years been covered by increasing capital inflows from abroad - FDI, foreign loans, donors assistance, emigrants remittances. In 2009, due to the notable reduction in FDI and the sharp credit crunch, the Balkan countries were also deeply affected by reduced foreign capital inflows. The strong fall in export demand also led to a remarkable reduction in both exports and imports, positively influencing their trade and current account deficits in 2009.

Despite these adjustments in 2009, trade in the Balkans continues to be characterized by large trade deficits. For comparisons sake, it is worth comparing the value of merchandise exports, imports and trade balance of the Balkan countries with those of neighboring Bulgaria or Romania in 2009 (see Figure 4). The figure points to several interesting conclusions. It illustrates the huge differences in the value of foreign trade: both Bulgaria and especially Romania in 2009 had higher exports and imports than Croatia, the major exporter among the Balkan countries. It also illustrates the enormous differences in trade deficits, which despite

positive adjustments remain much higher in all the Balkan countries than in Bulgaria and Romania.

Figure 4. Southeast European countries exports, imports and trade balance in 2009 (in billion US$)

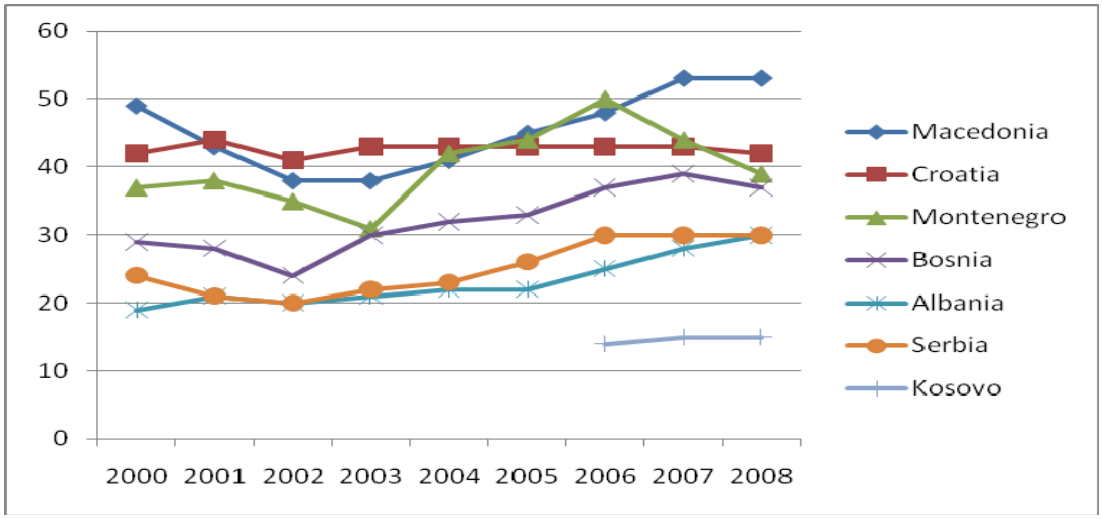


Source: Economist Intelligence Unit (2010).

Although Bulgaria and Romania have been among the countries most severely hit by the global economic crisis in 2008-09, their trade is much more balanced than that of the other Balkan countries. Among the main reasons behind the very high trade deficits in the Balkans are the policies of strong currencies that have stimulated a rapid increase in imports and hampered export growth, as well as insufficiently restructured industries, as discussed further in section 3 below.

Further insights on trade characteristics of the Balkan countries can be gained from one of the standard measures of a country's economic openness – the exports/GDP ratio. The exports of goods and services/GDP ratio of the seven Balkan countries during the 2000-08 period is presented in Figure 5 (as provided by the World Bank).

Figure 5. Export of goods and service/GDP ratios of the Balkan countries, 2000-08 (in %)



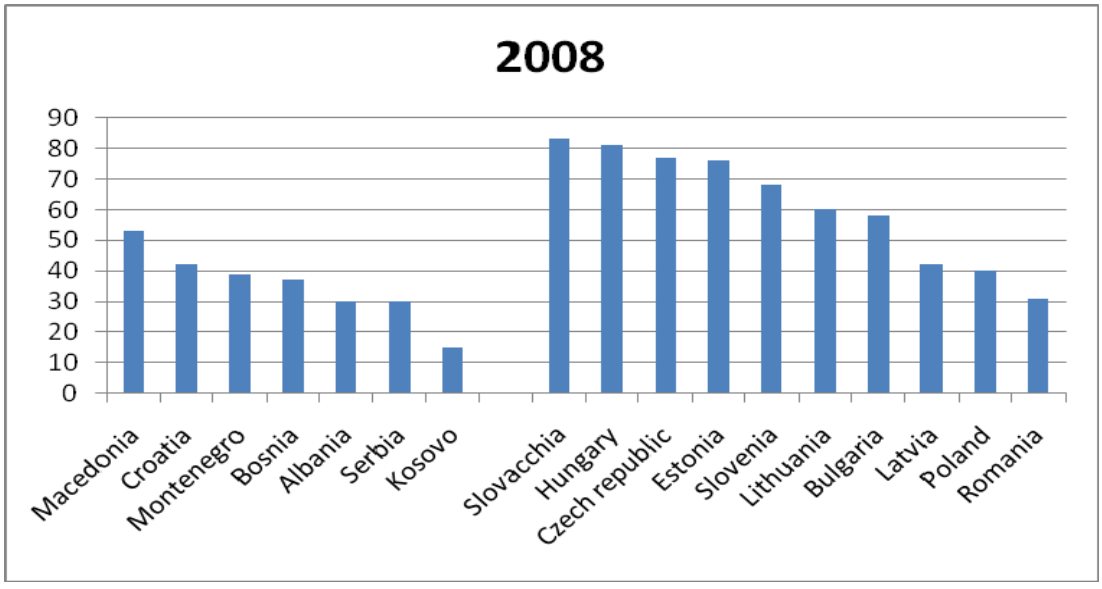
Source: Based on the World Bank World Development Indicators.

This indicator can be useful in assessing whether the recent fast increase in the value of the Balkan countries exports can be interpreted as a possible sign of export-led growth. Presumably, if the share of exports in GDP has increased over time, this should indicate that these economies have increasingly based their recent fast GDP growth on improved export performance. Although there are other factors to be considered, primarily the relationship between GDP and exports and their relative elasticities, the indicator can serve as a rough approximation.

Interestingly, we can observe that the exports/GDP ratio has stagnated in the case of Croatia (2000-08) and Kosovo (though referring to only 2006-08). In the case of Macedonia and Montenegro, the export/GDP ratio has actually declined during the 2000-03 period; thereafter in increased in both countries, but in Montenegro there was again a reversal of the positive trend after 2006, when a sharp fall in it's exports/GDP ratio was registered. Bosnia and Herzegovina and Serbia have also registered a slight decline in the exports/GDP ratio initially, in 2000-02, but a continuous increase thereafter. Albania had a steady increase in its exports/GDP ratio, but still remains one of the two most closed Balkan economies (along with Kosovo). These statistics clearly illustrate the high volatility of Balkan countries exports in recent years, offering little support to the thesis that the Balkan countries have attained export-led growth.

Despite increasing volumes of trade over the last decade, the Balkan countries remain much less open than most CEE countries, as evidenced by their still relatively low export/GDP or trade/GDP ratios. In 2008, even in the case of Macedonia and Croatia, two of the more open countries, exports of goods and services still represented a relatively low percentage of their GDP (40-50%) (see Figure 6). All the other Balkan countries are even more closed economies, particularly Kosovo with an exports/GDP ratio of only around 15%.

Figure 6. Exports of goods and services/GDP ratios of the Balkan and the CEE countries, 2008 (in %)



Source: Based on World Bank World Development indicators.

The attained lower/higher degree of openness explains why some of the CEE countries were more affected by the global economic crisis than the Balkan countries. It is not surprising that a country like Albania was one of the two countries in the CEE and SEE regions to have registered positive GDP growth in 2009 (along with Poland). A recent econometric study on

the Western Balkans confirms that those countries that were more integrated into the global economy have also been more severely hit by the global crisis; the study established unidirectional causality between export performance and domestic economic activity (see Jovicic, 2010).

The ongoing discussion of the trade characteristics of the Balkan countries point to several conclusions. The first regards the highly unbalanced trade, characterized by a huge discrepancy between exports and imports. All the Balkan countries have had huge and until 2009 continuously increasing trade deficits, which remain much more pronounced than in neighboring Bulgaria and Romania even after the adjustments in 2009, and even more in comparison with the CEE countries. Second, most Balkan countries remain relatively closed economies, despite having substantially increased their trade/GDP and exports/GDP ratios over the past decade. Contrary to expectations that the political stabilization of the Balkan region, fast trade liberalization and trade recovery would substantially improve export performance, this objective has not been achieved. The main reasons are discussed below.

3. REASONS BEHIND LACK OF STRONGER EXPORT-LED GROWTH

Although export-led growth has been a frequent topic in discussions among academics and policy-makers in the Balkan countries in recent years, it has re-emerged as one of the central issues in the current debate on the future growth model. The global financial and economic crisis, which hit Eastern Europe very severely from late 2008 onwards, brought up the question whether the economic model of fast trade integration and rapid financial liberalization has been the best among the feasible policy options (Nuti 2009, Uvalic 2010b).

The pre-crisis development model in Central and Southeastern Europe, as stressed in recent discussions, has been one of deep integration with the EU (Becker et al. 2010), but this has been much more the case with the CEE than with the Balkan countries. The CEE countries became economically strongly integrated with the EU already during the 1990s, while more recently also politically, with their entry into the EU in 2004-07. There are other factors that explain the differences in economic performance of the CEE and the Balkan countries which sometimes are not sufficiently taken into account (see Uvalic, 2010a).

One of the key issues raised within this general debate regarding the Balkan economies is why the transition strategy over the past decade has not ensured better export performance and faster economic recovery. Presently there is no consensus on the principal causes of relatively unsatisfactory foreign trade performance of the Balkan countries. Although the reasons are in part country-specific, there are also some common features.

One group of economists blames primarily monetary and exchange rate policy for the insufficient competitiveness of the Balkan economies, while the other considers that the main problem lies in the real sector, namely supply-side factors and the inadequate structure of exports. This dichotomy of views has frequently provoked heated debates in recent years. These discussions are somewhat artificial since both exchange rate policy and the unsatisfactory situation in the real sector are important for understanding recent relatively poor export performance. We will discuss both groups of factors separately.

3.1 Monetary and exchange rate policy

To what extent has monetary and exchange rate policy of the national banks in the Balkan countries been responsible for insufficient competitiveness of their products on foreign markets? Were the currencies in the Balkan countries overvalued most of the period under consideration, explaining at least partly their relatively unsatisfactory export performance?

The Balkan countries have adopted a variety of exchange rate regimes in order to sustain their macroeconomic stabilization efforts, from floating regimes to much more rigid arrangements (see Table 1). One group of countries has fixed exchange rate regimes, either a conventional peg (Macedonia) or more rigid arrangements such as the currency board (Bosnia and Herzegovina) or regimes based on unilateral adoption of the euro (Montenegro and Kosovo, though they are not members of the European Monetary Union, nor even of the European Union). The remaining three countries – Albania, Croatia and Serbia - have floating exchange rate regimes, though managed quite closely by their respective national banks. In Croatia and Serbia, in particular, the central bank has frequently intervened to prevent major fluctuations of the exchange rate.

Table 1. Exchange rate regimes in the Balkan countries

Country	Exchange arrangement	Period of adoption	Currency
Albania	Pegged	1990-91	Lek linked to the US$
	Independently floating	1992 onwards	Lek
Bosnia & Herzegovina	No unique regime	1992-96	BiH dinar, new BiH dinar, Croatian dinar (later kuna), Republika Srpska dinar and Yugoslav dinar
	BiH dinar pegged	After Aug. 1994	
	Currency board	1997 onwards	Convertible marka linked to the euro
Croatia	Pegged	1992	Croatian dinar, in 1993 replaced by the kuna
	Managed float	Oct. 1993 onwards	
FYR Macedonia	Pegged	1992-95	Coupons, later replaced by the Macedonian denar
	Conventional peg	1995 onwards	Macedonian denar
FR Yugoslavia	Pegged	1992-99	Yugoslav dinar
– Serbia	Pegged	1992	Yugoslav dinar
	Managed float	Dec. 2000	
– Montenegro	Euroization (euro *de jure* legal tender)	1998 onwards	Euro
– Kosovo	Euroization (euro *de jure* legal tender)	Mid 1999 onwards	Euro

Source: Uvalic (2010a), based on Daviddi and Uvalic (2006).

Despite the variety of exchange rate regimes, the choice of the exchange rate regime does not seem to have fundamentally influenced actual monetary policy. Even in countries with more flexible exchange rate regimes (Albania, Croatia or Serbia), the objective of low inflation has led to restrictive monetary policies and real appreciation of national currencies, bearing close similarities with policies followed by countries under a more rigid regime, such as Bosnia and

Herzegovina, Montenegro, or Kosovo (Daviddi and Uvalic 2006, Uvalic 2010a). Countries with more flexible exchange rate regimes have not used exchange rate policy to stimulate exports, at least until 2009 when sharp adjustments of the exchange rate took place in some countries. On the contrary, real currency appreciation has constrained export growth and stimulated increasing imports, as seen earlier. Export performance has not been any better of those Balkan countries with a currency board or the euro (Bosnia, Kosovo, Montenegro), due to additional structural deficiencies and country-specific problems. The main consequence in all cases has been a substantial increase in the trade deficit.

Large current account imbalances are sometimes seen as an indicator of underlying exchange rate valuation problems, but as rightly argued by Kekic (2005) external imbalances are not necessarily a sign of exchange rate misalignment. They may reflect strong productivity-enhancing FDI or increased borrowing to finance new investment. Nor does a current-account surplus signal the absence of exchange-rate alignment problems or confirm that an exchange rate is overvalued.

Several forces have driven real appreciation in the Balkans, as elsewhere in Eastern Europe, including the impact of economic reforms, enterprise restructuring and productivity growth in the tradeables sector on relative prices, strong foreign capital inflows, and ongoing adjustments to administered prices (Kekic, 2005). All the Balkan countries have had severe problems with price competitiveness, as a result of having at some stage fixed exchange rates for stabilization purposes, of the Dutch disease type effects deriving from foreign assistance and remittance inflows, and of strong wage growth unbacked by corresponding productivity improvements (Kekic, 2005). Particularly during the last few years, very rapid wage growth in most countries driven by the credit boom has fundamentally contributed to these problems. Although monetary policy was officially targeted towards maintaining a fixed exchange rate, the real exchange rate frequently appreciated due to increasing inflows of foreign capital through donors assistance or workers' remittances. Huge capital inflows into the Balkan economies thus played against the long run objective of an export promotion strategy.

There are a number of theoretical and practical problems in trying to identify exchange-rate misalignments, given that various methods provide different results (see Kekic 2005, FREN, 2010). The Real Effective Exchange Rate is widely used as an indicator of price competitiveness of an economy, but because of misconceived policies or the imperfect functioning of the exchange market, it may be a poor indicator of competitiveness. The IMF regards the unit labor costs in manufacturing as a simple and useful index for the measure of competitiveness, but sometimes reliable data are not available. It is therefore difficult to establish with precision how much the exchange rate may have been overvalued in the 2000s in the individual Balkan countries.

Nevertheless, Laza Kekic (2005) has used different methods and a cross-section model to estimate price competitiveness in 71 economies. The sample included not only the large majority of transition countries but also all Balkan countries. The evidence reported shows that by 2005, in all Balkan countries, the appreciation may have become excessive relative to underlying fundamentals, suggesting imminent problems of price competitiveness (Kekic, 2005). For example, the Serbian dinar in 2004 was significantly overvalued, by some 30%. The results for Croatia were even worse, as the Croatian kuna, according to the various methods used in the estimations, was the most overvalued currency in the region (Kekic, 2005). All the other Balkan countries also had severe problems with price competitiveness, of varying degrees of severity.

Similar conclusions are drawn in a more recent study, that has compared relative competitiveness and exchange rate movements in the CEE, the Baltics and the SEE countries (see Becker et al. 2010, p. 15). These findings also suggest that real exchange rate appreciation during the catching up process, as a distinctive feature of the Central and Southeast European development model, seems to be sustainable in the five CEE countries, but looks excessive in the Balkans.

Therefore, the policy of overvalued currencies does seem to have contributed to low competitiveness of the Balkan economies, particularly in the case of Croatia and Serbia. An overvalued exchange rate appears to have been a more serious problem in the Balkans than in CEE countries, negatively influencing export growth. This was the price that was paid for some of the benefits of a stronger currency - in combating inflation, increasing purchasing power over imports, and providing a faster process of catching up. Other things being equal, currency real appreciation/revaluation contributes to the catching-up process, as the purchasing power of domestic currency in terms of imports rises. However, real appreciation or revaluation has an adverse effect on net exports and therefore on employment and on output growth. On balance, in the experience of post-socialist economies, real appreciation has contributed to the catching up process.

There have been some adjustments in the exchange rate following the strong impact of the global economic crisis, at least in some countries. In most countries with flexible exchange rate regimes, the crisis provoked the depreciation of national currencies. The Serbian dinar has depreciated vis-à-vis the euro by some 18% from September 2008 until August 2010 (see FREN 2010) and so did the Albanian lek, though somewhat less (by some 10%). The Serbian exchange rate is considered to have "probably reached a level providing sufficient price competitiveness for the domestic economy" (FREN, 2010, p. 60). These adjustments of the exchange rate since late 2008 have clearly helped Serbian exports and have significantly reduced the costs of the 2008-09 economic crisis, in comparison with countries with more rigid exchange rate regimes. The exchange rate of the Croatian kuna, on the contrary, has been maintained stable by continuous interventions of the central bank on the foreign exchange market, which so far have been successful. In countries with more rigid exchange rate regimes, adjustments have been even more difficult.

In conclusion, the neoliberal approach contained in the prescriptions of the "Washington consensus", adopted with some variations throughout the transition region, has been particularly disruptive for the small and underdeveloped Balkan countries. In all countries without exception, emphasis was placed on liberalization, macroeconomic stabilization, and privatization. IMF recommendations to the Balkan countries on exchange rate policy have oscillated between an emphasis on controlling inflation and on maintaining competitiveness, but the IMF has tended to give priority to combating inflation. In some Balkan countries earlier while in others later, macroeconomic stabilization brought restrictive monetary policies that were to reduce inflation after many years of high monetary instability, along with policies of strong national currencies. This type of policies has stimulated increasing imports and has in no way facilitated a faster growth of exports of the Balkan countries.

As convincingly argued by Rodrik (2008a), poorly managed exchange rates can be disastrous for economic growth. There is a strong case for an undervalued exchange rate as it can strongly stimulate economic growth. "Avoiding overvaluation of the currency is one of the most robust imperatives that can be gleaned from the diverse experience with economic growth around the world, and it is one that appears to be strongly supported by cross-country statistical evidence" (Rodrik, 2008a, pp. 1-2).

Another recent paper by Nouira, Plane and Sekkat (2010) similarly stresses that a proactive strategy consisting of deliberate real exchange rate depreciation can promote exports diversification and growth. There are instances when the objective of diversifying exports through depreciation of the exchange rate should be primary, in order to put exports at the heart of the development strategies. Recent empirical evidence has shown a negative relationship between overvaluation and economic growth. By raising uncertainty, overvaluation can be harmful to investment and outward looking economic growth. Deliberate undervaluation of the national currency may be a helpful strategy for promoting structural change, by fostering industrial growth through the shift of the internal terms of trade in favour of industry. There are instances when the objective of export diversification and macroeconomic equilibrium are incompatible, so monetary authorities will need to choose. If the priority is given to maintaining macroeconomic equilibrium, the Real Effective Exchange Rate must be kept on track, but if the priority is given to export diversification, this is no longer the case (Nouira, Plane and Sekkat, 2010, p. 21). Exchange rate management is sometimes assigned two objectives – macroeconomic stability and export diversification - which might not always be compatible.

Export diversification has been given priority over macroeconomic stability in many developing countries, including Morocco and Tunisia. Policy makers in the Balkans, on the contrary, have mostly given priority to the objective of macroeconomic stability over export promotion. In some instances, macroeconomic equilibrium may require currency appreciation, but export diversification requires just the contrary, currency depreciation. These are some reasons why policy makers in the Balkans should consider export promoting strategies more seriously in the future.

3.2 Supply side factors

We now turn to supply side factors, which are related to the real sector and “structural" problems of the Balkan economies. Many economists in the Balkan region have sustained that long-term competitiveness on world markets cannot be secured with the current economic structure of exports, without deeper restructuring of these economies. Two factors in particular have to be stressed in this regard: the very strong process of deindustrialization and the inadequate volume and structure of FDI. As a consequence of both factors, the export structure of the Balkan economies has not radically changed.

(1) All the Balkan countries have gone through a very strong process of *deindustrialization* in the 1990s, more extreme than in the CEE countries. In the meantime, there has been relatively little restructuring of most Balkan economies. In the 1990s, restructuring of many enterprises was postponed due to political instability that often caused delays in privatization and impeded the arrival of badly needed FDI. The tradable goods sector has not only not recovered but has even reduced its relative share, at least in some countries like Serbia (from over 42% in 2001, it was reduced to 24% in 2008; see Uvalic 2010b). Today the largest part of GDP, over 60%, in all Balkan countries is produced in services - telecommunications, trade, banking, real estate – which for the most are non-exportable services. The high growth rates registered in recent years in the Balkan countries have been due to the fast expansion of services, much more than of manufacturing industry or agriculture. This clearly helps understand why export performance of most Balkan countries has not been more impressive.

These arguments are strengthened if we compare the Balkans with the more advanced CEE countries. In the CEE countries, growth was accompanied by small and even improving trade balances as a reflection of reindustrialization after the initial collapse in the early 1990s. This

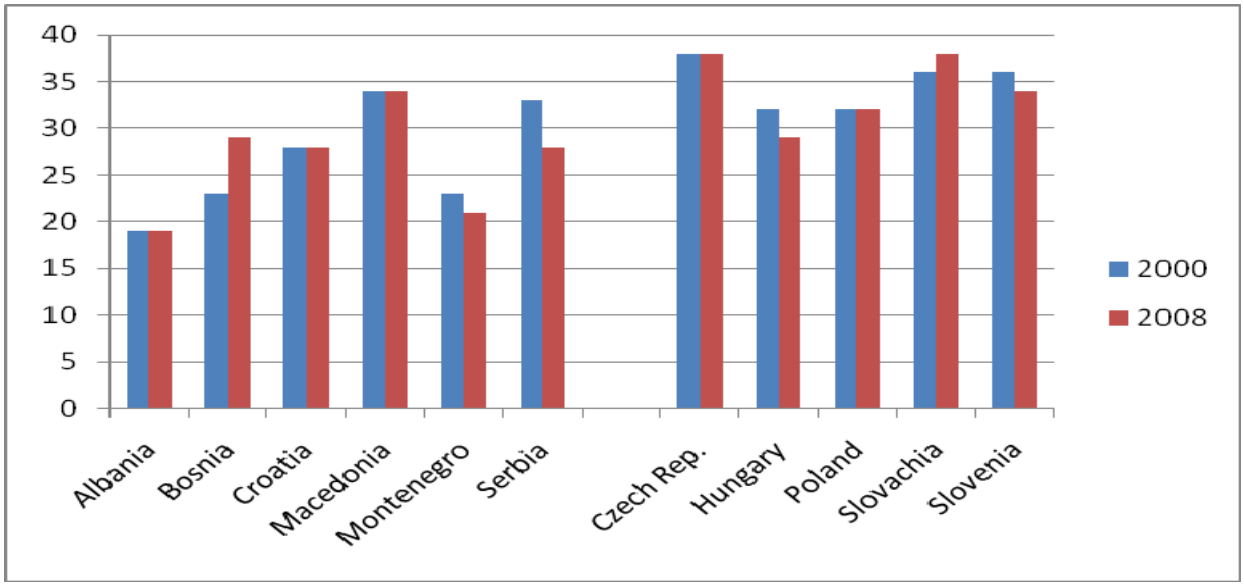
was not the case in the Balkan countries, where the process of deindustrialization has actually continued throughout the 1990 and the relative importance of industry has in most cases further declined in the 2000s. If we compare the relative shares of industry value added of the CEE and Balkans in 2000-08, the differences are impressive (see Table 2 and Figure 7).

Table 2. Industry value added (in % of GDP) in the Balkan and in CEE countries, 2000-08

Balkans	**2000**	**2001**	**2002**	**2203**	**2004**	**2005**	**2006**	**2007**	**2008**
Albania	19	20	19	21	21	22	20	20	19
Bosnia	23	23	22	23	25	25	25	27	29
Croatia	28	28	27	28	29	28	28	28	28
Macedonia	34	32	30	31	29	30	30	33	34
Montenegro	23	25	24	23	22	21	20	21	21
Serbia	33	28	28	27	29	30	30	29	28
Kosovo							20	20	20
CEE									
Czech Rep.	38	38	37	36	39	38	38	38	38
Hungary	32	31	30	30	30	30	30	30	29
Poland	32	29	29	30	31	31	31	32	32
Slovachia	36	35	34	35	37	37	39	39	38
Slovenia	36	35	35	35	35	34	34	35	34

Source: World bank Development Indicators on-line data base.

Figure 7. Industry value added (in % of GDP) in the Balkan and the CEE countries, 2000 and 2008



Source: World bank Development Indicators on-line data base.

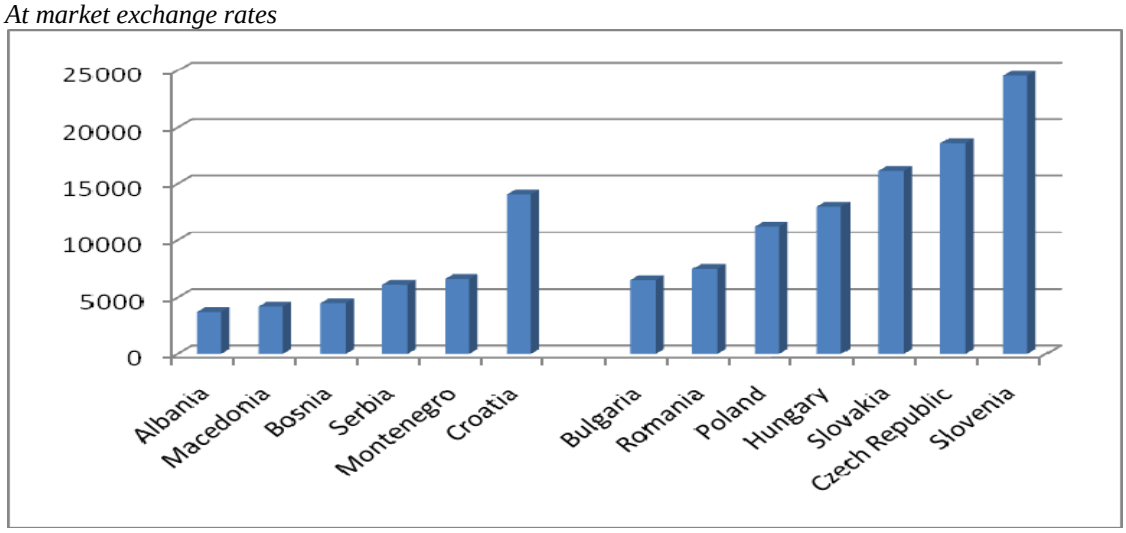
By 2000, the two countries that had least suffered from the process of deindustrialization were Macedonia and Serbia, both having maintained industry shares in GDP of over 30%. Today, Macedonia stands out as the most industrialized Balkan country, with a share of industry value added in GDP of 34%, similar to that of Slovenia or Poland. The only Balkan country that has registered a slight increase in the contribution of industry over the 2000-08 period is Bosnia and Herzegovina (from 23% to 29% of GDP). All the other Balkan countries have

registered either a stagnation (Albania, Croatia, Macedonia) or reduction (Montenegro, Serbia) in the share of industry value added in GDP.

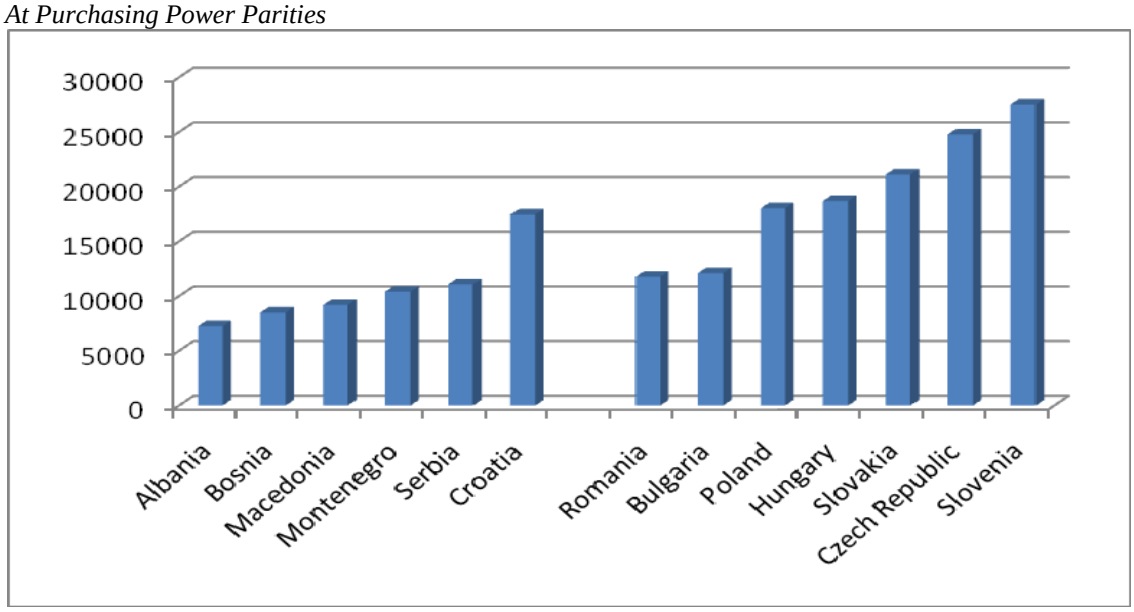
The CEE countries in 2008 generally had much higher shares of industry value added, ranging from 29% to 38% of respective GDP. Over the 2000-08 period, Hungary and Slovenia have registered a slight reduction in industry value added in GDP, but the shares are still relatively high, 29% and 34% respectively, thus much higher than in most Balkan countries. That the Balkan countries have gone through a too rapid process of de-industrialization can be further sustained by looking at their level of economic development in 2009, in comparison to the CEE countries (see Figure 8).

Figure 8. GDP per capita in US dollars, 2009

At market exchange rates



At Purchasing Power Parities



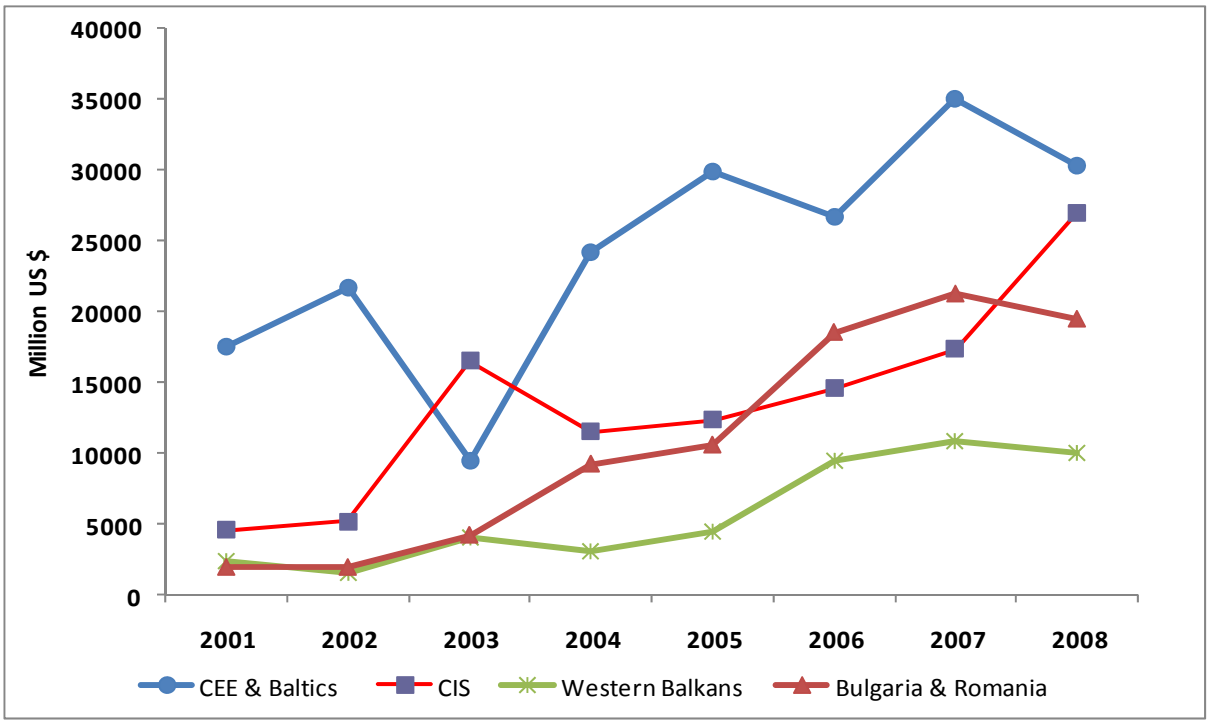
Source: Economist Intelligence Unit (2010).

As illustrated in Figure 8, whether we consider GDP per capita at market exchange rates or at Purchasing Power Parities, there are enormous differences in the level of development among the Balkan and the CEE countries. Among the Balkans Croatia is the only outlier having a GDP per capita much closer to some other CEE countries (Poland or Hungary). Similarly,

among the CEE countries, Bulgaria and Romania are much closer regarding their GDP per capita to some other Balkan countries.

(2)The other important factor concerns *Foreign Direct Investment* (FDI). The Balkan countries have attracted increasing FDI after 2001, which during the 1990s went almost exclusively towards Croatia. Nevertheless, total FDI inflows to the Balkans have been relatively low if compared to FDI in Bulgaria and Romania, or the much higher amounts invested in other regions, like CEE or the Community of Independent States (see Figure 9).

Figure 9. FDI in the transition region, 2001-08 (in million US dollars)



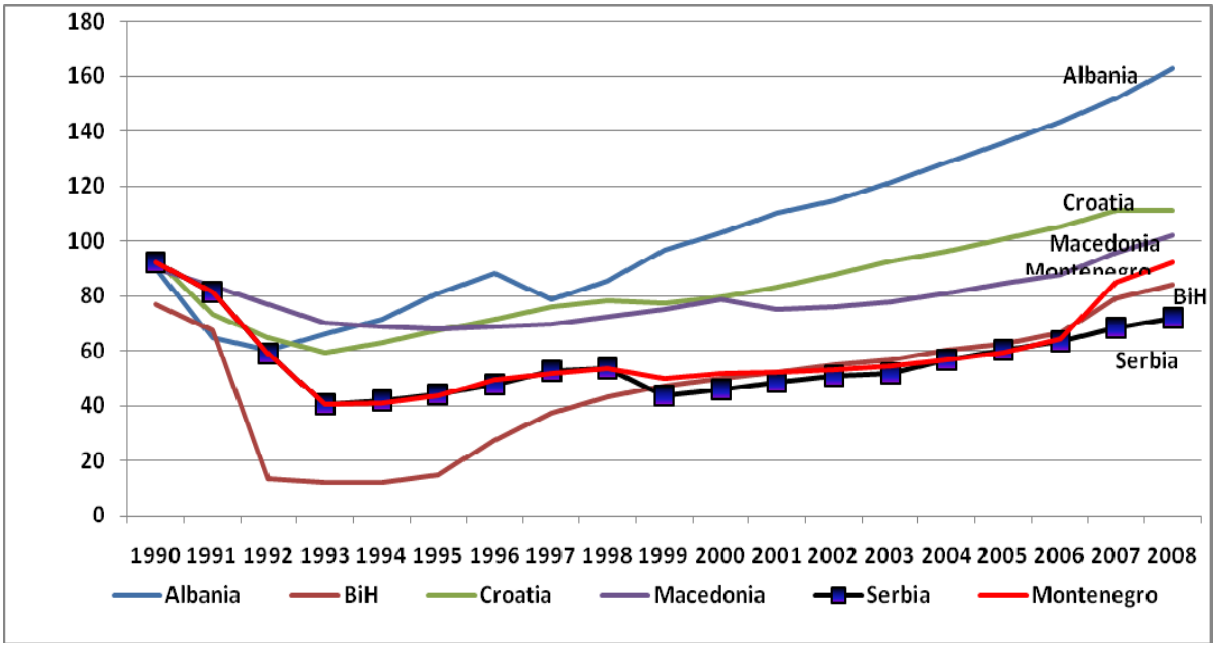
Source: Based on EBRD data.

FDI has not only arrived much later to the Balkans than to the CEE region, but has had quite different characteristics. The inflow of FDI was a key driver of economic growth in the CEE countries, but in the Balkans the composition of FDI was not always favourable and has not helped industrial restructuring. The share of manufacturing, the key sector for developing export potential, was significant in the CEE countries, but much less in the Balkans (see more in Becker, 2010). In CEE many industries have been modernized thanks to investment by multinationals from Western Europe, but in the Balkans this has happened much less frequently (see Kalotay, 2010). The dominant part of FDI in the Balkans has been in services, including banking, telecommunication, trade and real estate, while relatively little has been invested in manufacturing industry.

As a direct consequence of the described processes, there is ample evidence that the structure of exports of most Balkan countries has changed very marginally since 2001. Despite increasing trade volumes after 2001, the exports structure has continued to be dominated by agricultural and low processed manufacturing products. This is primarily due to limited enterprise restructuring over the past two decades. Slow changes in supply side factors have contributed quite substantially to the rising trade and current account deficit.

As a consequence of deindustrialization, insufficient industrial restructuring, relatively low levels and unfavourable structure of FDI, the process of economic recovery has been very slow for most Balkan countries (Uvalic, 2010b). If we compare the Balkan countries real GDP in 2008 with the level in 1989, we see that several countries have still not reached GDP produced almost twenty years back (see Figure 10). Albania is in the best situation, since it started from a very low base and was the first to reach the level of GDP produced in 1989. Croatia and Macedonia have overcome the level of 1989 GDP only recently, while Montenegro, Bosnia and Herzegovina and Serbia are still below the 1989 level of production. In 2010, Serbia was in the worst situation, being at only 70% of its 1989 GDP. [2]

Figure 10. Real GDP growth, 1989 – 2008 (1989= 100)



Source: Uvalic (2010b), p. 258, based on EBRD data.

In conclusion, we have looked into some of the main reasons explaining limited competitiveness of the Balkan economies. Due to the slow restructuring of the real sector of the Balkan economies, the present supply of goods and services is such that it seriously hampers more rapid export growth. Although these problems have been further aggravated by overvalued currencies, a different exchange rate policy by itself, without other measures to strengthen the real sector of the Balkan economies, would not have been sufficient to substantially improve export performance (Uvalic, 2011). Balkan countries products may also have limited success on foreign markets because of lack of non-price competitiveness - attributes such as design, quality, distribution networks, promotional activities, locations convenience or technical services that accompany the sale of a product. Achieving export-led growth in the Balkan countries requires not only price competitiveness, but also a deep restructuring of the real sector of their economies.

[2] This may be an exaggeration because the statistics on growth rates from the early 1990s for the Balkan countries may be imprecise, but the reported EBRD data are the only comparable statistics that are available.

4. WHAT POLICIES FOR THE FUTURE?

The global financial and economic crisis of 2008-09 hit the Balkan countries in the last quarter of 2008, when there was a rapid deterioration of most macroeconomic indicators (see Nuti 2009, Prica and Uvalic 2009). In 2009, all Balkan countries except Albania registered negative GDP growth. Recovery is on its way in 2010 partly of a consequence of economic recovery in the EU, though according to recent EBRD forecasts growth is to remain sluggish.
The global crisis has pointed to some of the structural weaknesses of the growth model applied in Eastern Europe, including most Balkan economies, based on credit-driven growth and the resulting high dependence on foreign capital inflows (see Berglof 2010). The global crisis has also brought to the surface more general flaws of the transition strategy applied in the Balkans. Many economic problems were accumulating and were becoming unsustainable: consumption much higher than production, increasing trade and current account deficits, very high and rising unemployment, slow growth of the private sector, excessive expansion of services. It is therefore important to reconsider the growth model applied so far. Does the model need to change, and if so, in which direction?

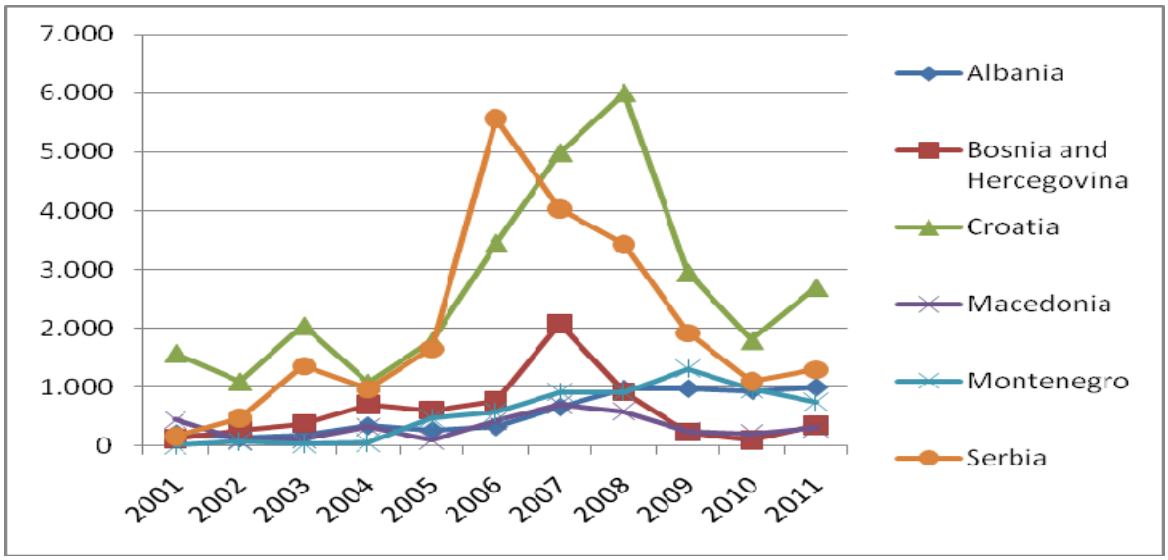
Recent studies suggest the need to "reorient", "redirect" or "reinvent" the growth model in Eastern Europe, but frequently remain vague about its contents (see Beckeret al. 2010). Becker et al (2010) discuss at length exchange rate and monetary policy, domestic financial market regulation and fiscal policy, yet do not elaborate in detail what should be done about the supply-side factors. Another recent contribution is Aslund's (2010) book, which optimistically draws positive lessons from the relatively successful adjustment process of the CEE countries, present EU member states, to the global economic crisis. His conclusions are that "the last shall be the first", which may indeed prove to be true for the more advanced CEE countries. What the study does not take into account is the substantial heterogeneity of Eastern Europe and the fact that some regions like the Balkans are presently facing much more difficult economic problems than their CEE neighbours. Berglof (2010) rightly stresses the need to remove obstacles to further export growth in Eastern Europe, since past export growth drivers are fading. However, here again there is insufficient recognition of the very different situations in the various East European regions. The key measures recommended by Berglof are to focus on reducing or managing non-tariff barriers, increasing efficiency of customs, and reducing corruption and enforcing the rule of law.

These measures are certainly important also for the Balkan countries, but may not be sufficient to promote export-led growth. In order to ensure stronger export-led growth in the Balkans, it is important to consider the radically changed international environment regarding FDI after the global economic crisis. Also in the Balkans, there has been a sharp reduction of FDI inflows in recent years (see Figure 11). FDI has fallen remarkably, by some 40-60% from 2007 onwards in all Balkan countries, even those that have so far attracted the largest part of foreign investment, like Croatia and Serbia. Reduced volumes of foreign investment will have important longer-term implications, since in the future the Balkan countries will have to rely much more on domestic sources of finance, as well as stronger government policies to promote investment. This will clearly pose a number of challenges, but these are important questions that must not be underestimated.

The key structural deficiency of the Balkan economies is weak export performance, essentially due to the insufficient production of goods at competitive terms for export markets. Many industrial sectors have not been modernized and restructured after the extreme process of deindustrialization of the early 1990s. Due to the recent strong decline in FDI,

these countries will have to rely much more on their own resources to finance investment and growth. This is why they need an industrial policy, not to subsidise national champions but to encourage innovation, investment, the protection of quality and technical standards (see Rodrik 2008b, Lin and Monga 2010). The Balkan countries need measures that would promote the faster transformation of key industries, enhance enterprise competitiveness, and facilitate deeper industrial restructuring.

Figure 11. Foreign Direct Investment inflows in the Western Balkans (million US dollars), 2001-2011



Source: Economist Intelligence Unit, January 2011.

Industrial policy also ought to be considered at the regional level, through the creation of specific networks among the Balkan states. These are small countries that can only gain from trans-national networks in the area of science, R&D, technology, energy, infrastructure. In line with the long-term objectives in the EU, as specified in the Lisbon and more recently the Europe 2020 strategy, the Balkan countries also need a 2020 strategy that would create new employment opportunities, together with increased investment in R&D, human capital, and innovation. The unfortunate events of the 1990s have created an enormous technological gap between the majority of the Balkan countries and the EU, requiring a much faster process of technological catching up.

5. CONCLUDING REMARKS

The global economic crisis of 2008-10 has raised many questions regarding the growth model applied in Eastern Europe. The growth model in the Balkan countries is also being reconsidered, particularly since these countries have generally made less progress than the CEE countries. Measures that are proposed in some recent studies for achieving export-led growth in the transition region will probably not be sufficient, at least not in the Balkans, without deeper restructuring and modernization of key industries. Although an overvalued exchange rate appears to have been a common problem in the Balkan countries, a different exchange rate policy by itself, without other measures to strengthen the real sector, will probably not improve competitiveness in the longer run. In order to achieve faster economic recovery and export-led growth, the Balkan countries must seek ways to implement deeper industrial restructuring. Exports diversification in the Balkans will not come about without an active industrial policy, which must be carefully prepared and designed by the government.

BIBLIOGRAPHY

Aslund, Anders (2010), **The Last Shall be the First: The East European Financial Crisis**, Washington DC: Peterson Institute for International Economics.

Bartlett, Will (2009**), Economic development in the European super-periphery: Evidence for the Western Balkans,** ***Economic Annals****,* Vol. LIV, No. 181, April – June, pp. 21 – 44.

Becker T. D. Daianu, Z. Darvas, V. Gligorov, M. Landesmann, P. Petrovic, J. Pisani-Ferry, D. Rosati, A. Sapir, B. Weder Di Mauro (2010), **Whither growth in central and eastern Europe? Policy lessons for an integrated Europe,** Bruegel, Bruegel Blueprint Series, Volume XI.

Berglof, Erik (2010), **Transition Report 2010. Recovery and Reform**, London: EBRD, November.

Daviddi, Renzo and Milica Uvalic (2006), **Currencies in the Western Balkans on their way towards EMU**, in Francisco Torres, Amy Verdun, Hubert Zimmermann (eds) (2006), ***EMU Rules: The Political and Economic Consequences of European Monetary Integration,*** Nomos, Baden-Baden, pp. 261-278.

Economist Intelligent Unit (2010), **Economies in Transition. Eastern Europe and the former Soviet Union Regional overview,** London: EIU, December.

European Bank for Reconstruction and Development (EBRD) (2010), **Transition Report 2010**, London: EBRD and previous issues.

Fond za razvoj ekonomske nauke (FREN) (The Foundation for the Advancement of Economics) (2010), ***Quarterly Monitor of Economic Trends and Policies in Serbia****,* no. 22, July – September, Belgrade.

Jovicic, Milena (2009), **Export dependence and the economic crisis in the West Balkans**, ***International Journal of Sustainable Economy***, Vol. 2, No. 4, pp. 462 - 476.

Kekic, Laza (2005), **Is eastern Europe still price-competitive?,** in Economist Intelligence Unit, ***Country Forecast. Economies in Transition. Eastern Europe and the former Soviet Union Regional overview,*** December 2005, London, EUI, pp. 5-15.

Lin, Justin Yifu and Célestin Monga (2010), **Growth identification and facilitation. The role of the state in the dynamics of structural change,** ***The World Bank Policy Research Working Paper*** 5313, Washington DC, May.

Nouira, Ridha, Patrick Plane and Khalid Sekkat (2010), **Exchange rate undervaluation to foster manufactured exports: A deliberate strategy?** University of Auvergne, Centre d'études et de recherches sur le développement international, **CERDI** ***Etudes et Documents*** E2010.10.

Nuti, Domenico Mario (2009),**The impact of the global crisis on transition economies**, ***Economic Annals***, Vol. LIV, No. 181, April-June, pp. 7 – 20.

Owen, James (2010), "Exchange rates in central and eastern Europe: back in line with fundamentals?" in Economist Intelligence Unit, *Country Forecast. Economies in Transition. Eastern Europe and the former Soviet Union Regional overview*, December 2010, London, EUI, pp. 5-19.

Prica, Ivana and Milica Uvalic (2009), **The impact of the global economic crisis on Central and Southeast Europe**, in A. Prascevic, B. Cerovic e M. Jaksic (eds) (2009), ***Economic Policy and Global Recession, Volume 1***, Belgrade, Faculty of Economics of the University of Belgrade Publishing Centre, pp. 283-296.

Rodrik, Dani (2008a), **The Real Exchange Rate and Economic Growth**, ***Brookings Papers on Economic Activity***, Fall, www.brookings.edu/economics/bpea.aspx.

Rodrik, Dani (2008b), **Industrial policy: Don't ask why, ask how,** ***Middle East Development Journal***, Demo Issue: 1-29, Economic Research Forum.

Uvalic, Milica (1992), **Investment and Property Rights. The Long Transition to a Market Economy**. Cambridge: Cambridge University Press.

Uvalic, Milica (1993), **The Disintegration of Yugoslavia: Its Costs and Benefits,** ***Communist Economies & Economic Transformation***, vol. 5, no. 3, pp. 273-293.

Uvalic, Milica (2001), **Regional co-operation in South-Eastern Europe",** ***Southeast Europe and Black Sea Studies,*** vol. 1 (2001), no. 1, pp. 64-84. Also in Daniel Daianu and Thanos Veremis (eds) (2001), ***Balkan Reconstruction***, London: Frank Cass, pp. 55-75

Uvalic, Milica (2006), **Trade in Southeast Europe: Recent trends and some policy implications,** ***The European Journal of Comparative Economics,*** Vol. 3, n. 2, pp. 171-195, available online at http://eaces.liuc.it.

Uvalic, Milica (2010a), **Transition in Southeast Europe. Understanding Economic Development and Institutional Change**, United Nations University, World Institute for Development Economics Research, *UNU-WIDER Working Paper* no. 2010/41, April 2010, forthcoming in G. Roland (ed) (2011), **Twenty Years of Transition in Eastern Europe: The long-term view,** Basingstoke: Palgrave Macmillan.

Uvalic, Milica (2010b), **Serbia's Transition. Towards a Better Future**, Basingstoke: Palgrave Macmillan.

Uvalic, Milica (2011), **Serbia's transition flaws: Why has export-led growth not been achieved?** ***Paper prepared for the Conference of the Friedrich Ebert Foundation Belgrade, November 4-5, 2010***, forthcoming.

World Bank ***World Development Indicators***, on-line database.

DEVELOPMENT PERSPECTIVES OF BIO-TECH ENTREPRENEURSHIP: THE CASE OF SLOVENIA

Jaka Vadnjal
GEA College of Entrepreneurship
Kidirčevo nabrežje 2, 6330 Piran, Slovenia
Phone: ++ 386 1 5881 387; Fax: ++ 386 1 5881 333
E-mail: jaka.vadnjal@gea-college.si

Jurij Bernik
GEA College of Entrepreneurship
Kidirčevo nabrežje 2, 6330 Piran, Slovenia
Phone: ++ 386 1 5881 322; Fax: ++ 386 1 5881 333
E-mail: jurij.bernik@gea-college.si

Janez Bernik
Independent consultant
Trata 4, 4220 Škofja Loka, Slovenia
Phone: ++ 386 40 473 180; Fax: ++ 386 1 5881 333
E-mail: jbernik@gmail.com

Key words: *Bio-technology, Entrepreneurship, R & D, Science-driven industry, Financing*

ABSTRACT

The development perspectives of the bio-tech entrepreneurship in Slovenia are examined in the paper. Eight companies were interviewed with the objective to reveal the main characteristics of the entrepreneurial ventures established on the basis of science and research driven ambitions of founders who managed to encompass their personal and professional development trails with entrepreneurial paths. There are several peculiarities found in this particular qualitative research which go along with the literature survey. On the other side, there are some characteristics which may not be regarded as usual in the field of bio-tech entrepreneurship: majority of companies are not spin-offs in are not based on public funded research, they do not rely on venture capital and seem not to have a very distinguished business model. Half of companies are located in incubators or tech-parks. Participants share the similar opinion regarding the support policy of the government.

On the other hand, majority of entrepreneurs come from public research institutions not exactly being entrepreneurial from the point of being profitable but rather in a way, that there is a belief that in private companies they may have more flexibility and financing opportunities. The understanding of importance of marketing, building on social capital and risk-awareness still seem to be neglected factors among bio-tech entrepreneurs. Still, high level of reliance on public finance, mostly EU sponsored programs can be recognized from the opinions of study participants.

1. INTRODUCTION

Being a pure science in the beginning (DNA was discovered in 1959 and was recognized as a key genetic material with its basic function of transfer genetic code onto the next generation of living and became a new milestone in understanding lives from bacteria, plants, animals and finally human beings), first commercial applications were not developed very soon since the first biotech company Genetech Inc. was established in California in 1976 (Robbins Roth, 2001). Today, the commercialization of the biotechnological inventions and discoveries is known as biotech industry while new ventures in the field are defined as biotech entrepreneurship (Baum et al., 2000). On the break of the centuries, the number of biotech companies over the world is estimated to be around 5,000 (Audretsch, 2001) while this number has been tremendously increasing (Becker, 2004).

Biotechnology seems appropriate to research science-based entrepreneurship since during the last two decades there has been an upsurge of new firms (Zucker et al., 1998). In the case of Slovenia, the number of creation of biotech firms is also increasing, from virtually nothing a decade ago, to more than 20 nowadays. There can be no doubt that those new firms are knowledge based since biotechnology is widely acknowledged as a science-based and even a science-driven sector (Cohen et al., 2002). Another challenging feature of biotech research is that new firms are usually pure cases of entrepreneurship, in the meaning that they are new technology based firms. Firms are built upon the use of a new technology or the development and production of a new product. However, the problem of knowing whether or not the creation of a new firm can really be considered as a case of entrepreneurship is ignored in this case (Metcalfe, 2004).

Although US seem to play the leading role in the field, there is also an increasing activity in Europe, mainly in UK but also in Germany and France while other countries are far behind (Cooke, 2001). Moreover, while technology part of the biotech had been predominantly studied, the attraction of the researchers is more and more often dragged to entrepreneurial part of the biotechnology (Fuchs, 2001) which causes the emergences of this intriguing field also in other parts of the world including emerging and smaller, also transition economies (Stuart & Ding, 2006). Although industrial dynamics and technology trends in biotech are defined globally, the national institutional rules, tradition and politics do have large impact in the activity of biotech companies in the social and economic environment on the national level (Nilsson, 2001) and urge for positive trends such as increasing numbers of science graduates worldwide, accelerating pace of scientific advancement, dominating role of globalisation enabling greater collaboration, democratising forces of the internet, and the relentless competitive pressure to innovate. As such, policy agendas should focus on increasing factor conditions to enhance start-up formation, alliances, and skilled employment, rather than attempt to select specific winners and losers among specific sub-sectors or individual firms (Ahn & Meeks, 2007). The particularities of the Slovene environment influencing the development of biotech entrepreneurship are therefore the main motivation for writing this paper.

2. LITERATURE OVERVIEW AND RESEARCH QUESTIONS

There are several pillars in the entrepreneurial process and business modeling that differentiate biotech businesses from other entrepreneurial ventures: (1) the industry is research and science driven, (2) there is a predominant role of patenting possibility in order to

secure awards for risk taking, (3) entrepreneurial abilities have to go beyond traditional innovation and risk paradigms to capability of managing heterogeneous networks (clusters), (4) the importance of public science and (5) availability of venture capital (Wolff, 2001).
Biotech start-ups are usually founded by a small number of persons who personally assume the direction of the project. Motivations of those founders, which are often not only profit oriented, and the recourse to credit to launch the business are also in line with Schumpeter's early view. Founders are often individuals endowed with a strong experience either scientific or managerial (Radosevic, 2002).

Yet, this view of entrepreneurship ignores interdependences between the multiple actors of innovation. It comes from a deep misunderstanding of entrepreneurship in biotech, which is mainly a collective process that relies on the assembling of competences distributed across a large number of agents. The entrepreneur is not a single agent but belongs to a network and has to interact with other members to succeed in his enterprise. In short, the locus of innovation has shifted from individual organizations to networks (Baum et al., 2000).

Yet, if networks are the central drivers of innovation it does not mean that individual entrepreneurs play no role. They still need to develop specific competences, at least to ensure the creation of their network. In this sense, competences such as the ability to bridge different culture, open-mindedness, etc. may become central. The entrepreneur must have the ability to set-up agreements among all interested parties (such as the inventor of the process, the partners, the capitalists, the suppliers, the distributors), to enlist cooperation of official agents, to put together adequate staff, etc. This ability to bridge heterogeneous networks and persons may become far more important for entrepreneurs in biotech than scientific or managerial abilities (Orsenigo, 2001). Thus, the main case in a successfully started bio-tech venture may be the ability of individuals and entrepreneurial teams to shift from award-winning entrepreneurs to (Wolf et al., 2010).

One element to be put forward is the role of public research for new biotech start-ups. Many new biotech firms stem from the academic community (are academic spin-off or at least are mixed structure from the academia and industry) and even for those that are not, it is central to establish strong links and to collaborate with public labs. This central role of public research in the development of the biotech industry was already emphasized by Zucker et al. (1998), who showed that in the US during the early days of the biotech industry, there was a strong positive correlation among the local presence of a university and the development of biotech start-ups. However, this huge reliance on public research sector to play crucial role in the biotech start-ups seem to be more European and US matter, while in Japan a lot of bio-tech start-ups are intrapreneurial ventures mostly from pharmaceutical companies (Jolivet et al., 2009)

Also the cooperation with public research organizations is reported to be important for biotech start-ups. Collaboration with universities is central to increase firms' reputation and to achieve scientific credibility. Here, collaborations essentially aim at increasing the firms' attractiveness for financers or potential partners. Star scientists among others, by their ability to bridge different communities, ensure to the entrepreneur the scientific visibility necessary in order to collect funds and to develop collaborations (Zucker & Darby, 1999). Despite an increase in life science technology commercialization and venture creation, graduate schools have largely failed to provide ample opportunities for students to acquire knowledge and experience in bio-entrepreneurship. Postdoctoral trainees and graduate students have recognized this educational gap, as well as a role in complementing university run bio-

entrepreneurship programs, and formed student organizations that foster bio-entrepreneurship education (Brown & Kant, 2009). On the other hand, advanced degrees that combine master's in business with master's in biotechnology are popping up at several universities. The programs are targeted to students who will bridge the gap between scientist and managers in biotech companies (Waltz, 2006).

Many empirical studies are suggesting that the most important asset for entrepreneurship in biotech is patent and that without patents there would have been few investments in biotech. The prominent role of patents in biotech goes back to the origin of the sector. There is indeed a strong correlation between the birth of the industry and important changes in patent laws, which suggests that patents played a central role in the birth and development of the biotech industry (Hemphill, 2003). It is possible that without the patent system the biotechnology revolution would not have reached the dimension it has nowadays.

In life sciences, and contrary to most other sectors, it has indeed been shown that patents are highly important to appropriate the returns of an innovation and to enhance incentives (Combs & Metcalfe, 2002). Firms acting specifically in biotechnologies are usually small and young companies faced with high competitive pressures and thus they strongly rely on patents because they do not have any other tangible asset. Biotechnology companies may apply for patents not only in order to exclude rival firms but also to facilitate collaborations and interactions. Without patents those firms would have no guarantee to offer to potential partners and to financing institutions (Bureth et al., 2005).

Biotechnology is a money-consuming business. Biopharmaceuticals, for example, demand more than 100 million $US for R&D expenditure and a 12-year development process before they enter the market (DiMasi et al., 2003). Other biotechnological products such as genetically engineered plants or platform technologies also demand high R&D expenditures before generating revenues. For most young bio-ventures, financing these expensive processes depends on the availability of VC capital and development of stock markets. Therefore, the development of the biotechnology industry is substantially influenced by the munificence of the financing environment (Prevezer, 2001). In several countries the present financial crisis seems to begin to trigger a certain drop in biotech activity (Patzelt & Audertsch, 2008).

3. METHODOLOGY

Our research has been concentrated on eight businesses operated in biotechnology as industry. The examined businesses are all located in the capital of Slovenia where also the largest university is located with reasonably developed live-science departments. A case study method was used as a qualitative research approach in order to answer the research questions. The sample was defined on the basis of knowledge, information and personal network the authors have of biotechnology-based businesses operating in Slovenia.

There seem to be two reasons for this: one is in the character of the target group which as proposed functions in a specific economic system and second, researching technology-based businesses has become a new approach in the field of academic interest for small business and entrepreneurship thus, even enhancing the common problems with establishing trust between all parties in the research.

The research was conducted in a period from January to September 2009. Data collection was based on semi-structured personal interviews with the owners of businesses and in two cases accomplished with business partners/co-founders. Interview encompassed 7 specific questions for owners. One of the reasons for choosing the particular qualitative research is that this appears to be a prevailing methodology in small sample business research worldwide. However, the lack of the data base on biotechnology businesses which would include contact details (i.e. name, phone and address) determined the need for developing a flexible and cost effective methodology which would allow the researchers to identify, reach and communicate with the target population and the adapt the techniques of data collecting to the circumstances found. On the other hand, quantitative approaches would be challenged with conditioning sampling methodology and in terms of potential bias.

Three interviews were conducted by teams of the two researchers and two were conducted by one researcher. It has been estimated that voice- or video-taping may not be appropriate and would lead the respondents to aversion from revealing all the information and may distort other communication. Only hand written minutes were taken and the story was transcribed immediately after the interview. In all cases interviews took place at the premises of the company. The interviews took place at various times of the day, during the working days. It is believed the timing and place of the interview did not influence on the readiness and openness to reveal data and information.

The following research questions were addresses based on the subjective assumptions of the researchers and literature search presented in the previous chapter:

RQ1: How did you get the idea, what was your motive for entrepreneurship (Becker, 2004)?
RQ2: Why did you decide to start a company on the field of biotechnology (Metcalfe, 2004)?
RQ3: What is your entrepreneurial background (Radosevic, 2002)?
RQ4: A popular description of your product/service: what do you develop, produce, sell (Orsenigo, 2001?
RQ5: What is your business model (suppliers, customers, marketing strategy, business economics and control of costs, break-even point) (DiMasi et al., 2003)
RQ6: Opinion about biotechnological environment, status of biotechnology, possibilities of development in Slovenia and in extended region (Stuart & Dieng, 2006)?
RQ7: Your expectations from the support institutions on the field of entrepreneurship (ministries, universities, research institutes, governmental agencies, incubators, technological parks) (Wolff, 2001)

4. RESULTS

4.1 Demographics of study participants

Basic demographic data regarding the researched group of company is gathered in the table 1. All the companies are located in the capital of Slovenia, being from four to twenty years old. They employ from three to fifteen people and are managed by founders which six out of eight possess post graduate degrees (two on masters and four on doctoral level) which confirm the paradigm of bio-tech entrepreneurship as a research driven industry.

Table 1. Demographic data

Case	Activity	Location	Age	Education of founders	Founded	Employees
C1	Laboratory and process equipment	Ljubljana	49	B.Sc. in informatics	1990	7
C2	Bioelectromagnetics and new biology	Ljubljana	30-60	From high school to Ph.D	1990/2004	14
C3	Cell therapy service	Ljubljana TP*	n/a	Ph.D	1997	10
C4	Personalized genetics	Dublin, Ireland and Ljubljana TP	24	Master degree	2005	10
C5	Consulting, engineering, R&D	Ljubljana	50	Master degree	1989/1996	5
C6	Personalized genetics – nutriogenomics	Ljubljana TP, Koper TP	34	B.Sc. in economics	2008	5
C7	Cell therapy – cancer	Ljubljana	43	Ph.D.	2010	3
C8	Development of molecular and genomic tools	Ljubljana	35	Ph.D.	2001	15

Note: (*) means "technology park" which is also synonym for incubator, university incubator etc.
Source: Own research 2009-2010.

4.2 Case studies

Fourteen Slovenian companies from the fields of biotech, medicine, medical and laboratory equipment, were invited to collaborate in the research. Six directors of companies from the field of biotechnology have refused participation in personal interviews from different reasons: either they have had no interest or, they reported to be too busy or had other priorities in a given moment. We completed a qualitative research on the sample of eight companies or institutions:

BIA Ltd. was established in 1990 and employs seven highly specialized professionals who perform work on the fields of development and marketing activities. Their main activity is selling products and services on the fields of chromathography, biotechnology, organic synthesis and lab equipment. They develop solutions for tracking and monitoring bioprocesses and simple LIMS (Laboratory Information Management Systems). From BIA, a new spin-off company BIA Separations has been established, which is today a world leading producer of monolithic chromathographic columns based on CIM Conventive Interaction Media. Their business partners are several companies and research institutions in pharmaceutical in food industry.

Institute Bion Ltd. is a spin-off from a publicly funded research institute and since 2004 it operates as a private limited limited company. However, the origins of their activity go back in 1990. Their main focus is electromagnetic fields impact on live organisms. Since 2003 they have been intensively researching bio-fields or subtle fields. The institute performs basic and applied research on the field of bio-electromagnetics. They are financed mostly from public tenders, they cooperate with industry and other companies, they perform also training and cooperate with universities at diploma, masters and doctoral research.

Educell Ltd. is a company, registered since 1997 and it is the first institution, which gained the status of the Institute for tissues and cells from the Public agency of the RS for medicine and medical remedies in 2008. The company was established on the basis of the research project started at the publicly funded institute and they currently operate at Ljubljana Technoogy Park. The venture was backed by a VC fund in late 1990s and was lately acquired by another company. Their provide cell therapy processes intended to cure joint cartilage and

bone tissue. They cooperate with clinics in several medical fields: orthopedic, trauma and urology of the University clinical centre Ljubljana (UKC) which is currently their sole customer. They grow cells in the most modern laboratories. Their field of work is tissue engineering.

Gene Planet Ltd. was established in 2005 and is registered in Dublin, Ireland because they believe that support for high-tech companies is much better recognized there. The company was established by several founders and business angels have also contributed to the initial capital. It employs 10 people. The main company's service is personalized genetics. The essence of this service is to draw someone's attention to the genetic predisposition for the disease which can be detected early by frequent preventive examinations and therefore early treated. It is a DNA analysis of individual's saliva and interpretation of results. In this way the company connects high science with life and health of individuals. The service is innovative, entirely new in EU, therefore intensive research is taking place. The company is in its early stage of development and is only establishing its business model. It is located in Technological Park of Ljubljana.

Omega Ltd. was established in 1989. Since 1996 it represents two high-tech companies Perkin Elmer and Applied Biosystems from USA in Slovenia. Company's main mission is transfer and introduction of new, fast developing technologies and procedures from the fields of chemical analysis and molecular biology into Slovenian environment. Their field of work is chemical analysis, biochemistry, biology and physics. Very important company's mission is training of topmost professionals or researchers from the fields of activity. The company offers turnkey projects for known customers. Their main business partners are Regional institutes for health care in Slovenia. Their business model is strongly connected to the parent companies in the USA on the fields of planning, organizing and reporting. The company is entirely independent on the fields of development and marketing their own products and services, it sells them in Slovenia and in countries of former Yugoslavia.

Genelitik Ltd. was established in 2008 by several individuals and relied highly on funding from the Public Enterprise fund. In 2011 a strategic investor provided additional capital for development. They develop processes in personalized genetics in the individual's feeding level – nutriogenomics. On the basis of DNA analysis they are able to prepare recommendations for altered feeding habits for individuals suffering from different diseases, weight problems etc. Their vision is in five years to become a leading European bio-tech company in the field of diseases prevention measures and healthy way of life. For further financing of their research activity they are still quite dependant on EU budget research funding projects.

DiaGenomini Ltd. was established in 2010 by a group of young researchers in the field of biology and medical science and also co-financed by some corporate strategic investors. They currently employ three people and mainly deal with genetic analysis of intestines and breast cancer which would enable faster and more efficient cure treatment. They are expanding their research efforts in the field of cardio-vascular system which would eventually direct and individual to a healthier way of life. They also provide specialized trainings in order to provide some cash-flow for their daily operations.

IFB – Institute for Physical Biology Ltd. was established back in 2001 and currently employs 15 people. They are mostly dedicated into development of molecular and genomic tools for profiling, determination, quantification and, characterization of microbes

associations. Their tools are applicable in the medical science, food industry, pharmaceutical industry and environment protection. Their business model is based on idea that once a service can be marketed it is spinned-off in another company.

4.3. Results and findings

The responses given upon the research questions are outlined in the table 2. As described, the majority of the researched companies were established as private companies and do not share a public institution background. They are in the range from mature companies to early-stagers or even start-ups. Their domain is mostly in life-sciences with a little bit of industrial application flair. Only one company can be regarded as a spin-off and even this spin-off was from another company because of serious disagreement of founders regarding the strategy adoption.

Table 2. Synthesis of the eight cases

Case	Founded	Spin-off	Patent	Initial Organization	Domain	Incubator/ Tech-park
C1	1990	No	Yes	Private company	solutions on the fields of tracking and monitoring bioprocesses and simple LIMS	No
C2	1990/ 2004	Yes	Yes	Public non-for-profit research organization	study of electromagnetic fields impact on live organisms	No
C3	1997	No	Yes	Private company	cell products intended to cure joint cartilage and bone tissue	Yes
C4	2005	No	Yes	Private company with business angels' capital	personalized genetics	Yes
C5	1989/ 1996	No	Yes	Private company	chemical analysis, biochemistry, biology and physics	No
C6	2008	No	No	Private company	personalized genetics – nutriogenomics	Yes
C7	2010	No	No	Private company with strategic investors	cell therapy – cancer	No
C8	2001	No	Yes	Private company	development of molecular and genomic tools	No

Source: Own research, 2009

In our research we interviewed directors of Slovenian biotech companies. Following are results of these personal interviews, presented according to the questions.

RQ1: The origin of the idea and main source of motivation for entrepreneurship

Speaking about age and professional experience, entrepreneurs in biotech companies show a wide span from such with 30 years of experience and 20 years of work in biotechnological company (BIA Co.) to vry young entrepreneurs who have only finished their postgraduate studies and started their own business (Gene Planet) immediately. Postgraduate level of education is prevailing (master and doctoral degrees). All have extensive research experience on the fields of medical sciences, biotechnology, also chemistry and physics. Most of the younger ones originate from the »young researchers« government project. They established a biotechnological company either from the existential need, as they could not find appropriate

job after finishing their studies and research work, either they have not found real challenges in large companies and research institutes, either they have established a company as a spin-off from bigger public research institutes. Some of them have joint biotechnological company upon invitation from these companies' founders and they have been previously successful on other fields of activities and technologies (e.g. IT technologies). Motives for entrepreneurial career were different, from implementation of their own vision from earlier days, to the motives arising from the existential need, to the spontaneous meetings and invitations for cooperation in biotechnological project.

RQ2: Decision to start a company on the field of biotechnology

For most of our interviewees this has been a very logical and natural decision. They wanted to continue to work on the field, which they studied in details and researched. Therefore a biotechnological company was a logical result of study and specialization, although they were perfectly aware that it is very difficult to establish and manage a successful biotechnological company. One of the companies (Omega) was established as a respond to the noticed opportunity and needs for representing a foreign company in Slovenia.

RQ3: Entrepreneurial background (family, relatives, acquaintances, friends, other)

Most of the answers were that they do not originate from families with entrepreneurial background and they have not considered entrepreneurship as a possible career path as they were interested mostly in the narrower field of biotechnology and in-depth study. The majority agree that there is probably no linkage between their personal decisions for study, research, entrepreneurship and environment in which they have grown up and study. Some of them come from families, where their parents were professors and researchers, but most of them come from families, where parents were public servants, belonging to generation in the former socialist system. The majority agree that entrepreneurial genes have not played a crucial role in a decision for entrepreneurial path on the field of biotechnology.

RQ4: Products and services

The studied companies perform a wide range of activities. Educell grows cells in to cure and grow joint cartilage (cells for renewal of bone tissue for clinical use). Institute Bion studies the field of bio-fields or subtle fields and their impact on people, animals and plants. Results of their research are healing products perspectively, this will become a new branch of pharmacy and pharmaceutical industry. Gene Planet offers personalized genetics services. It discovers inclination of someone to some chronic diseases and offers timely diagnostics of diseases that someone is exposed to. One of the companies is representing and selling products from American companies (Omega) and also sells instruments, materials and services on the fields of chromatography, biotechnology, organic synthesis and computer and laboratory equipment. The activities of the studied companies are very different, from production, performance of proper research services, representation, sale, service and training. Dopolni.

RQ5: The business model (suppliers, customers, marketing strategy, business economics and control of costs, break-even point)?

Several business models are revealed in the sample, from classical agency for a foreign partner, selling equipment from foreign suppliers to larger pharmaceutical companies in

Slovenia and Croatia, to production of biotechnological material (cells) and connection to one large customer, and to entirely entrepreneurial approach to development and marketing the service of personalized genetics. All the companies strictly control their costs and cooperate with more suppliers. They monitor and control costs of labor and fixed costs of operation. Most of our interviewees revealed that they have not reached the break-even point or that they have to fight for positive operations all the time. Marketing activities are performed on different ways apart from contemporary information technologies they prefer personal communication with customers.

RQ6: Opinion about biotechnological environment, status of biotechnology, possibilities of development in Slovenia and in wider region

Most of interviewees agree that Slovenia is a too small country for realization of large biotechnological projects. Our neighboring countries (e.g. Austria) are biotechnologically well developed, but centers of knowledge and personnel in the region are dispersed and too competitive to each other to be able to achieve a critical mass for a biotech region. Big breakthroughs on the field of biotechnology in Europe and in the world can be done only by large companies and research laboratories, which invest big financial assets. The temporary politics is in Slovenia too reserved regarding support to smaller development centers, which should successfully develop also by help of EU funds. Acquiring money from tenders of European Commission is very demanding and often too bureaucratic. In Slovenia legislation on the field of biotechnology is slowly being established. All interviewees expect a higher level of connecting between biotechnological companies, research institutes or laboratories, a stronger political support and better organization in access to financial incentives from EU.

RQ7: Expectations from the support institutions on the field of entrepreneurship (ministries, universities, research institutes, governmental agencies, incubators, technological parks)

Most of interviewees have modest expectations from the support environment. According to their opinion, too many of the state budget assets are spent unintentionally or, with a very small benefit in comparison with technologically successful countries. They agree that we need technology parks, incubators and tech-zones, which can offer legal, organizational, spatial and financial support to biotechnological companies. More spin-off companies from universities and research institutes could be started if administrative incentive mechanisms from the government would be more friendly (legislation, adequate financing). Financing priorities should be changed and criteria for competing at public tenders for research for smaller companies should be at least partly adjusted. Universities and research institutes have a good name, a good infrastructure and a high level of trust. But cooperation with biotechnological companies is on a low level because since there seems to be no will and enthusiasm from some responsible individuals and researchers to cooperate.

5. CONCLUSIONS AND IMPLICATIONS

This paper aimed at understanding the main features of entrepreneurship in biotech through a detailed analysis of the foundation of eight companies in Slovenia. Our objective was to go into the black box in order to analyze the genesis of new biotech ventures. Research questions raised here should hence provide a good starting point for more quantitative research that will confirm or invalidate them.

Our analysis enabled us to stress several characteristics of entrepreneurship in biotech. A first insight deals with the motivations that drive the founders, at least when they come from the academia. We have seen that those motivations are usually not directly based on money but on more complex mechanisms. Scientists may, for instance, want to foster the industrial exploitation of their research in order to make them benefit general public. Or they may wish to increase research budget and achieve more freedom for their research. More generally, scientists may want to join industry because it often offers more opportunities coming out from flexibility than the public sector. Yet, we have also seen that this willingness to create a venture in order to pursue his research also entails risks. Projects that are too far from the market usually do not survive very long. Also in our case, it would be very vague task to forecast how many companies will be successful, There is a certain impression that marketing imperative is still subordinated to the research/scientific ambitions of entrepreneurs.

Beyond the motivations of the founders, we emphasized three broad points that appear as central within the entrepreneurship process: The role of public science, the role of patents and the collective dimension of start-ups' creation. First, biotech entrepreneurship in Slovenia cannot be understood without public science. Most new biotech firms are founded by former public scientists, that, definitely, has some historic origins and almost all biotech start-ups acknowledge strong links with at least one public lab. Second, for biotech firms involved in drug production, patents are highly necessary. New ventures cannot exist without a strong patent system. Third, the process of entrepreneurship in biotech is a distributed process in the sense that it does not rely on one single entrepreneur but on the assemblage of a mix of competences distributed over a wide range of individuals and organizations.

To conclude, we believe that a promising approach of entrepreneurship in biotech deals with the notion of distributed entrepreneurship. Entrepreneurship in biotech is never the fact of one single player, neither is it the fact of several firms that just share knowledge or other items. Rather, entrepreneurship arises in a collective network of heterogeneous actors, each of them acting on a fraction of the system but being inseparable from the other members, implying that the whole is worth more than the sum of each of its parts. In this sense, although there may be a leader who orients the project, each actor plays a role and it may be very damaging for the overall efficacy of the project to exclude some actors.

It is believed that entrepreneurs without stabile market revenues can be still regarded as nascent entrepreneurs, no matter for how long they have been employed in their own company. Knowledge of factors that determine the transition from nascent entrepreneurship into real entrepreneurship is of major importance for policies aiming to effectively stimulate start-ups including bio-tech start-ups. However, scientist concentrated on person-specific factors to explain transition probabilities, environmental characteristics have been fairly neglected. Controlling for technology and individual characteristics, there is significant impact of general regional opportunities, specific regional opportunities and the entrepreneurial environment for the probability of transition from nascent entrepreneurs to real start-ups.

BIBLIOGRAPHY

Ahn, M. J. & Meeks, M., (2008): **Building a Conductive Environment for Life Science Based Entrepreneurship and Industry Clusters**, ***Journal of Commercial Biotechnology***, 14: 20 – 30.

Audretsch, D. B., (2001): **The Role of Small Firms in U.S. Biotechnology Clusters**, ***Small Business Economics***, 17: 3-15

Baum J. A. C., Calabrese, T., & Silverman, B.S., (2000): **Don't go it Alone: Alliance Network Composition and Start-ups' Performance in Canadian Biotechnology**, ***Strategic Management Journal***, 21: 263 - 294

Becker, M. C., (2004): **Organizational routines: a review of the literature**, ***Industrial and Corporate Change***, 13 (4): 643 - 677

Brown, J. T. & Kant, A. C., (2009): **Creating Bioentrepreneurs: How Graduate Student Organizations Foster Science Entrepreneurship**, ***Journal of Commercial Biotechnology***, 15 (2): 125 - 135

Bureth, A., Levy, R., Pénin, J. & Wolff S., (2005): **Strategic Reasons for Patenting: Between Exclusion and coordination rationales**, ***Rivista di Politica Economica***, VII-VIII: 19 - 46

Cohen, W. M., Nelson, R. R. & Walsh, J., (2002): **Links and Impacts: The influence of Public Research on Industrial R&D**, ***Management Science***, 28: 1 - 23

Combs, R. R. & Metcalfe, J. S., (2002): **Innovation in Pharmaceuticals: Perspectives on the co-ordination, Combination and Creation of Capabilities**, ***Technology Analysis and Strategic Management***, 14 (3): 261 - 271

Cooke, P., (2001): **Biotechnology Clusters in the U.K.**, ***Small Business Economics***, 17: 43 - 59.

DiMasi, J. A., Hansen, R. W. & Grabowski, H. G., (2003): **The Price of Innovation: New Estimates of Drug Development Costs**, ***Journal of Health Economics***, 22 (2): 151 - 85

Fuchs, G., (2001): **Biotechnology in Comparative Perspective – Regional Concentration and Industry Dynamics**, ***Small Business Economics***, 17: 1 - 2

Hemphill, T. A., (2003): **Preemptive Patenting, Human Genomics, and the US Biotechnology Sector: Balancing Intellectual property Rights with Societal Welfare**, ***Technology in Society***, 25: 337 – 349

Jolivet, E., Lanciano-Morandat, C., Nohara, H. & Pardo, D., (2009): **Biopharmaceutical Entrepreneurship in two Japanese and French Bioclusters: Differences in Founder Profiles and Experience**, ***Asian Business & Management***, 8 (4): 429 – 460.

Metcalfe, J. S., (2004): **The Entrepreneur and the Style of Modern Economics**, ***Journal of Evolutionary Economics***, 14: 157 - 175

Nilsson, A., (2001): **Biotechnology Firms in Sweden**, ***Small Business Economics***, 17: 93 - 103

Orsenigo, L., (2001): **The (failed) Development of a Biotechnology Cluster: The Case of Lombardy**, ***Small Business Economics***, 17: 77 - 92

Patzelt, H. & Audretsch, D. B., (2008): **The Evolution of Biotechnology in Hostile Financing Environments**, ***Journal of Organizational Change Management***, 21 (6): 773 - 785

Prevezer, M., (2001): **Ingredients in the Early Development of the U.S. Biotechnology Industry**, ***Small Business Economics***, 17: 17 - 29

Radosevic, S., (2002): **Regional innovation systems in central and eastern Europe: Determinants, organizers and alignments**, ***The Journal of Technology Transfer***, 27 (1): 87 - 96

Robbins Roth, C., (2001): ***From Alchemy to IPO: The Business of Biotechnology***, Boston: Perseus Books.

Stuart T. E. & Ding, W. W., (2006): **When do Scientists Become Entrepreneurs? To Social Structure Antecedents of Commercial Activity in the Academic Life Sciences**, ***American Journal of Sociology***, 112 (1): 97 - 144

Wolf, H., Michelsen, C. & Schwartz, M., (2010): ***Regional Entrepreneurial Opportunities in the Biotech Industry: Exploring the Transition from Award-winning Nascent Entrepreneurs to Real Start-ups***, Halle: Institute for Economic Research.

Waltz, E., (2006): Commentary: School for the Bilingual: Dual Master's Degrees in Business and Biotech, Journal of Business Chemistry, 3 (2): 3 - 5

Wolff, G., (2001): ***The Biotech Investor's Bible***, London: John Wiley & Sons.

Zucker, L. G., Darby, M. R. & Brewer, M. B., (1998): **Intellectual Human Capital and the birth of US biotechnology enterprises**, ***American Economic Review***, 88 (1): 290 - 306

Zucker, L. G. & Darby, M. R., (1999): **Star Scientists Linkages to Firms in APEC and European Countries: Indicators of Regional Institutional Differences Affecting Competitive Advantage**, ***International Journal of Biotechnology***, 1 (2): 119 - 131

FACTORS CONSTRAINING THE IMPLEMENTATION OF PUBLIC PRIVATE PARTNERSHIP IN THE CROATIAN AIRPORT SECTOR

Katija Vojvodić
Department of Economics, University of Dubrovnik
Lapadska obala 7, 20 000 Dubrovnik, CROATIA
Phone: ++ 38520445901; Fax: ++ 38520445940
E-mail: katija.vojvodic@unidu.hr

Marija Martinović
Department of Economics, University of Dubrovnik
Lapadska obala 7, 20 000 Dubrovnik, CROATIA
Phone: ++ 38520445901; Fax: ++ 38520445940
E-mail: marija.martinovic@unidu.hr

Meri Šuman Tolić
Department of Economics, University of Dubrovnik
Lapadska obala 7, 20 000 Dubrovnik, CROATIA
Phone: ++ 38520445901; Fax: ++ 38520445940
E-mail: mstolic@unidu.hr

Key words: *public private partnership, airport business, Croatia, constraints, airport managers` perceptions*

ABSTRACT

Public-private partnerships (PPPs) can be defined as long-term contractual arrangements between public and private sector entities for the purpose of providing public infrastructure, community facilities and related services. Such partnerships are characterized by the sharing of investment, risk, responsibility and reward between the partners. There are many forms PPP can take in practice that can vary in the degree of risk allocated between the partners, the amount of expertise required on the part of each partner to negotiate contracts and the potential implications for the partners involved.

In order to follow modern technologies and to meet the ever-increasing needs of its customers, the provision of an adequate and reliable infrastructure is important in the airport business. Due to recession followed by the spread of the banking crisis and limited credit opportunities, alternative modes of financing are required. In that sense, PPPs could be regarded as a valuable means for successful development of airport infrastructure projects.

The objective of this paper is to identify the constraints on the development and implementation of PPPs in the Croatian airport sector and measure their relative importance as perceived by experts, i.e. airport managers. Relevant determinants and constraints identified from the literature and current practice were incorporated into a questionnaire for primary data collection. The target population consisted of top and middle management of all Croatian airports, actively involved in creating airport policy and airport development projects. A five point Likert scale was used to measure airport managers` attitudes on the issue. The data collected was analysed using the SPSS Statistics package, applying nonparametric and descriptive statistical tests.

The results have revealed that the most significant constraints are political interference in project approval and poor coordination between governmental institutions, weak employees' competence, a lack of familiarity with the advantages and disadvantages of different PPP models and lengthy project approval process, i.e. bureaucratic procedures. These findings are of the utmost importance for the identification of the constraining factors in order to facilitate the implementation of PPPs on the Croatian airport sector. Moreover, these pieces of information help recognize the possibility of PPPs in supporting the growth and further development of airport business.

1. INTRODUCTION

In order to follow modern technologies and to meet the ever-increasing needs of its customers, the provision of an adequate and reliable physical infrastructure is important in the airport business. Traditionally, the development of transport infrastructure has been the exclusive responsibility of the government. Due to the fiscal crisis and recession followed by the spread of the banking crisis and limited credit opportunities, alternative modes of financing are required.

Nowadays, there has been an ongoing debate about the role of private sector in the airport industry and enhancing the infrastructure investment through private sector participation as a solution for recession.

In terms of the lack of capital, increasing competition and high risk, private sector participation in the airport business is becoming essential. In that context numerous forms of public private collaboration have been identified. In this paper the most common forms of cooperation have been discussed. The theoretical arguments supporting and opposing airport privatization are also outlined.

Although these types of collaboration have been very popular worldwide, so far none of these forms has been implemented for delivering infrastructure services into Croatian airport sector. The main goal of this paper is to identify the constraints on the development and implementation of PPPs in the Croatian airport sector and measure their relative importance as perceived by airport managers, i.e. top and middle management.

The paper is structured as follows. First, the concept of pubic-private partnership arrangements is discussed. This is followed by the examination of various types of public-private partnerships in airport sector. The third part of the paper refers to the constraints affecting the success of public-private partnership in Croatia. Then, survey process and results are analysed and discussed. Finally, certain conclusions and implications are presented.

2. THE CONCEPT OF PUBLIC - PRIVATE PARTNERSHIP ARRANGEMENTS

Public-private partnerships can be defined as long-term contractual arrangements between public and private sector entities for the purpose of providing public infrastructure, community facilities and related services. According to Yescombe[1], the term "public-private partnership" appears to have originated in the United States, initially relating to joint public-

[1] Yescombe, E. R., (2007): Public-private partnership – Principles of Policy and Finance, Oxford: Butterworth – Heinemann, 2.

and private-sector funding for educational programmes, and then in 1950s to refer to public-private joint ventures for urban renewal.

Perhaps the most common argument for PPPs is that they can help alleviate chronic underinvestment in capital intensive projects[2]. Governments in most countries consider them as an attractive off-budget mechanism for financing infrastructure needs. Although PPP requires the government participation, it usually has positive fiscal impact. The additional tax revenues accrue to the government as a consequence of carrying out the project by the private investor. The added benefits of the project to the society could be additional employment and other propulsive effects to the local and national economy.

The underlying argument for establishing partnerships is that both the public and the private sector show advantages in specific aspects of service or project delivery. Such partnerships are characterized by the sharing of investment, risk, responsibility and reward between the partners. They involve the financing, design, construction, operation and maintenance of public infrastructure and services.

Nowadays, a growing number of European, in particular the UK, Portugal and Spain, and non-European countries, in particular Australia and the US, make significant use of private sector capabilities and capital in a range of infrastructure-related projects[3] (Table 1).

Table 1. Models for private sector involvement in infrastructure provision

Private sector involvement	**Description**	**Asset ownership**
Public work contracts	Private sector only performs pre-determined tasks to the service provider, with no responsibility for the final service quality.	Public
Technical assistance contracts	Continuum contracts between private and public sectors to ensure an adequate quality level in a sub-system.	Public
Sub-contracting or outsourcing	The public sector contracts a private company to ensure a certain service, for which the private sector is entirely responsible.	Public
Management contracts	Based on a set of objectives and targets, the private sector manages the service for the "owner".	Public
Leasing (affermage)	The private sector assumes at its own risk the provision of the service, for which the public sector pays a lease fee. It is not responsible for making investments.	Public
Concession (BOT or other schemes)	The private sector is responsible for providing the service, and also, for financing the investments required. After the concession period, the assets return to the public sphere.	Public
BOO	The same as BOT, but without the transfer at the end of the period.	Private
Divestiture	Complete transfer of assets from the public sector to a private entity.	Private

Source: Cruz, C. O., Marques, R. C., (2011): Contribution to the study of PPP arrangements in airport development, management and operation, Transport Policy, 18: 393.

Foremost, it is important to stress that PPP structures come in many forms and are still an evolving concept which must be adapted to the individual needs and characteristics of each

[2] Palmer, G. (2009). Public-Private Partnership, http://www.dpwglgd.org/cms/upload/pdf/PublicPrivatePartnership_Lit_Review.doc

[3] Zheng, J. et al., (2008): The dynamics of contractual and relational governance: Evidence from long-term public-private procurement arrangements, Journal of Purchasing & Supply Management, 14: 45.

sector, project and project partner. However, common to all types of PPP are the following features[4].

- Public responsibility is retained. This distinguishes PPP from privatization in which public responsibilities go over to the private sector.
- Multiple tasks are integrated in one contract.
- There is a substantial transfer of risks to the private party. This distinguishes PPP from more traditional forms of procurement, in which most of the risks are usually borne by the public party.

The motives for ownership and institutional restructuring via commercialization and privatization are diverse, but normally include easier access to private sector financing and investment, and improved operational efficiency[5]. By using PPPs for infrastructure investments the public partner will have access to new skills that allow the project to be delivered on time, such as management skills, improved technology and service levels. Competition is a benefit to both, public and private sector. It brings many benefits to an area which is normally dominated by public sector monopolies: lower prices, greater innovation, increased investment and better service. PPPs can also assure cost efficiencies which are the results of competition, risk transfer and innovation. Cost savings may be obtained in the long run by integrating capital investment and the delivery of services, e.g. maintenance of the assets.

The allocation risk is often seen as the biggest advantage of a PPP agreement. The general rule regarding the risk transfer is that it should be allocated to the partner which is best able to manage it and at the least cost. Private sector is driven by profit motives and is accountable to shareholders to ensure that the profit isn't diminished by higher interests charges and revenue losses from delays in project completion. The last but not the least advantage for public sector is reducing capital demands on the public treasury for infrastructure development. Long term nature of contracts allows the private partner more time to recover the cost of the investment and to reduce annual charges. Service users also enjoy benefits from PPP through better services at a lower price.

PPPs have been developed in several areas of the public sector and are widely used within the EU, in particular in transport, public health, public safety, waste management and water distribution.

2.1. Public – Private Partnerships in the Airport Sector

Traditionally, transport infrastructure development was financed and supported by governments. Governments in most developing countries face the challenge of meeting the growing airport infrastructure demands. As available funding from the traditional sources remains limited, governments have found that partnership with the private sector is an attractive alternative funding source to increase and improve the supply of infrastructure services.

For airports, public private collaboration covers a range of outcomes, from contracting out services and management, developing new facilities with public financing under different PPP

[4] Macario, R., (2010): Future challenges for transport infrastructure pricing in PPP arrangements, Research in Transportation Economics, 30:149; Evenhuis, E., Vickerman, R., (2010): Transport pricing and Public-Private Partnership in theory: Issues and Suggestions, Research in Transportation Economics, 30: 6.

[5] Oum, T. H. et al., (2006): Privatization, corporatization, ownership forms and their effects on the performance of the world's major airports, Journal of Air Transport Management, 12: 109.

schemes to selling single and multiple airports to private sector investors, developers and operators, and operation of terminals, entire airports and airport systems for long-term concession periods.

The private sector involvement in the airport business brings not only the financial resources needed but also the know-how and managerial skills, including more propulsive activities resulting in entering new markets by attracting new air carriers. The decision on whether to include private partner depends on the perceived benefits resulting from the participation of the private sector, such as management skills and increased efficiency.

Economic efficiency can be gained by allowing the free market and laissez faire individualism through private involvement, to determine the best way to deliver services. Grimsey and Lewis[6] outline that the principal aim for the public sector is to achieve value-for-money in the services provided, while ensuring that the private sector entities meet their contractual obligations properly and efficiently.

There are certain risks (technical, construction, operating, revenue, financial, environmental etc.) that are associated with the implementation of a PPP project, which should be allocated appropriately between the public and private partners, according to which party can manage the risk better (Table 2). As a general rule, PPP schemes should always transfer to the private partner design, construction and operation risks (both cost and performance)[7].

Table 2. Main risks in airport development, management and operation.

Classification	Type of risks
Production	Planning, design, expropriation, construction, environmental maintenance and major repairs, operation, technological and performance
Commercial	Demand, collection, capacity and competition
Context	Financing, inflation, legal, regulation, unilateral changes, public contestation and force majeure

Source: Cruz, C. O., Marques, R. C., (2011): Contribution to the study of PPP arrangements in airport development, management and operation, Transport Policy, 18: 395.

Both partners should clearly understand the various risks involved and agree to an allocation of risks between them. Compared to other infrastructure sectors, the revenue uncertainties are higher in an airport project and are a function of traffic flow, extent of non-aeronautical revenues etc[8]. Each of the partners involved takes the responsibility for the risk it can influence on or they divide the responsibility in order to manage the risk optimally during the PPP project duration.

2.2. Types of Public-Private Collaboration in Airport Sector

[6] Grimsey, D., Lewis, M., (2002): Evaluating the risks of public private partnerships for infrastructure projects, International Journal of Project Management, 20: 117.

[7] Li, B., Akintoye, A., (2003): An overview of public-private partnership, in Akintoye, A., Beck, M., Hardcastle, C., eds.: Public-private partnership: Managing risks and opportunities, Blackwell Science

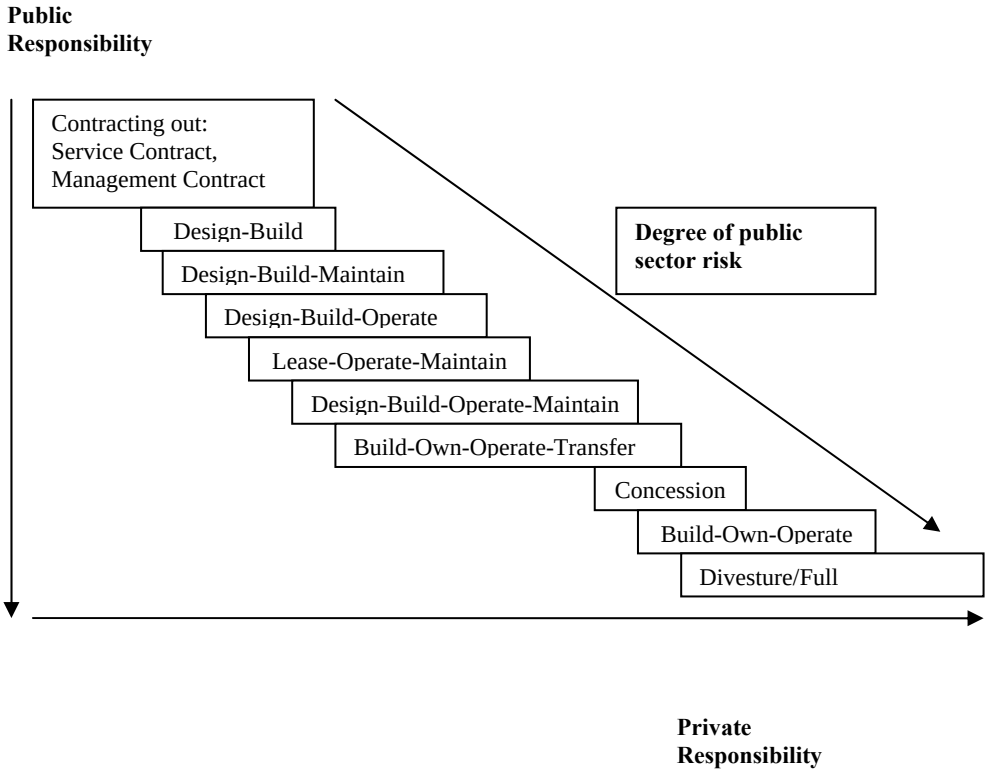
[8] Rajan, T. A. et al., (2009): PPP in Greenfield Airport Development: A Case Study of Cochin International Airport Limited, in Akintoye, A., Beck, M., eds.: Policy, Management and Finance of Public-Private Partnership, Wiley-Blackwell

As regards the degree and mode of the shift of airports out of public ownership, Gillen[9] points out at least seven possible ownership/governance structures:

- Government owned/operated (US, Spain, Singapore, Finland, Sweden)
- Government owned, privately operated (US, Chile)
- Major airports which have public-private partnerships in the form of BOO, BOT and management contract variants, such as in India
- Independent not-for-profit corporations (Canada)
- Fully private for-profit via IPO with stock widely held (originally BAA)
- Fully private for-profit via trade sale with share ownership tightly held (Australia, New Zealand)
- Partially private for-profit with private controlling interest (Denmark, Austria, Switzerland)
- Partially private for-profit with government controlling interest (Hamburg Germany, France, China, Kansai Japan).

There are many forms PPP can take in practice. Each model has its own pros and cons and can be suitable for achieving the major objectives of public-private partnership to a varying degree. Public-private partnerships can vary in the degree of risk allocated between the partners, the amount of expertise required on the part of each partner to negotiate contracts and the potential implications for partners involved.

Figure 1. Public private collaboration



Source: Palmer, G. (2009). Public-Private Partnership, http://www.dpwglgd.org/cms/upload/pdf/PublicPrivatePartnership_Lit_Review.doc

[9] Gillen, D., (2011): The evolution of airport ownership and governance, Journal of Air Transport Management, 17: 4.

As seen in Figure 1, contracting out and privatization are at the opposite ends of the spectrum of private versus public involvement, with PPPs somewhere in-between. Contracting out involves a private-sector party providing commercially a service previously provided by the public sector itself, there is little transfer of control or risk to the private sector, and no substantive private sector involvement in decision making. PPP arrangement would typically be characterized by some devolution of control and authority to the private sector, as well as private sector participation in decision making. In addition, the private sector partner would likely be a provider of capital assets as well as a provider of services.

Perhaps the most familiar form of participation in transport infrastructure is *Build, Operate, Transfer (BOT)*, where the private sector has the primary responsibility for financing, developing, and operating the facility for a fixed period of time, which should be sufficient to both repay the debt and to provide the required return on investment. At the end of the concession, assets are transferred to the government under the terms agreed to in the contract. Graham[10] notes that BOT is often used when relatively large investments are needed for totally new airports or perhaps for a new passenger terminal or other major facilities. There are alternative versions of these contracts such as: *Build, Own, and Operate* (BOO), *Build-Own-Operate-Transfer* (BOOT), *Build-Lease-Transfer* (BLT), *Build-Transfer-Operate* (BTO) etc.

Due to the banking crisis and the lack of available financial sources the new model, known as the "hybrid" PPP model, has emerged in the business practice. Hybrid PPPs involve the mixing of EU, public and private finance into PPP projects. Under this structure, EU funding typically comes in the form of capital grants – effectively providing a capex subsidy, which serves to improve the bank ability of such projects as well as affordability for governments[11]. The addition of EU funding proved highly effective in improving the financial feasibility of these projects. With regard to this, the specific timing criteria, the N+2 rule, has to be met. Financial resources granted from EU funds should be spent by the end of the second year following the year in which they are allocated.

There is no single PPP model that can be defined as the best one. The most suitable model should be selected taking into account the country's political, legal and socio-cultural circumstances, maturity of the country's PPP market and the financial and technical features of the projects and sectors concerned[12]. Special characteristics of the airport sector and its permanent needs to follow technological development, safety and security demands, legal and regulatory regimes, users' perception about the quality of the services can also be important factors in deciding the suitability of a particular model of PPP.

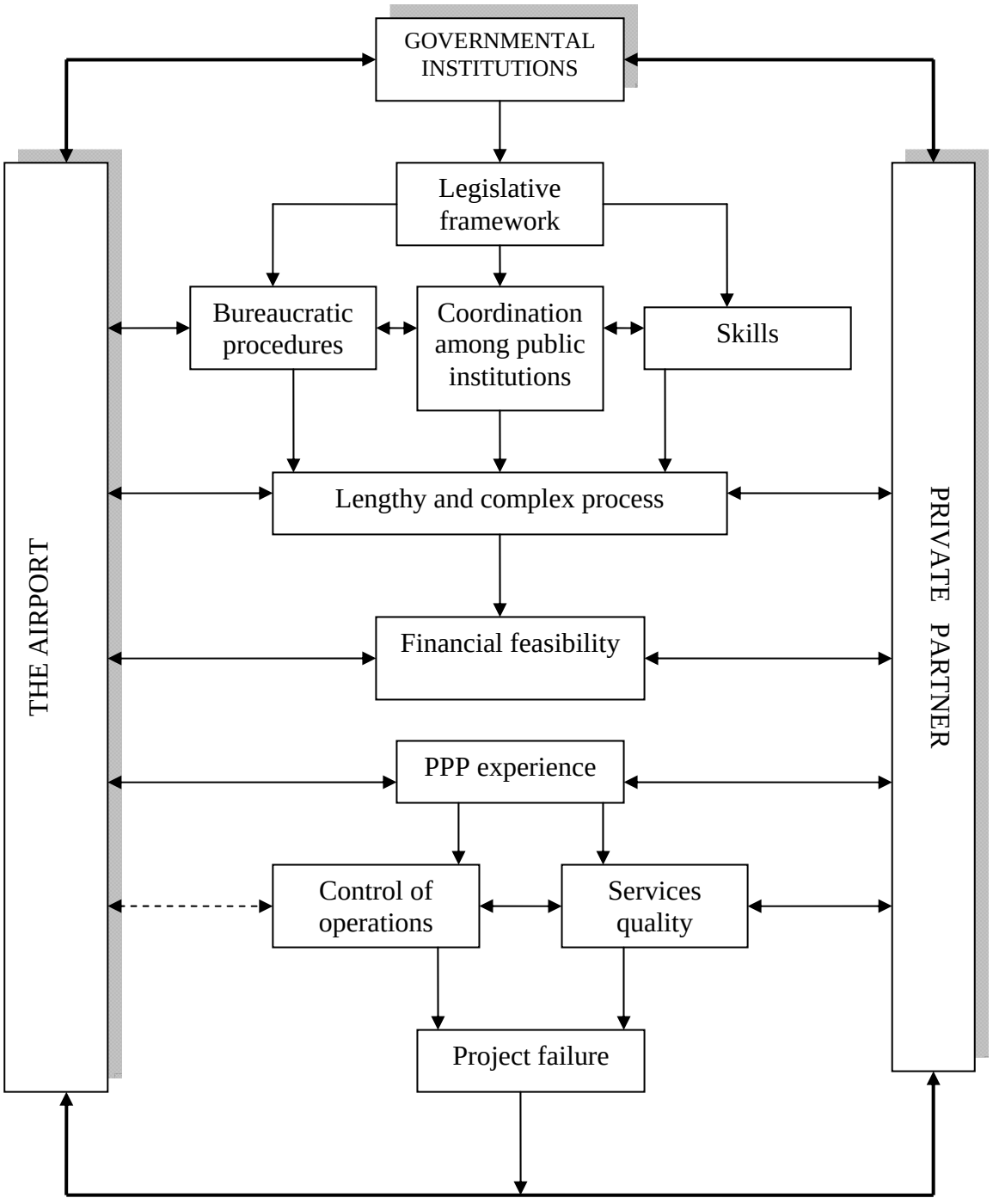
3. CONSTRAINTS AFFECTING THE SUCCESS OF PUBLIC-PRIVATE PARTNERSHIP IN CROATIA

The constraints and relations among the stakeholders are summarized into Figure 2 and further incorporated into a questionnaire as a part of survey of Croatian practice in Section 4.

[10] Graham, A., (2007): Managing Airports – An international perspective, Oxford: Butterworth Heinemann, 25.
[11] http://www.pwc.com/en_GX/gx/engineering-construction/assets/building-neweurope-infrastructure.pdf
[12] UNESCAP (2011) A guidebook on public-private partnership in infrastructure, http://www.unescap.org/ttdw/common/TPT/PPP/text/ppp_guidebook.pdf

It shows the main constraints affecting the relationship among stakeholders in PPP agreement and it helps to diagnose the main bottlenecks in this process. They are partly attributable to the diverse interests and concerns of the stakeholders involved in the process. The analysis has covered legislative framework, which is the prerequisite for a successful PPP implementation. Unclear and complex legislative framework can result in redundant bureaucratic procedures between governmental institutions, airport and private sector.

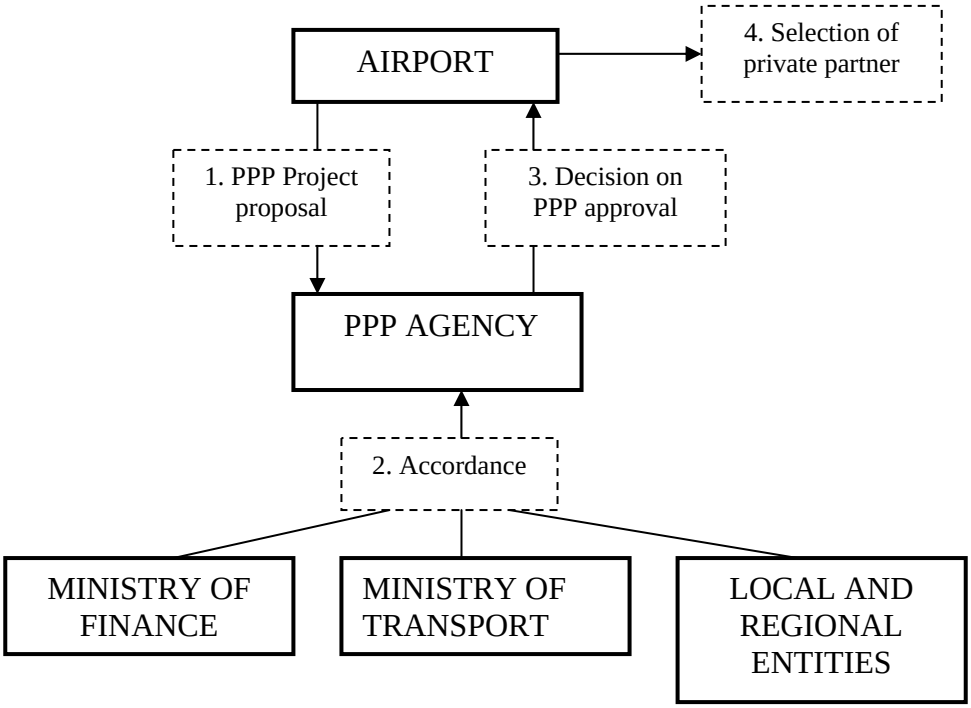
Figure 2. Constraints affecting the relationship among stakeholders in PPP agreement in Croatia



Source: Authors' systematization

The development of PPP projects is a complex and lengthy process, from planning to final operation, due to the prevalent emphasis on administrative procedures rather than fulfilling strategic goals. The administrative and approval processes in the case of PPP projects in Croatia are complex and long-lasting. These bureaucratic processes coupled with poor coordination between public institutions could be regarded as the main limitation of PPPs` success. Disadvantages associated with PPPs application usually involve slow preparation of individual PPP project, complicated procedures and long period from proposal to approval.

Figure 3. PPP project procurement in Croatia



Source: Authors' systematization according to the Public-Private Partnership Act (OG 129/08)

As shown in Figure 3, with regard to the Republic of Croatia, political and bureaucratic constraints are the consequence of fragmented decision making due to the involvement of several public entities: the Agency for Public-Private Partnership (hereinafter: the Agency), Ministry of finance, Ministry of transport and local and regional self- government.

The basic aim of such a complex and often long-lasting process is the selection of worthy projects, that:

- satisfy the need for the provision of certain public services,
- are fiscally sustainable for the public partner,
- have additional development possibilities and
- are attractive to the private partner.

Often, the success of PPPs depends on regulatory efficiency. The legal framework of public-private partnership in the Republic of Croatia is regulated by the Public-Private Partnership

Act (OG 129/08) and the accompanying regulations (OG 56/09), Concessions Act (OG 127/08) and the Public Procurement Act (OG 110/07, 125/08 - amendments) relating to the procedures for awarding the public procurement contracts and concessions contracts. Generally, regulatory constraints, like overlapping responsibilities among public entities, unclear regulatory procedures and framework must be overcome towards providing transparent procedures.

PPPs may have disadvantages in form of higher transaction and capital costs. The transaction costs consist of the costs of drafting, negotiating and safeguarding an agreement, inadequate adaptation and adjustment. The lack of cooperation on the part of the other partner could appear as a threat when entering into a contract, which may result in a loss of confidence in each other. The main reason for such a behavior is the fact that the private sector is driven by the profit and public sector is driven by social goals. In that context, each party of the PPP agreement must understand and respect each others' goals.

The costs incurred in proposals preparation and evaluation, development of contracting and bidding documents, negotiating deals and arranging funding processes, fall within the category of transaction costs. These costs include staff costs, advisory fees for lawyers, banking experts and consultants. Transaction costs of PPP projects can be substantial and can influence the value of the project. The main rule that has to be followed when deciding about PPP is that additional costs, due to higher transaction and financing costs, should be off-set by efficiency gains, from improved project delivery, design, construction, operation and management, and access to advanced technology, achieved through the PPP.

An administrative mechanism and special skills of employees in the public entities and at the airports are required to develop and implement PPP projects. Often the public entities do not have the access to the necessary negotiation skills required. Therefore, they need to develop new skills and capabilities in order to realize PPP effectively. This requires an investment in human resources on behalf of the public sector. The main constraints that are a part of project preparation usually consist of limited knowledge about the different PPP forms, benefits and constraints form PPP, lack of negotiation skills, employees' incompetence in application and PPP project realization.

The government has to consider carefully the selection of private partners that should have appropriate technical, financial or managerial capacity to implement the project. Change of ownership, change in operational and management practice to the private sector may not always result in improving its economic performance. Private partner is driven by the profit and sometimes it also may neglect the satisfactory level of service quality (e.g. British Airport Authority). The private sector may not take interest in Croatian airport sector due to the high traffic seasonality at the majority of Croatian airports and thus perceived high risks. The financial constraints originate in the fact that transport investments are often large and their costs can be recovered only over long periods of time.

4. SURVEY PROCESS

Following the issues discussed in the previous sections two hypotheses have been formed.

Hypothesis 1:
The constraints affecting the implementation of PPP projects in the Croatian airport sector primarily belong to the institutional and political environment

Hypothesis 2:
The decision on the application of PPP in the Croatian airport sector consists of managers' subjective perception drivers and the familiarity with the PPP concept.

The constraints identified from the literature were incorporated into a questionnaire which consisted of two sections. The first section aimed at soliciting the perceptions of top and middle management of all Croatian airports, regarding the importance of the factors constraining the implementation of PPP in the Croatian airport sector. This section was designed in a five point Likert scale. A Likert style of questionnaire was chosen because of the advantages in regard to the expression respondent's agreement or disagreement with a statement, facilitating the ranking of constraints. The target population consisted of managerial staff in all Croatian airports, i.e. the analysis was performed on the sample of 31 respondents.

The second section consisted of questions focused on the intention and the purpose of the investment in the near future, and questions about familiarity with the concept, forms, as well as positive and negative examples of PPP in the practice.

The data from the first section of the paper was analysed through the use of the descriptive statistics. The results of the ranking of constrains showed that the managers of the Croatian airports consider the following elements as the most important constraints: political interference on approval and realization of PPP projects, coordination among public institutions and weak employees' competence. Consequently, the first hypothesis has been confirmed (Table 3).

Table 3. Ranking of constraints

Constraints	**Mean**	**Stand. Dev.**	**Rank**
Political interference on approval and realizations of PPP projects	3,03	,983	1
Coordination among public institutions	2,61	1,022	2
Weak employees' competence	2,35	1,112	3
Managers' unfamiliarity with (dis)advantages of different PPP models	2,29	1,039	4
Lengthy bureaucratic procedures	2,26	1,290	5
Private partner is driven by the profit	2,23	1,203	6
Lack of knowledge on different PPP concepts/models	2,06	,854	7
Long duration of project	1,71	,973	8
Airport managers' negotiation skills	1,68	,871	9
Inability to control investment policy and service quality of private partner	1,65	1,082	10
Legislative framework	1,61	1,174	11
Lack of financial resources	1,61	1,230	11
Risk of PPP project failure due to the lack of private partner business experience	1,48	,769	13
Credit burden	1,45	1,060	14
High costs of meeting environmental standards	1,35	,950	15

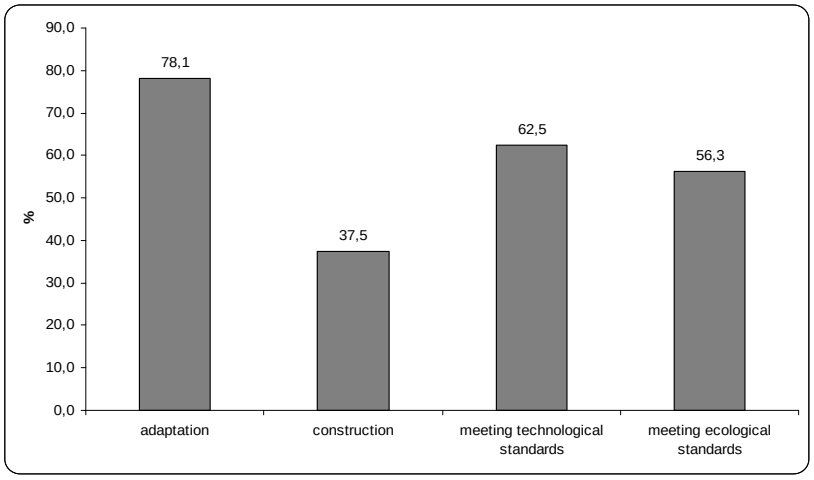
Furthermore, the Mann-Whitney test was conducted in order to statistically compare the perceptions of the managers who plan to implement the PPP model for financing their infrastructure development projects and those who do not have such intentions. The test shows that almost all the perceptions regarding the relative importance of the PPP constraints are the same between the two respondent categories. Given no strong differences have been found, it is obvious that the identified constraints have no significant influence on the decision whether to implement the PPP concept or not.

Table 4. Mann-Whitney U test

Constraints	**Mann-Whitney U test**	**Asymp. Sign. (2-tailed)**
Political interference on approval and realizations of PPP projects	86,5	,196
Coordination among public institutions	104,5	,603
Weak employees' competence	110,0	,767
Managers' unfamiliarity with (dis)advantages of different PPP models	110,5	,785
Lengthy bureaucratic procedures	94,5	,348
Private partner is driven by the profit	71,0	,053
Lack of knowledge on different PPP concepts/models	103,0	,544
Long duration of project	64,0	,021
Airport managers' negotiation skills	114,0	,899
Inability to control investment policy and service quality of private partner	88,5	,215
Legislative framework	113,0	,866
Lack of financial resources	101,0	,507
Risk of PPP project failure due to the lack of private partner business experience	96,0	,352
Credit burden	90,5	,272
High costs of meeting environmental standards	67,0	,035

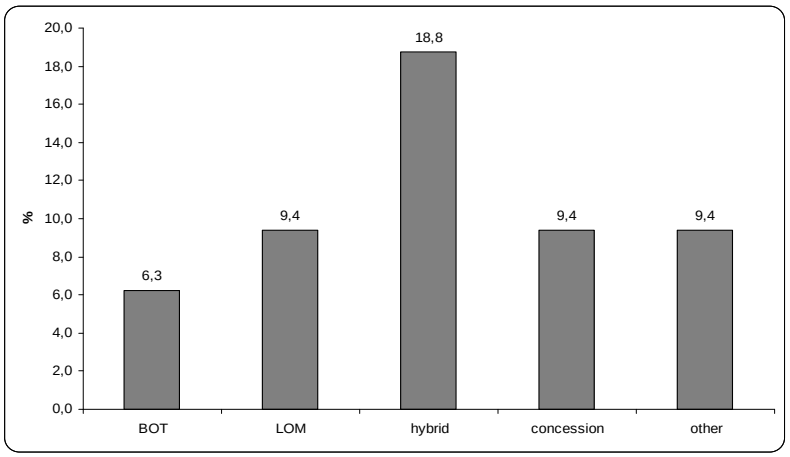
Furthermore, the managers ranked "legislative framework" and "credit burden" among the least important constraints to the implementation of the PPP projects. This suggests that the managers are satisfied with the existing legal and regulatory framework. The ranking of item "credit burden" is in line with the purpose of their investment (Figure 4). As can be seen, the majority of managers planning the investment in the infrastructure development projects indicate the adaptation of existing facilities at the airports as their main purpose of investment.

Figure 4. The main purpose of the investment



Although the majority of managers outlined their familiarity with the PPP concepts (93%), their forms and (dis)advantages, they still do not consider it as an attractive means to finance the airport development. With that in mind, it might be concluded that the mangers consider that they are able to finance their investment projects without being forced to take into consideration a potential PPP arrangement. Other potential sources consist of commercial bank loans and the EU funds, as a good opportunity for needed infrastructure investments. The previous statements suggest that the second hypothesis can be confirmed.

Figure 5. Planned PPP model



In terms of planned PPP model to be implemented, the respondents emphasized the variety of forms (BOT, LOM, hybrid, concession, etc.). However, the item regarding managers` familiarity with the (dis)advantages of different PPP models was ranked highly among the other identified constraints. This fact raises the question about the successful implementation of desired PPP model. It is interesting to notice that almost 1/5 of respondents consider hybrid PPP model as the most appropriate one.

To summarize, the findings reveal that the identified constraints are not a major obstacle for the implementation of PPP concept in the Croatian airport sector. It is rather suggested that the real obstacles lie in motivation factors, commitment and propensity to enter into new forms of partnerships. One should not forget the political element, given the fact that all the airports are in the majority ownership of the state (55%).

5. CONCLUSIONS AND IMPLICATIONS

Given the specific nature of airport business, it is of utmost importance to follow modern technologies and to meet the ever-increasing needs of its customers. In that context the provision of an adequate and reliable physical infrastructure is crucial. Due to the fiscal crisis Croatian government is unable to support and participate in airport infrastructure investments. Therefore, airports are forced to finance the development from their own funds and bank loans. However, the banking funds are limited and majority of Croatian airports have already reached their credit limits. According to the good practice all around the world PPPs are a logical solution to underinvestment problems of Croatian airports. On the other hand, PPPs have various limitations that should also be taken into account when considering the possibility of entering such business relations.

The development of PPPs in their various forms have enabled governments to realize projects that would not have taken place otherwise due to the constraints on government funding and benefit from private sector management expertise. The lack of comprehensive approach to the infrastructure development issues in Croatia has been noticed.

Although the need for capital infrastructure investments has been evident at the Croatian airports, so far no PPP concept has been implemented. Reasons behind that primarily refer to political interference in project approval and poor coordination between governmental institutions, weak employees' competence, a lack of familiarity with the advantages and disadvantages of different PPP models and the lengthy project approval process, i.e. bureaucratic procedures. These findings are valuable in order to identify the key issues to facilitate the implementation of PPP process.

First, it is important to assure a consistent and sound legal framework which would allow competitive PPP procurement procedures and reduce the length of the often long-lasting process. As regards the legal framework, it should be stable and fair in order to ensure and encourage a better coordination among all public institutions involved in the decision making process.

Second, the issues of political interference in PPP project approval and in selecting the private partner should be minimized in order to provide a transparent and fair tender and to take care of the best interests of all parties involved.

Third, partnership must precisely define the sharing of both the risks and the benefits of the investment. In order to reduce the risks for all stakeholders and for the project as a whole, the whole process has to be transparent and comprehensive from the initial phase clear and sustainable rules and agreements among stakeholders must be established and developed.

Often, the lack of government funding has been the main reason for considering a PPP as an option for the implementation and realization of a project. However, it certainly should not be the main reason. Value for money must be the major criterion in judging the merits of a PPP option for a project implementation. One should also bear in mind that not all projects are feasible. In order to minimize the risk of the project failure, the economic and financial feasibility of the project should be undertaken using risk analysis techniques.

Fourth, airport authorities and public entities should clearly specify the minimum parameters which must be complied by the private sector in terms of quality and quantity of service required by the users' demand, possible social and environmental obligations. It is necessary to monitor continuously the achievement of a mutually agreed set of objectives performance indicators. These indicators could serve as a warning instrument to the economic and risk evaluation of the project.

Fifth, although Croatian airport managers are familiar with the concept of PPP arrangements, they have limited knowledge about the different PPP forms, as well as the benefits of and the constraints on PPPs. Many of them pointed out the lack of negotiation skills of employees required to develop and implement PPP projects, employees' incompetence in PPP project application and its realization. Therefore, they need to develop new skills and capabilities of both, airport and employees in public institutions in order to realize PPP effectively. This requires an investment in human resources on behalf of the public sector.

Finally, some recommendations for future research should be pointed out. Target groups which should be included in the future analyses are public entities and private corporations interested in investment at Croatian airports. In that way, the agreement between the different respondent groups on their ranking of constraints could be measured and compared. The results will offer a detailed insight into different perceptions by all parties involved in PPP arrangements. The issues explored in this paper suggest a number of areas that would benefit from further theoretical and empirical work.

BIBLIOGRAPHY

Croatian Acts published in Official Gazette (OG):

- Concessions Act (OG 127/08)
- the Public Procurement Act (OG 110/07 and OG 125/08)
- the Public Private Partnership Act (OG 129/08 and OG 56/09)

Cruz, C. O., Marques, R. C., (2011): **Contribution to the study of PPP arrangements in airport development, management and operation**, ***Transport Policy***, 18: 392 – 400

Evenhuis, E., Vickerman, R., (2010): **Transport pricing and Public-Private Partnership in theory: Issues and Suggestions**, ***Research in Transportation Economics***, 30: 6 – 14

Gillen, D., (2011): **The evolution of airport ownership and governance**, ***Journal of Air Transport Management***, 17: 3 – 13

Graham, A., (2007): **Managing Airports – An international perspective**, Oxford: Butterworth Heinemann

Grimsey, D., Lewis, M. K., (2002): **Evaluating the risks of public private partnerships for infrastructure projects**, ***International Journal of Project Management***, 20: 107 – 118

Li, B., Akintoye, A., (2003): **An overview of public-private partnership**, in Akintoye, A., Beck, M., Hardcastle, C., eds.: ***Public-private partnership: Managing risks and opportunities***, Blackwell Science

Macario, R., (2010): **Future challenges for transport infrastructure pricing in PPP arrangements**, ***Research in Transportation Economics***, 30: 145 – 154

Oum, T. H. et al., (2006): **Privatization, corporatization, ownership forms and their effects on the performance of the world`s major airports**, ***Journal of Air Transport Management***, 12: 109 – 121

Palmer, G., (2009) **Public-Private Partnership**, http://www.dpwglgd.org/cms/upload/pdf/PublicPrivatePartnership_Lit_Review.doc [Accessed: 18.03. 2010]

Rajan, T. A. et al., (2009): **PPP in Greenfield Airport Development: A Case Study of Cochin International Airport Limited**, in Akintoye, A., Beck, M., eds.: ***Policy, Management and Finance of Public-Private Partnership***, Wiley-Blackwell

UNESCAP (2011) **A guidebook on public-private partnership in infrastructure**, http://www.unescap.org/ttdw/common/TPT/PPP/text/ppp_guidebook.pdf [Accessed 30.03. 2011]

Zheng, J. et al., (2008): **The dynamics of contractual and relational governance: Evidence from long-term public-private procurement arrangements**, ***Journal of Purchasing & Supply Management***, 14: 43 – 54

Yescombe, E. R., (2007): **Public-private partnerships – Principles of Policy and Finance**, Oxford: Butterworth – Heinemann

http://www.ajpp.hr [Accessed 24.2. 2011]

http://acpsec.org/mines/Transport%20Infrastructure%20EN.pdf [Accessed 30.3. 2011]

http://www.pwc.com/en_GX/gx/engineering-construction/assets/building-neweurope-infrastructure.pdf [Accessed: 28.03. 2010]

UNIVERSITY STUDENTS' ENTERPRENEURIAL CHARACTERISTICS – KEY FOR THE FUTURE DEVELOPMENT

Vrdoljak Raguž, Ivona
University of Dubrovnik, Department of Economics and Business Economics/assistant professor
Lapadska obala 7, 20000 Dubrovnik
Phone: ++ <00385 20 445 921>; Fax: ++ <00385 20 445 940>
E-mail: ivona.vrdoljak@unidu.hr

Dulčić, Želimir
University of Split, Faculty of Economics/full professor
Matice hrvatske 31, 21000 Split
Phone: ++ <00385 21 430 614>; Fax: ++ <00385 21 430 701>
E-mail: zdulcic@efst.hr

Key words: *university students, entrepreneurship, entrepreneurial characteristics, future development, University of Dubrovnik*

ABSTRACT

Entrepreneurship is one of the main generators of economic growth which helps in employment of young educated people. Students are the generators of future development and their perceptions and attitudes of entrepreneurship could considerably determinate the future business activity. In this context the formal education represents one of the possible ways of entrepreneurship endorsement. Ideas of young population could contribute to enterprises with their innovations, creativity and tendencies to organizational change. Recognition of the specific components of students' entrepreneurial characteristics offers sizable diagnostic power for future entrepreneurship behaviour. Therefore, it is necessary to understand the process of leading to became advance entrepreneur and several important factors that significant influence on student entrepreneurship attitudes.

The purpose of this paper is to investigate entrepreneurial characteristics of students from the University of Dubrovnik as a key for the future development. The research instrument was survey questionnaire. The empirical research is conducted on students of business economics and who are expected to enter in the process of entrepreneurship.

1. INTRODUCTION

Entrepreneurship is a process of action an entrepreneur undertakes to establish a business organization which provides goods and services, creates jobs, and contributes to national income and overall economic development (Sethi, 2008). Being an entrepreneur, one who is self-employed and who initiates, organizes, manages and takes responsibility for business, provides a personal challenge that many individuals prefer over being an employee working for someone else. The development of entrepreneurial talent is important to sustaining a competitive advantage in a global economy that is catalyzed by innovation.

Entrepreneurs accept the personal and financial risks that go with owning a business but they also benefit directly from the potential success of business (Segal et al., 2005). Being an entrepreneur is correlated with the uncertainty, risk, hard work and persistence, some new creations and improvements which often lead to pressure, stress and frustration. In order to cope with these problems the entrepreneur has to be prepared.

In recent years, fostering entrepreneurship has become a topic of the highest priority in public policy in most industrial countries. Fostering entrepreneurship through education and training has also received increasing attention from the Universities in many countries. In this context, well-educated entrepreneurs are of paramount interest. It has been found that the self-employed more often have a formal university education compared to people in wage and salary employment (Robinson and Sexton 1994).

People vary in the degree of entrepreneurial characteristics they possess. Market needs employees which have expressed entrepreneurial characteristics. Because of this the most important question is: what are the personality characteristics of an entrepreneurial person and what external factors directly reflect on the entrepreneurial activity? Among various, the most important are: desire to achieve, locus of control, risk taking, tolerance of ambiguity, self-confidence and innovativeness.

Because of the mentioned, this paper tries to discover dominant entrepreneurial characteristics of student from the University of Dubrovnik.

The paper is structured as follows: In section 2, the literature on the effects of the universities' entrepreneurship education and entrepreneurial characteristics are briefly reviewed. The methods applied in the paper are presented in section 3 and research findings are presented in section 4. Section 5 present discussion and concluding comments.

2. LITERATURE REVIEW

The literature on entrepreneurial characteristics has included a number of variables that address psychological attributes, personality, attitudes, and behaviour. Some of these variables are loosely coupled elements of the individual, but not necessarily interchangeable. To avoid a lengthy theoretical discussion to make these finer distinctions, this paper groups them generically as entrepreneurial characteristics. Although prior research has debated whether entrepreneurial characteristics are innate, recent findings support the idea that psychological attributes associated with entrepreneurship can be culturally and experientially acquired (Gorman et al., 1997).

This paper focuses on personality/psychological factors and characteristics associated with entrepreneurship which have received a great deal of attention such as need for achievement, locus of control, risk taking, tolerance of ambiguity, self-confidence (Begley and Boyd, 1987; Brockhaus, Sr. and Horwitz, 1986) and innovativeness (Schumpeter, 1934).

A number of psychological attributes have been suggested as predictors of entrepreneurial behaviour in the entrepreneurship literature, with some degree of consensus. Kourilsky (1980) suggested the following are the most relevant: need for achievement; creativity and initiative; risk-taking and setting objectives; self-confidence and internal locus of control; need for independence and autonomy; motivation, energy and commitment; and persistence.

According to Gorman et al. (1997) propensity toward entrepreneurship is associated with several personal characteristics: values and attitudes, personal goals, creativity, risk-taking propensity, and locus of control. Of the personal characteristics, McClelland (1961) proposed achievement motivation, risk taking and locus of control as important characteristics. However, Robinson, Stimpson, Huefner, and Hunt's (1991) argued that self-esteem and innovation are more prominent in entrepreneurs than the need for achievement. Sexton and Bowman (1983) concurred with Brockhaus (1980) that risk-taking propensities are not good predictors of entrepreneurial behaviour.

In this paper six dominant entrepreneurial characteristics were taken into the research: desire to achieve, locus of control, risk taking, tolerance of ambiguity, self-confidence and innovativeness.

Of all the psychological characteristics presumed to be associated with entrepreneurship, *need for achievement* has the longest history (Shaver and Scott, 1991).The need for achievement is based on expectations of doing something better or faster than others or better than the person's earlier accomplishments (McClelland, 1961, 1965). It is also a process of planning and striving for excellence (Hansemark, 1998). McClelland (1965) maintained that founders of business have a higher level of need for achievement and suggested that this characteristic is an important factor for economic development and business growth.

Locus of control reinforcement is related to the expectation of success or failure in a judgmental task (Rotter, 1966). People will attribute the reason why something happens either to themselves (internal) or to the external environment. Brockhaus (1980) and Gasse (1985) found that entrepreneurs have greater internal locus of control than the general population; therefore, entrepreneurs believe that the outcome of a business venture will be influenced by their own efforts. Hansemark (1998) also found that young adults participating in an entrepreneurship program developed a more internal locus of control. Analogous to locus of control, Robinson et al. (1991) found that internal personal control leads to a positive entrepreneurial attitude.

Self-confidence and self-esteem are used as analogous terms in this research to address how an individual feels about their own ability. Kourilsky (1980) concluded that they are important variables in predicting entrepreneurial success. Robinson et al. (1991) also suggested that self-esteem, particularly related to business affairs, is a prominent entrepreneurial characteristic.

Risk-taking is defined as "the perceived probability of receiving rewards associated with the success of a situation that is required by the individual before he will subject himself to the consequences associated with failure, the alternative situation providing less reward as well as less severe consequences than the proposed situation (Brockhaus, 1980).
Innovativeness relates to perceiving and acting on business activities in new and unique ways (Robinson et al., 1991). As suggested by Schumpeter (1934) and Mitton (1989), innovativeness is the focal point of entrepreneurship and an essential entrepreneurial characteristic. Evidence reported in the entrepreneurship literature shows that entrepreneurs are significantly more innovative than non-entrepreneurs (Ho and Koh, 1992, Robinson et al., 1991, Cromie, 2000). According to Lumpkin and Erdogan (1999), innovativeness, especially product innovativeness, may be positively influenced by risk-taking propensity.

Tolerance for ambiguity can be inferred to be a tendency to perceive ambiguous situations in a more neutral way. A person who has a high tolerance for ambiguity is one who finds

ambiguous situations challenging and who strives to overcome unstable and unpredictable situations in order to perform well (Koh, 1996). Entrepreneurs do not only operate in an uncertain environment; according to Mitton (1989), entrepreneurs eagerly undertake the unknown and willingly seek out and manage uncertainty. It is believed that tolerance for ambiguity is an entrepreneurial characteristic and those who are entrepreneurially inclined are expected to display more tolerance for ambiguity than others (Sarachek, 1978; Schere, 1982).

3. METHODOLOGY

In accordance with the assumption that personality characteristics distinguish entrepreneurs from those who are not, the main aim of this research was to identify and analyze entrepreneurial characteristics of business students from University of Dubrovnik, Department of Economics and Business Economics. To examine the personal and entrepreneurial characteristics of students as potential entrepreneurs' survey was created to research student population of business economics. Survey was conducted among Croatian business students at the University of Dubrovnik in the academic year 2010/2011. The questionnaire is part of the empirical research served as the main instrument for collecting primary data. Questions were related to the following entrepreneurial characteristics: risk taking, need for achievement, locus of control, self-confidence and self esteem, innovativeness and tolerance of ambiguity. These traits are the result of the long list of entrepreneurial characteristics that are most frequently analysed. The paper included responses of 120 business students at the University of Dubrovnik and was completed anonymously during regular class time, with a response rate of 100 percent. Students had to choose answer that best describes their needs and attitudes (scale of 1 to 3 was established to measure the intensity of each of these characteristics scale. Higher score means greater intensity of each tested entrepreneurial characteristics).

Collected data were statistically analyzed using computer software packages for processing qualitative and quantitative data of social research-SPSS (Statistical Package for the Social Sciences).

4. RESEARCH FINDINGS

The sample included 120 participants (students) and the standardized profile of respondents by gender, country of birth, social background and work experience of participants as well as owning a family business was created. Research results show the dominance of women (75.8%) in a sample survey which is a logical result, because the questionnaire was conducted at the Faculty of Social Sciences, Department of Economics and Business Economics, where the predominance of female subjects is expected. The standardized profile of respondents also included country of birth because of the proximity of Bosnia and Herzegovina and the positive trend inscription of these students, therefore, the representation of students from Bosnia and Herzegovina is relatively high, with a share of 14.2%. Social background of the respondents shows the representation of labour origin of respondents with 40% after which it follows intellectually with 26.7%, civil service with 19.2%, 10% trade and fishing origin with a slight 4.2%. The results show that 75% of respondents do not own their own business within the family while the other 25% of respondents own a family business, them 78.3% have a services as a principal activity. It is interesting to stress a high percent proportion of

respondents with work experience of 81.7% which indicates a consciousness of subjects for the necessary work experience before founding own enterprise (table 1).

Table 1 Students' profile

Variables	Modalities variables	Absolute frequency	Percent (%)
Gender	Male	29	24.2
	Female	91	75.8
Country of birth	Croatia	103	85.8
	Bosnia and Herzegovina	17	14.2
Social origin	Intellectual	32	26.7
	Labour	48	40.0
	Trade	12	10.0
	Civil service	23	19.2
	Fishing	5	4.2
Ownership of an enterprise by the family	Yes	30	25.0
	No	90	75.0
Principal activity	Tourism and catering	7	5.8
	Trade	7	5.8
	Services	12	10.0
	Not declared	94	78.3
Work experience	Yes	98	81.7
	No	22	18.3

Source: Research findings (N=120)

Table 2 shows mean and standard deviation for tested entrepreneurial characteristics. The mean values and standard deviation of the constructs that depicts the psychological characteristics of the respondents. High mean values were obtained for five of the constructs – risk taking, self confidence and self esteem, need for achievement innovativeness, and locus of control. However, the mean value for tolerance for ambiguity was on the low side.

Table 2 Students entrepreneurial characteristics

Entrepreneurial characteristics	Mean	Standard deviation
Risk taking	2,78	0,389
Self confidence and self esteem	2,68	0,502
Need for achievement	2,89	0,601
Innovativeness	2,38	0,483
Tolerance for ambiguity	1,96	0,278
Locus of control	2,93	0,498

Source: Research findings (N=120)

Correlation among entrepreneurial characteristics is presented in the table 3.Values from the table 3 show only significant correlations among analyzed enterpreneurial characteristics. A significant positive correlation has been found between some characteristics. They are not all significantly correlated among each other as it was expected.

Table 3 Correlations among the variables

Variables	1	2	3	4	5	6
Self confidence and self esteem	1					
Risk taking	0,395**	1				
Need for achievement	0,324**	0,457**	1			
Innovativeness	0,305**	0,421**	0,352**	1		
Tolerance for ambiguity	0,198**				1	
Locus of control	0,301**	0,562**	0,501**			1

Source: Research findings (N=120)
** Correlation is significant at the 0.01 sig. level (one tailed)

Positive correlations were found between all variables. The strongest relationship is between need for achievement and locus of control (r=0,562). The intensity of correlation between these two variables is moderate (r>0,400). The level of significance (p≤0,01) shows that with 99% of certainty can be stated that there is a positive relationship of moderate intensity. Relationship between risk taking and locus of control is also of moderate intensity (r=0,501, p≤0,01) as well as in the case of risk taking activities and need for achievement (r=0,457, p≤0,01). It is important to notice that some expected relationships do not exist or are marginally significant (tolerance for ambiguity with risk taking, tolerance for ambiguity with need for achievement, tolerance for ambiguity and innovativeness tolerance for ambiguity with locus of control).

Research findings have shown that entrepreneurship education develops entrepreneurial mindsets. Students entrepreneurial characteristics and theirs identification have practical value. Results of these findings could help in planning a future investment in entrepreneurship education at the University. Recognition of the specific components of students' entrepreneurial characteristics offers sizable diagnostic power for future entrepreneurship behaviour. Therefore, it is necessary to understand the process of leading to became advance entrepreneur and several important factors that significant influence on student entrepreneurship attitudes.

5. DISCUSSION AND CONCLUSION

In time of crisis entrepreneurship and entrepreneurial activities seems to be very important. Formal education plays an important role in developing entrepreneurial capacities and that is the main reason why this research is focused on identifying and analyzing of entrepreneurial characteristics.

This paper presents the initial findings related to the effects of entrepreneurship training and enterprise experience on entrepreneurial characteristics. Subsequent research should address

the effects of entrepreneurial training on a broader ethnic and age sample, academic performance, as well as other pedagogies and program modalities.

This paper has provided support for theories related to entrepreneurial characteristics in general. More specifically, the application to youth confirms the universal nature of these concepts. Previous literature has suggested that entrepreneurial training will improve attitudes toward entrepreneurship, but this research concludes that training and enterprising behaviour can have a significant impact on entrepreneurial characteristics. Based on this paper the educational system and the business community can be encouraged about investing in training to develop and nurture entrepreneurship at an early age.

The investment in entrepreneurship for youth should, therefore, have long-term positive effects on economic development and global competitiveness by creating an entrepreneurial culture for our youth.

Conclusion which arise from this research is that entrepreneurship education programs should be built on the premise that entrepreneurs are not born, they are made, focusing courses on development of entrepreneurial talents. It is well known that a career in entrepreneurship offers significant opportunities for individuals to achieve financial independence and benefit the economy by contributing to job creation, innovation, and economic growth. Today's students are tomorrow's potential entrepreneurs. Being an entrepreneur, one who is self-employed and who initiates, organizes, manages and takes responsibility for business, provides a personal challenge that many individuals prefer over being an employee working for someone else.

At the end it can be concluded that students represent future entrepreneurs and that entrepreneurs are the driving force of the country's' economy. Results from this paper can be very useful for further research especially comparison research between different countries and different cultures.

BIBLIOGRAPHY

Begley, M.W., Boyd, D.P. (1987): **Psychological Characteristics Associated with Performance in Entrepreneurial Firms and Small Businesses,** ***Journal of Business Venturing***, 2: 79-93

Brockhaus, R.H., (1980): **Risk-taking propensity of entrepreneurs,** ***Academy of Management Journal*****,** 23: 509-520

Brockhaus, R.H., Sr., Horwitz, P.S. (1986): **The Psychology of the Entrepreneur,** D.L. Sexton and R.W. Smilor, ed.: ***The Art and Science of Entrepreneurship,*** Cambridge: Ballinger

Cromie, S. (2000): **Assessing entrepreneurial inclination: Some approaches and empirical evidence,** ***European Journal of Work and Organizational Psychology,*** 9: 7-30

Gasse, Y. (1985): **A strategy for the promotion and identification of potential entrepreneurs at the secondary level.** ***Frontiers in Entrepreneurship Research,*** Wellesley, MA: Babson College, 538-559

Gorman, G., Hanlon, D., & King, W. (1997): **Some research perspectives on entrepreneurship education, enterprise education and education for small business management: a ten-year literature review,** ***International Small Business Journal,*** 15: 56-79

Hansemark, O. (1998): **The effects of an entrepreneurship programme on need for achievement and locus of control of reinforcement.** ***International Journal of Entrepreneurship Behaviour and Research,*** 4: 28-50

Ho, T.S. and Koh, H.C. (1992): **Differences in psychological characteristics between entrepreneurially inclined and non-entrepreneurially inclined accounting graduates in Singapore,** ***Entrepreneurship, Innovation and Change: An International Journal,*** 1: 43-54

Koh, H.C. (1996): **Testing hypotheses of entrepreneurial characteristics: A study of Hong Kong MBA students,** ***Journal of Managerial Psychology,*** 11: 12- 25

Kourilsky, M.L. (1980): **Predictors of entrepreneurship in a simulated economy,** ***The Journal of Creative Behaviour,*** 14: 175-199

Lumpkin, G.T., Erdogan, B. (1999): **If Not Entrepreneurship, Can Psychological Characteristics Predict Entrepreneurial Orientation? A Pilot Study"**, in: ***Proceedings USA Small Business Enterprise (USASBE) Conference.*** Sailing the Entrepreneurial Wave Into the 21st Century San Diego, California, 14-17 January 1999.

McClelland, D.C. (1961): **The Achieving Society**, Van Norstand, Princeton, NY.

McClelland, D. C. (1965): **Need achievement and entrepreneurship, A longitudinal study.** ***Journal of Personality and Social Psychology,*** 1: 389-392

Mitton, D.G. (1989): **The complete entrepreneur,** ***Entrepreneurship: Theory and Practice,*** 13: 9-19

Robinson, P.B., Stimpson, D.V., Huefner, J.C., & Hunt, H.K. (1991): **An attitude approach to the prediction of entrepreneurship,** ***Entrepreneurship Theory and Practice,*** 15: 13-31

Robinson, P.B. and Sexton, E.A. (1994): **The effect of education and experience on self employment success,** ***Journal of Business Venturing,*** 9: 141-157

Rotter, J.B. (1966): **Generalized expectancies for internal versus external control of reinforcement,** ***Psychological Monographs: General and Applied,*** 80: 609

Sarachek, B. (1978): **American Entrepreneurs and the Horatio Alger Myth,** ***Journal of Economic History,*** 38: 439-456

Schere, J. (1982): **Tolerance of ambiguity as a discriminating variable between entrepreneurs and managers,** in ***Proceedings of the Academy of Management,*** Vol. 42, pp. 404-408.

Schumpeter, J.A. (1934): **The Theory of Economic Development,** Harvard University Press, Cambridge, M.A.

Segal, G., Borgia, D., Schoenfeld, J., (2005): **The motivation to become an entrepreneur,** ***International Journal of Entrepreneurial Behaviour and Research,*** 11: 42-57

Sethi, J. (2008.): ***Entrepreneur and Entrepreneurship***, Lecture Materials (Lesson 1), Course in Entrepreneurship and Small Business Management, University of Delhi, B. A., Programme

Sexton, D.L. & Bowman, N. (1983): **Determining entrepreneurial potential of students,** ***Academy of Management Proceedings,*** 408-411

Shaver, K.G. and Scott, L.R. (1991): **Person, process, choice: the psychology of new venture creation,** ***Entrepreneurship Theory and Practice,*** 16: 23-45

ECONOMIC EFFECTS OF THE ADVERSE POPULATION TRENDS: THE CASE OF SERBIA AND CROATIA

Iva Vuksanović, MSe
Teaching and Research Assistant
Faculty of Economics Belgrade
Kamenička 6
Phone: ++ 381 11 3021 134; Fax: ++ 381 11 2639 560
E-mail: ivav@ekof.bg.ac.rs

Tomislav Herceg, MSc
Teaching and Research Assistant
Faculty of Economics and Business Zagreb, Croatia
Trg J.F.Kennedyja 6
Phone: ++ 385 1 2383 331; Fax: ++ 385 1 2332 618
E-mail: therceg@efzg.hr

Key words: *Depopulation, Brain Drain, Capital Formation, Inadequate Human Capital, Pension System*

ABSTRACT

This paper analyzes the current situation of the labour market in Croatia and Serbia and brings it into relation with the current income level in these two countries. Taking this situation as a starting point for further analysis, authors present a comparative analysis of the systemic risk with respect to the population trends.

The first part of the survey discovers that population trends in both Serbia and Croatia are very similar: aging population, brain drain and inadequate educations system and high unemployment, especially long term unemployment. At the same time, traditionally strong trade unions keep the labour market rigid, leaving the countries with less foreign investments, hence resulting in the even worse salaries and disposable income. Consequently, it leads to the even higher brain drain and emigration, unfavourable population age trends and problems with the retirement funds based upon the "generation solidarity system". Altogether it forms a vicious circle which will be very hard to overturn.

The second part makes some growth accounting analysis. According to the neoclassical growth theory, production depends on the physical capital, human capital and labour. Majority of the studies take the number of workers as constant since it varies very little in the short run. However, in Serbia and Croatia there is a tendency of a rather hasty change in a population, since depopulation trends are supported by both emigration, very low fertility rate, higher mortality rate due to the old population and obstacles to immigrate. It brings to conclusion that the changes in labour are not to be ignored and, if the countries want to maintain some minimum growth rates, the decrease in labour will have to be compensated by other factors, such as education incentives, quality emigrant return programmes and higher levels of investments, in order to boost the levels of physical capital. Making several scenarios, authors show the amount by which Croatia and Serbia have to increase their investments in order to overcome the negative population trends.

The following section investigates the pension funds and retirement policies in both countries. It is shown that it is not the matter of whether the existing retirement system in Croatia and Serbia would collapse, but the time when it could take place if some severe reforms are not made.

Finally, authors make a empirical research using demographic projections for Croatia and Serbia, showing the effects of decline of labour on economics. The analysis shows what would be the amount of investment needed to overcome the detrimental effect caused by the negative demographic trends. It will be shown that both countries have very similar fate and similar measures are to be undertaken in order to evade the unwilling population trends which lead into dark economic scenarios.

1. INTRODUCTION

Since the 1960s majority of European countries saw its fertility rate fall below replacement level (e.g. the level that secures replacement of generations in a closed population). To date no European nation has seen fertility rate recovery thus rendering the continent a large area of depressed fertility (Frejka, Sobotka, 2008). Projections for the future indicate that this depopulation trend will only continue to grow.

The population of the country represents the pivot of economic development. Namely, it constitutes the framework for productive workforce creation. We can expect that over time depopulation will continue to cause working-age population decline and labour contraction. Eventually, such negative developments will become a constraint on further economic growth.

There are two ways for overcoming insufficient autochthon labour force. First, resorting to foreign labour, which causes immigration and change in ethnic structure of the population. Second, the substitution of insufficient labour factor with more intense investments in capital base. Since the public opinion across entire Europe is uniformly opposed to increase of immigration it is expected that the solution will be sought on the other side.

In two former Yugoslav countries, Croatia and Serbia, fertility depression lasts for many decades now. From the economic point of view, persistent low fertility eventually triggers working age population decline, something that will undoubtedly limit its economic growth in the future. In the case of theses two countries diminution of working age population pool is already observable since the end of the last century. Yet, due to low utilization of labour force, it is likely to happen only after some time.

Historical data show interesting similarities in terms of dynamics and magnitude of population changes, differing in the same time from that of other former Yugoslav states. For this reason problems and negative demographic changes are analyzed concurrently for both countries in order to reveal the extent to which factors that cause these changes are common. The purpose of this paper is to evaluate economic effects of these changes related to insufficient labour factor necessary to maintain economic growth in the future, showing that with small differences both countries should expect to face, practically, the same scenario.

Consequently, in the first section we present dynamics and magnitude of fertility depression in Croatia and Serbia, along with some other depopulation indicators. In the second one we

resume projected and currently evident negative effects of depopulation changes. Finally, in the third one a growth analysis is made; taking into account the expected demographic trends, the analysis shows what is the investment rate needed.

2. FERTILITY DEPRESSION IN CROATIA AND SERBIA

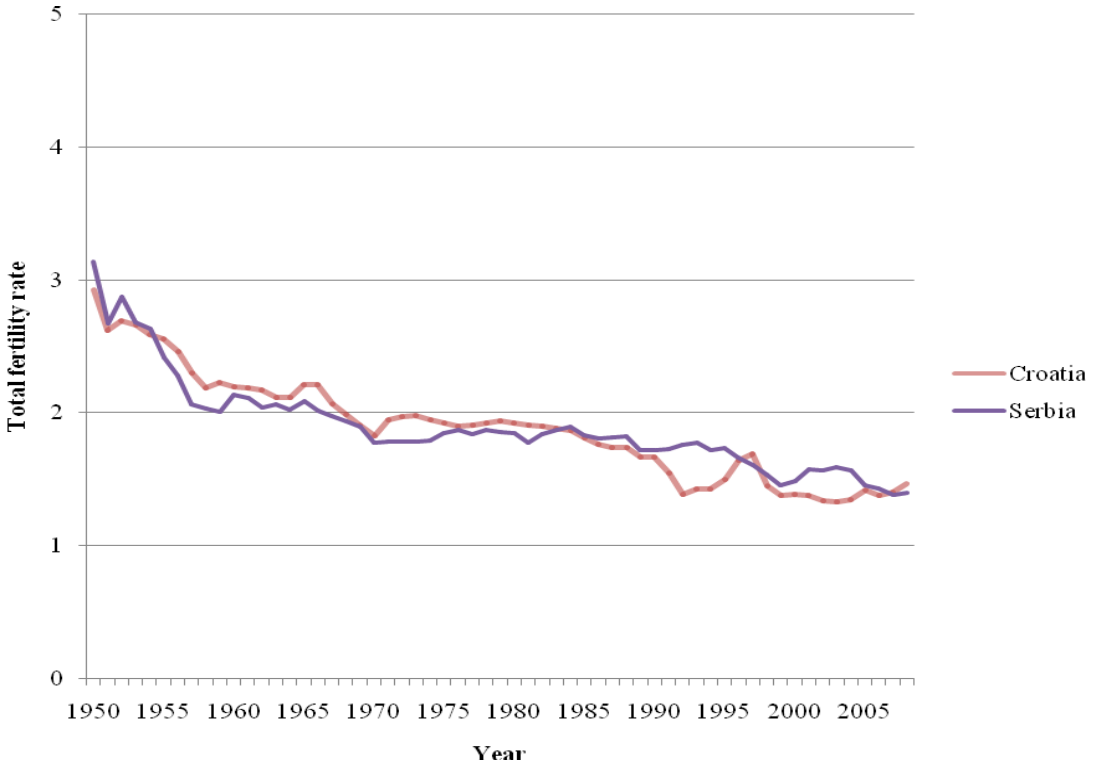
Over the past one-half century most of the teritory of European continent became the area of depressed fertility. Fertility depression referes to a situation where total fertility rate does not reach replacement level for a longer period of time.[1] In former Yugoslavia, fertility depression started first in Vojvodina and Central Serbia in 1958, while Croatia followed suit quickly after in 1962 (Macura, M. (1982). In other former Yugoslav countries fertility rate decline under replacement level happened after decades, in Montenegro during mid 1980s, in Macedonia after mid 1990s for example. Total fertility rate in Serbia and Croatia, after it reached the replacement level around 1960, never recovered thereafter.

The continuing adverse trend seems to have started only after the beginning of collapse of socialist regime in 1989. Total fertility rate showed tremendous decline, at the pace and magnitude that was greater than anywhere else in Europe. Keeping this course until 1999, extremely low fertility level attained through much of the region proved to be the lowest ever recorded in Europe (Coleman, D. ,1996). Previous is most likely to be the consequence of few negative factors with varying degree of influence across the region, most notably, the war, misery and uncertainty that marked the first part of the transition process towards market economy, but also a gradual adoption of the Western family values, attitudes and norms that prevailed in the post-war period.

Further in this paper, the accent will be on Croatia and Serbia, the two ex-Yugoslav countries that show similar negative tendencies in terms of population movements. Regardless of how these similarities could be explained - common problems (conflicts and wars) through the last century, similar economic conditions or Slavic roots – these two countries undoubtedly share common fertility trend. The Figure 1 shows total fertility rate for both countries since 1950. It is evident that in both cases low fertility is rather endemic problem with accelerated magnitude during 1990s. However, in the case of Croatia, the effects of the war started manifesting in the first years of the decade. In the case of Serbia steeper decline in fertility rate happened after 1999 NATO intervention, while in the meantime, Croatian government managed to foster greater fertility recovery with stimulus pro-nativity policy measures. After 2000 in the absence of any further significant effects, pro-nativity measures were abolished. Few years now, in the case of Croatia, higher fertility rate may indicate that recovery is underway.

[1] Total fertility rate is the average number of children that would be born per woman if all women lived to the end of their child bearing years and bore children according to a given set of age-specific fertility rates.

Figure 1: Fertility rate in Serbia and Croatia, 1950-2008

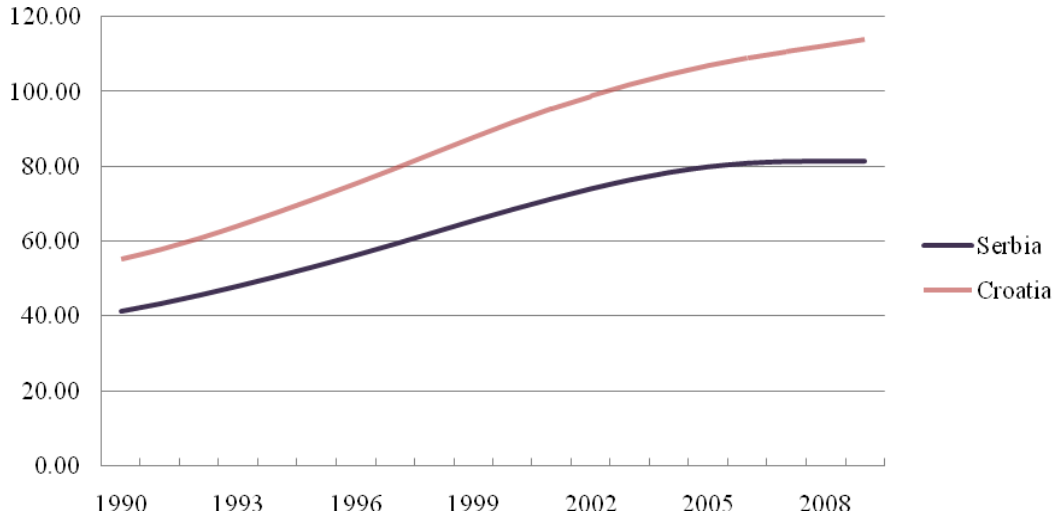


Source: Institut national d'etudes demographiques, Base de donnee des pays developpes

The prolonged sub-replacement fertility caused considerable and continuing decline of population. The depopulation triggers inevitably other process, population ageing. Population ageing refers to the shift in its age structure, from youthful towards an older one. The aging index of population as a measure of population ageing showed significant increase in the last two decades[2]. Notably, both countries by far exceeded the threshold for an old nation which is considered to be around 40, with Croatia having bigger share of old people compared to Serbia (see Figure 2). Rising aging index of population is a consequence of two important factors. Firstly, the fertility rate decline explained previously. Secondly, lower mortality in older ages. Apart from conflicts that accelerated fertility decline during 1990s, causes and factors of population aging in Serbia and Croatia are identical to those in developed countries in Europe.

[2] We calculate Aging index of population as a ratio of population older than 65 to population younger than 15 (data source: World Development Indicators)

Figure 2: Ageing population index in Serbia and Croatia, 1990-2009



Source: World Development Indicators

In the light of presented trends it is easy to conclude that in the absence of some radical change (e.g. dramatic increase of new immigrated people, which is rather unlikely on this level of economic development), in a given moment in future, these countries will fail to generate sufficient human resources to maintain (and increase) the level of its economic activity. Also, given the past and probable future brain drain countries will likely have problems with human capital structure, too.

3. EFFECTS OF CHANGES IN THE DEMOGRAPHIC STRUCTURE

Since the sub-replacement fertility has pervaded for many decades so far, after long period of steady growth working age population in Serbia and Croatia started falling at the end of the last century. The Figure 3 presents rough projections considering the number of working age people over a hundred year period starting from 1950 (Macura. M., 2010). The purpose of these projections is rather to illustrate expectable future scenario than to give precise absolute numbers. Apart from historical data, the projections after 2010 are based on the assumptions of gradual recovery of fertility (such as recently seen in Croatia) and zero migration. The normalization is obtained by dividing the numbers by the largest one and multiplying by 100. The data show that the century in question is truly specific and unique. After a sharp rise in working age population, we will witness a fearful fall. Precisely, not long after the middle of this century, both Croatia and Serbia will see nearly 1/3 of its maximum size of working population vanished. Consequently, a factor that used to foster economic growth will turn into its constraint.

Figure 3: Working-age population, Maximum = 100; 1950-2050

Source: Macura. M., (2010): "Economic growth, immigration and ethnic structure change in southeastern Europe: a look ahead", Economics of Enterprise, September-October

Another threat comes from recently liberalized cross-board movements. This certainly leads to higher mobility of labour factor in the medium or long run. For Serbia and Croatia this can be as dangerous as a deadly earthquake, causing its working age population (especially the most prosperous part) to halve. This is an already seen scenario. Namely, the case of Bulgaria testifies how emigration eats into the pool of labour of a country losing its people.

The problem of shrinking labour force in both countries will, however, remain out of agenda because of extremely low utilization of human resources. According to Labour Force Survey, in Serbia the employment rate in April 2010 is lowest ever recorded, it stands on 47.2 per cent (Statistical Office of Republic of Serbia). What is worse, the biggest decline happened in the groups 15-24 and 25-34 years old, in that order, which seriously puts on the danger of further brain drain from the country [3]. In the case of Croatia, according to the national Labour Force Survey in the same period the employment rate is even lower, around 41 percent (Croatian Department of Statistics). When it comes to unemployment, statistics are reversed, at least for 2010. More than 20 per cent of active working age population in Serbia were unemployed while in Croatia the unemployment rate oscillated around 13 per cent. This clearly indicates that Croatia has serious problems with huge percentage of inactive population (e.g. pensioners, disabled, those not actively seeking for a job etc), a problem inherited from the pre-crisis period, while Serbia struggles relatively more with low level of economic activity and structural problems that caused significant drop of the employment rate during the crisis (down to the lowest level since the beginning of the transition in 1989). To support this claim it is worth comparing the employment elasticity of the countries in the crisis. For almost the whole CEE region employment elasticity was 0.4 per cent on average. It means that the unemployment rate rose 0.4 per cent after each 1 per cent reduction of GDP. In Croatia this

[3] According to The Labour force survey the decline in the youngest part of working age population was 12.8 percent, while the population aged from 25 to 34 was reduces for 8.9 per cent.

parameter is 0.2 per cent. For Serbia it is 2.6 per cent[4]. Unfortunately, this is not all. Albeit the fact that 374 thousand people lost their job in Serbia, the number of unemployed people increased (only) for 140 thousand. It means that majority of those who lost their jobs went to inactive category[5].

These unfortunate facts provide space for future employment growth regardless the expected working age population decline. Hence, the labour constraints will not start hindering economic growth before these countries exhaust all the reserves among the unemployed and inactive population.

Despite the sharp decline of employed population, pension elasticity seems to be zero. Moreover, in October 2008 in Serbia pensions were increased for 10 percent and remained on that level till now. Yet, the total amount of pensions grew every year since the pension fund gets 30 thousand retired more each year, although the age threshold have been increased twice in the last seven years. Today, pensions account for 13.3 per cent of GDP, making Serbia comparable to developed OECD countries (Italy, for example). Only 55 per cent of all retirements are subject to the age and/or working age. What is worse, only 18 per cent of retired fulfilled working conditions for retirement. Around 25 per cent are retired due to disability (Pension and Disability Insurance Fund). This is an improvement in comparison to the 1990s when every third retired person was disabled. The former could be ascribed to the extreme level of corruption in that period.

In the case of Croatia situation looks only slightly better. The size of pension outlays is 10.2 per cent of GDP (Croatian National Bank). On the other side, 33.7 per cent of pensioners fulfilled retirement conditions, while about 20 per cent has less than 20 years of work.

With the growing number of old people and shrinking labour force, the deficit in the pension fund is inevitable. In Serbia, every year between 4 and 5 per cent of GDP is used to cover the lack of funds for pension financing. It is clear that current "pay as you go" system will not sustain for much longer in the future. Namely, contributions to the fund account for 22 per cent of the base. On the other side, the fund's outlays amount to 38.4 per cent of the contribution base. Hence, the contributions from the employed people cover less than 60 per cent of the fund's needs. The deficit is financed form the budget. In Croatia 20 per cent of gross salary is directed at pension funds compared to 36.9 per cent necessary to cover pension requirements. However, only 15% goes to the state-owned fund and 5% goes to the private owned funds which do not operate as a generation solidarity system, but as a way of saving and have not yet started to repay pensions in notable amounts.

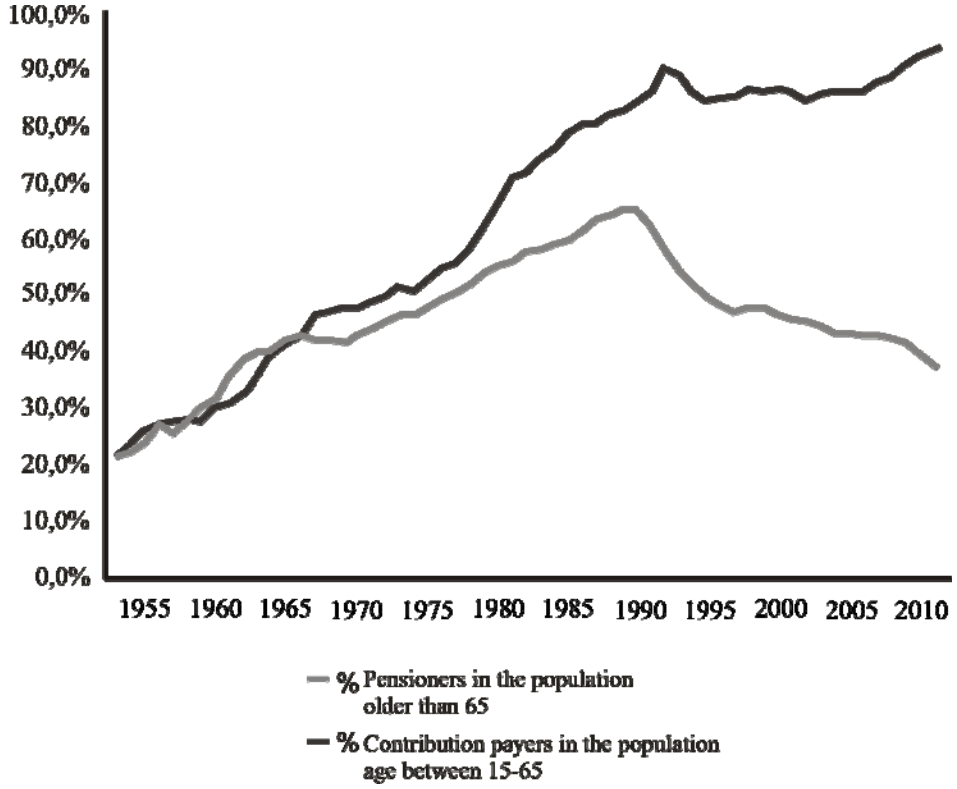
The high level of pension outlay rate (e.g. pension outlay relative to contribution base) is a consequence of two disadvantageous facts: 1) the systemic rate of demographic dependency (e.g. the number of pensioners relative to the number of employees), and 2) the ratio average pension to average gross salary (contribution base). The systemic rate of demographic dependency for Serbia is extremely high, 74.3 per cent, while average pension stands at 43.2 per cent of average gross salary, but it was reaching even 10 per cent higher level in the past (Kenici, 2009). Even in the worst case scenario, this factor is subject to change upon decision. The real problem lies in deep structural demographic deviations. Extremely adverse rate of

[4] *Quarterly Monitor of Economic Trends and Policies in Serbia*, issue 21, April-June 2010, Foundation for the Advancement of Economics

[5] The unemployed person is considered to be inactive if he or she has not undertaken anything to find another job for more than 4 weeks and thus does not count as unemployed anymore.

systemic demographic dependency in Serbia is a consequence of 1) high ratio of number of pensioners to number of people older than 65 and 2) alarmingly low ratio of those who pay in the contributions to the population aged between 20 and 64 (so-called "coverage rates"). For the year 2008, for example, the first ratio was almost 110 per cent, and the other went down to 47.4 per cent. In 2009 situation went from extremely bad to even worse. The Figure 4 shows the two coverage rates in the whole period since 1950. The ratio pensioners/older than 65 is calculated based only on the data for the pensioners belonging to the group "insured employees" (they account for around 80 percent of pensioners). Thus, the total numbers provide much worse conclusions.

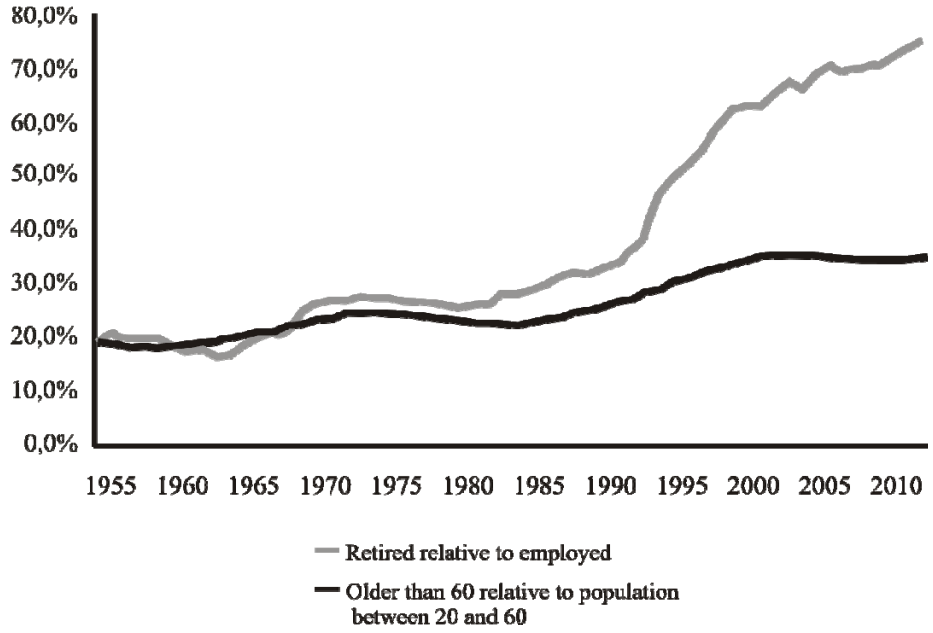
Figure 4: Coverage rates for the groups: older than 65 and aged between 20 and 64, Serbia



Source: Kenici.H. (2009) and Pension and Disability Insurance Fund, Republic of Serbia

It is observable that the gap between the two indicators becomes significant during 1990s. The gap is partially the result of aging population, but much more the result of the prevailing practice of pensioning people off in case of redundancy during the process of privatization through voluntary leave programs. That way, a huge portion of active population stopped working forever. Today, this trend prevails due to constantly rising unemployment rate. Previous can be displayed graphically, as shown below (see Figure 5). This time, we calculate demographic rate of dependency (e.g. population aged above 60 relative to population aged between 20 and 59), depicting the effect of aging population, and systemic rate of demographic dependency (explained previously). The figure undoubtedly demonstrates that the natural demographic movements had much less severe impact on current pension deficits than mistakes made during the process of privatization and systemic flaws. Evidentially, the two rates had almost the same movement until the 1980s. After that, and especially during 1990s, the systemic rate took much greater momentum. Today, it is more than a twice higher than demographic rate (71.5 compared to 32.3 per cent). It is expected that, in the absence of suitable actions, the systemic rate of dependency will continue to put huge pressure of pension deficit in the future.

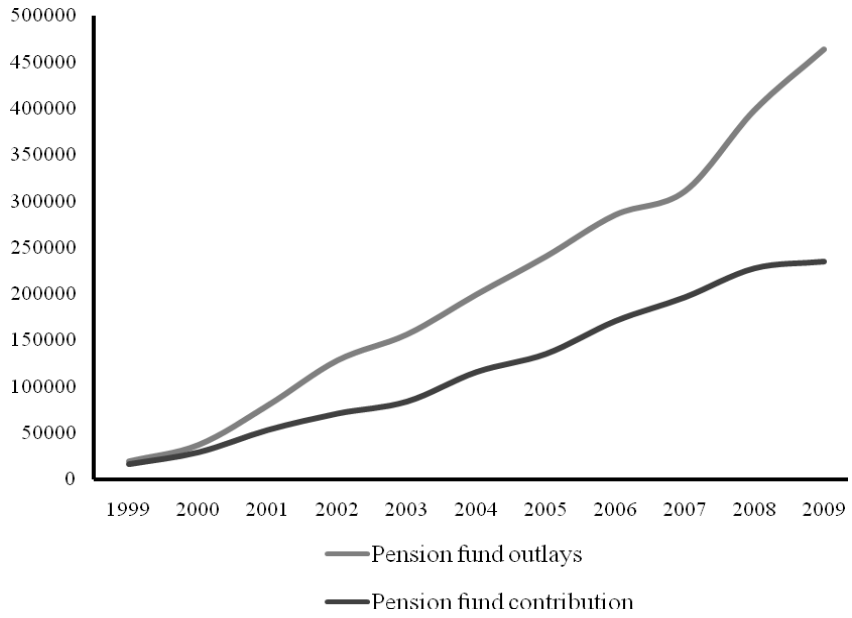
Figure 5: Demographic rate of dependency and systemic rate of dependency in Serbia



Source: Kenici.H. (2009) and Pension and Disability Insurance Fund, Republic of Serbia

As mentioned previously, the net outlays for the pension fund amounts to 4-5 per cent of GDP. This is the amount that has to be raised from taxes or by public borrowing every year in order to mask the failing "pay as you go" order. The net effect of all the analyzed indicators can be observed on the Figure 6 showing the gap between the total contributions to the pension fund and required outlay. The level up to the dark grey line is what working people in Serbia pay directly to the pension fund. The rest up to the light grey line is what people in Serbia pay latently and indirectly. As mentioned before, the size of the pension gap is between 4 and 5 per cent of GDP (Pension and Disability Insurance Fund). Distressingly, it is exactly the size of Serbia's budget deficit.

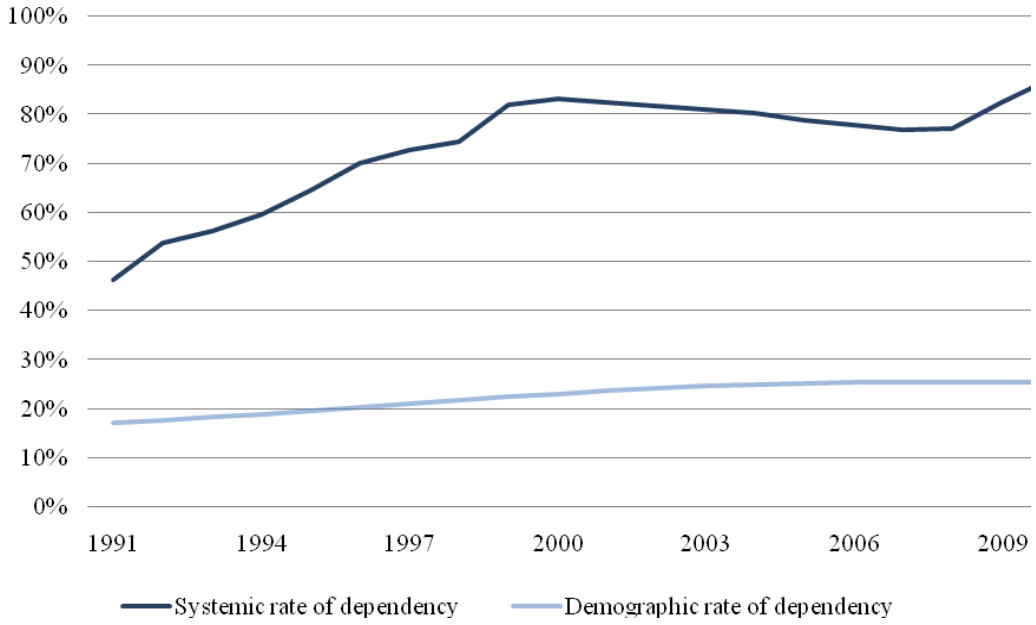
Figure 6: Pension fund deficit in Serbia



Source: Pension and Disability Insurance Fund, Republic of Serbia

Although we are lacking data to make comparable analysis for Croatia, there are reasons to believe that situation is not much better. For example, average pension in 2009 in Croatia amount to 44.7 per cent of average gross salary (compared to 43.4 in Serbia), while systemic rate of demographic dependency stands at 87.43 per cent (compared to 73.4 per cent). The gap between demographic rate of dependency and systemic rate of demographic dependency can also be illustrated but only for the last two decades (see Figure 7).

Figure 7: Demographic rate of dependency and systemic rate of dependency in Croatia



Source: Hrvatski fond za mirovinsko i invalidsko osiguranje, Državni zavod za statistiku

As in the rest of the Europe, serious demographic deviations in Croatia and Serbia are a consequence of two main factors: low fertility and longer expected life (lower mortality in older age). Yet, population aging has one more cause, young people emigration.

The available data indicate that the economic migration in the whole region speeded up in the last two decades. In 2005, for example The State Union of Serbia and Montenegro (the last compound state made of former Yugoslav republics) had more emigrants than any other country in South Eastern Europe, almost 2.3 million. On the side of push factors, the most salient are general living conditions and working conditions. People always want to leave away from poverty and political conflict. The most important pull factors are, noticeably, higher salaries, quick and efficient career pipeline, better safety and overall life conditions.

During the 1990s war both countries had positive net migration which is the consequence of extremely high refugee influx. After 1995, emigration and brain drain processes commenced. In the case of Croatia, it is evident that better living conditions and higher life standard along with process of integration with the EU managed do slow down further population erosion. Namely, in the period 1995-2000 the net migration amounted to approximately -160000 people, while in the following five years the balance is less unfavorable, it comes to – 12896. In the case of Serbia, same factors (this time in negative context) caused emigration from the 1990s to exacerbate. Precisely, in the period 1995-2000 the net migration was -147889, while during period 2000-2005 it increased up to a -338544 level. Among the rising number of

emigrant in the last decade, number of those who are "with extraordinary ability/achievement" rose even more every year.

In terms of human development and public welfare, the costs of economic migration from the country in the previous period are incalculable. Moreover, there are signal that maybe both countries should prepare for even worst conditions. Namely, according to the calculations made by UN, working population in EU reached its peak in 2005. No tendency of natural increase at all is expected in the future, which means it is only going to decline. Hence, in 2050 EU will lack more than 62 million of worker compared to 1995. This EU's lot will bring no better life to less developed countries since the absorption of emigrants by the EU will consequently go up. This is likely to accelerate further depopulation in Serbia and Croatia.

Having all previously mentioned in mind it is easy to imagine future development of situation. For some time the problem will not escalate (unfortunately) thanks to under utilization of human resources, but in few decades contraction in labour pool due to demographic anomalies (depopulation and brain drain at the first place) will commence hampering further economic growth of the country. It is unimaginable to have even 2 or 3 per cent GDP growth with by far greater rates of employment contraction.

4. GROWTH ACCOUNTING AND INVESTMENT RATE

In the following part of the paper we jump to the empirical analysis of the demographic projections in Serbia and Croatia and its impact on production. According to the neoclassical theory, production depends on the levels of capital and labour. Hence, if projections show that labour is to decline, then the capital should increase. The only way to increase the level of capital is through investment, which is the part of gross domestic product. The aim of this analysis is to show what is the amount by which investment-GDP ratio should increase in order to maintain the previously mentioned 2% GDP growth rate.

At the beginning we assume the basic Cobb-Douglas production function at a certain time t_0:

$$Y_0 = A_0 K_0^{\beta} L_0^{1-\beta} \qquad (1)$$

where Y represents a gross domestic product, A is a total factor productivity, K is the amount of capital, L is the amount of labour and β is a contribution of capital. It is also assumed that returns to scale are constant (doubling the amount of inputs doubles production), which is a logical assumption. Hence the contribution of labour is given with (1-β).
Having these assumptions, a production function at a following time t_1 would be:

$$Y_1 = A_1 K_1^{\beta} L_1^{1-\beta} \qquad (2)$$

There is also a change between the levels of labour, capital, production and total factor productivity between any two periods:

$$Y_1 = \gamma \cdot Y_0 \qquad (3a)$$

$$K_1 = \kappa \cdot K_0, \quad L_1 = \lambda \cdot L_0, \quad A_1 = \alpha \cdot A_0 \qquad (3b)$$

where γ, κ, λ and α represent the change coefficient between the base and the final period. By putting (1) and (2) in (3a) the following expression is obtained:

$$A_1(\kappa \cdot K_0)^{\beta}(\lambda \cdot L_0)^{1-\beta} = \gamma \cdot A_0 K_0^{\beta} L_0^{1-\beta} \tag{4}$$

Then, (3b) → (4):

$$\alpha A_1 \kappa^{\beta} K_0^{\beta} \lambda^{1-\beta} L_0^{1-\beta} = \gamma \cdot A_0 K_0^{\beta} L_0^{1-\beta} \tag{5}$$

Which brings:

$$\alpha \kappa^{\beta} \lambda^{1-\beta} = \gamma$$

And finally, the coefficient of the capital change is obtained: (6)

$$\kappa = \frac{\gamma^{\frac{1}{\beta}}}{\alpha^{\frac{1}{\beta}} \cdot \lambda^{\frac{1-\beta}{\beta}}} \tag{7}$$

if between t_0 and t_1 there are n periods, and if instead of expressing κ, a capital growth rate g_K (a percentage change of the levels of capital) is introduced, then we get:

$$g_K = \left(\sqrt[n]{\kappa} - 1\right) \cdot 100 = 100\left(\sqrt[n]{\frac{\gamma^{\frac{1}{\beta}}}{\alpha^{\frac{1}{\beta}} \cdot \lambda^{\frac{1-\beta}{\beta}}}} - 1\right) \tag{8}$$

In the following three expressions one substitutes all the growth coefficients with the corresponding growth rates:

$$g_Y = \left(\sqrt[n]{\gamma} - 1\right) \cdot 100 \text{ (GDP growth rate)} \tag{9}$$

$$g_A = \left(\sqrt[n]{\alpha} - 1\right) \cdot 100 \text{ (Total factor productivity growth rate)} \tag{10}$$

$$g_L = \left(\sqrt[n]{L} - 1\right) \cdot 100 \text{ (Labour growth rate)} \tag{11}$$

(9), (10) and (11) →(8)

$$g_K = 100\left(\sqrt[n]{\frac{\left(\frac{g_Y}{100} + 1\right)^{\frac{n}{\beta}}}{\left(\frac{g_A}{100} + 1\right)^{\frac{n}{\beta}} \cdot \left(\frac{g_L}{100} + 1\right)^{\frac{n(1-\beta)}{\beta}}}} - 1\right) \tag{12}$$

Which gives the expression for the capital growth rate:

$$g_K = 100\left(\frac{\left(\frac{g_Y}{100}+1\right)^{\frac{1}{\beta}}}{\left(\frac{g_A}{100}+1\right)^{\frac{1}{\beta}}\cdot\left(\frac{g_L}{100}+1\right)^{\frac{(1-\beta)}{\beta}}}-1\right) \quad (13)$$

Previously we said that the only way to increase the level of capital is through investment. The change of capital in a simplified form is the equation (14);

$$\Delta K = I - \frac{\delta}{100}K_{t-1} \quad (14)$$

It shows that the change in the level of capital depends on both depreciation level and investment.

Since $I = \frac{i}{100}Y$, where i is the percentage of GDP that is invested, we get:

$$\Delta K = \frac{i}{100}Y - \frac{\delta}{100}K_{t-1} \quad (15)$$

Since $\Delta K = K_t - K_{t-1} \Rightarrow K_{t-1} = K_t - \Delta K$ (16)

(16) → (15):

$$\Delta K = \frac{i}{100}Y - \frac{\delta}{100}\left(K_t - \Delta K\right)$$

The rearrangement of the variables is as follows: (17)

$$\Delta K = \frac{i}{100}Y - \frac{\delta}{100}K + \frac{\delta}{100}\Delta K \quad (18)$$

$$\Delta K - \frac{\delta}{100}\Delta K = \frac{i}{100}Y - \frac{\delta}{100}K \;\big|:K \quad (19)$$

$$\frac{\Delta K}{K}\left(1-\frac{\delta}{100}\right) = \frac{iY}{100K} - \frac{\delta}{100} \quad (20)$$

A change of capital over the absolute amount of capital gives the capital growth rate, and *K/Y* is a capital coefficient *k*:

$$\frac{g_K}{100}\left(1-\frac{\delta}{100}\right) = \frac{i}{100k} - \frac{\delta}{100} \;\big|\cdot 100 \quad (21)$$

$$g_K\left(1-\frac{\delta}{100}\right) = \frac{i}{k} - \delta \;\big|\cdot k \quad (22)$$

$$k \cdot g_K \left(1 - \frac{\delta}{100}\right) = i - \delta \cdot k \tag{23}$$

The rearrangement gives the expression for the share of the investments in GDP when k, δ and g_K are known:

$$i = k \cdot g_K \left(1 - \frac{\delta}{100}\right) + \delta \cdot k \tag{24}$$

Since g_K is obtained in (13), the final expression is as follows:

$$i = k \cdot 100 \left(\frac{\left(\frac{g_Y}{100} + 1\right)^{\frac{1}{\beta}}}{\left(\frac{g_A}{100} + 1\right)^{\frac{1}{\beta}} \cdot \left(\frac{g_L}{100} + 1\right)^{\frac{(1-\beta)}{\beta}}} - 1 \right) \left(1 - \frac{\delta}{100}\right) + \delta \cdot k \tag{25}$$

The equation (25) gives the final formula needed for calculation of the required investment – GDP ratio, knowing the technical coefficient β, total factor productivity growth α, depreciation rate δ, capital coefficient, GDP growth rate, capital growth rate and labour growth rate.

5. RESULTS

Knowing the formula (25), all we need are the data for its calculation. Gylfason (1999) and Kose, Prasad, Terrones (2008) assume that β = 1/3. Let us assume the unchanged total factor productivity, β = 1/3, δ = 6%. Kose, Prasad, Terrones (2008) have also empirically proven that the majority of the countries has the annual depreciation rate of 6%. Furthermore, the formula in (25) needs k as well. Kaldor (1957) has assumed that *k* is roughly constant and Snowdon and Vane (2005) (as well as Acemoglu (2009)) have exhibited some analyses in which it is around 3. Hence k = 3 is used.

The UN population projections for Serbia and Croatia provided by Macura (2010), as well as the data from World Development Indicators, EuroStat and Statistical Office of Republic of Serbia set the base for the calculation made in the following Table 1:

Table 1: Optimistic and Pessimistic Scenario for Labour Force by 2050 in Serbia and Croatia

year: 2009	Labour participation rate, total (% of total population ages 15+)	Decrease in 15+ population 2010-2050	Labour force 2050, fixed partici-pation rate	Labour force 2050, EU partici-pation rate	Labour growth rate (fixed partici-pation rate)	Labour growth rate (EU partici-pation rate)	i (invested GDP ratio)	Needed - actual investment ratio
Serbia	48,9%	37,8%	62,2%	72,8%	-1,2%	-0,8%	20,0%	11,0%
Croatia	53,0%	41,0%	59,0%	63,7%	-1,3%	-1,1%	26,7%	6,2%
European Union	57,3%	-	-	-	-	-		

Source: Državni zavod za statistiku, Statistički zavod Srbije, World Development Indicators, Eurostat and own calculation

This analysis provides the change in the labour force in Serbia and Croatia in the period from 2009 – 2050. There are two scenarios in Table 1: in the first one, the level of activity is held constant for both Croatia and Serbia, while in the second scenario, a optimistic one, the level of activity is assumed rise to the level equal to the current labour participation of European Union. The projections show that in the observed period labour force is to decline by 0,8% - 1,2% in Serbia and by 1,1% - 1,3% in Croatia.

Table 1 gives the final input for the formula (25). Now we are able to calculate the required investment proportion in order to maintain some minimum growth rate equal to 2% in the period 2009 – 2050. There are also two scenarios in this case: in one of them, total factor productivity remains constant, while in the other one it would have an annual growth of 1%. Using formula in (25), the data in the Table 2 are obtained:

Table 2: Several Scenarios for the required I/GDP ratio in period 2010 – 2050 for Serbia and Croatia

year: 2009 investment ratio needed to maintain GDP growth rate at 2%, having k = 3, δ = 6% and β = 1/3	**Annual Labour Growth Rate**			
	Croatia		Serbia	
	-1,3%	-1.1%	-1,2%	-0,8%
European Union	34,0%	32,9%	33,3%	31,0%
57,3%	43,1%	41,9%	42,3%	39,9%

Source: Državni zavod za statistiku, Statistički zavod Srbije, World Development Indicators, Eurostat and own calculation

It is shown that even in the best option the investment should be not less than 32,9% or 31%, for Croatia and Serbia respectively. However, the Table 1 shows that Croatia and Serbia had investment-GDP ratio of only 26,7% (Croatia) and 20% (Serbia). It means that Serbia should redirect 11% of its GDP to investment, while Croatia should redirect 6,2% into investment, only to substitute for the loss of the labour force and to have at least 2% GDP growth.

Since there are many assumptions in the example above, the exact numbers should not be taken into account precisely, but the analysis shows that huge changes in policies are to be made in order to overcome the population loss and to follow the development pace of the developed countries. Otherwise, poverty and related social problems are to be expected.

6. CONCLUSION

The analysis of the demographic structure of Croatia and Serbia presented in the first three parts of this paper show the current state and the future projections. It is shown that both countries suffer from very similar and very serious demographic and related economic problems: poor activity rate, high unemployment and disastrous worker/pensioner ratio, as well as the decline of labour force in the following 40 years by more than 35%. These analyses implicate very serious scenarios in the absence of the adequate economic policies.

There are several ways for overcoming detrimental population situation in Serbia and Croatia:

- Immigration in the near future, which brings the undesired cultural shocks,
- Population policies which induce higher birth rates (very expensive and hard to implement) and
- Capital substitution of labour.

The last option is analyzed in detail and results show that Croatia and Serbia should significantly rise their investments in order to remain on the growth path: Croatia should increase the share of investment in GDP by more than 6 percentage points, while Serbia has to increase investments by 11 percentage points, if they want to maintain at least 2% GDP growth rate. In the case of ignoring the present situation, without taking into account the above presented options, Serbia and Croatia will fail to maintain even the minimum GDP growth and decline economically even further.

BIBLIOGRAPHY

Acemoglu, D. (2009): **Introduction to Modern Economic Growth**, San Francisco: Princeton Press

Aghion, P. and P. Howitt (2009), ***The Economics of Growth***, Cambridge, MA: The MIT Press.

Akrap, A. (2005): **Demografsko stanje, trendovi, perspektive i nužnost provođenja populacijske politike u Republici Hrvatskoj**, *Hrvatski časopis za javno zdravstvo* (1845-3082) Vol I (2005), Br. 2; 2-12

Barro, R, and Xavier Sala-i-Martin (2004), ***Economic Growth***, 2nd edition, New York: Mc Graw Hill.

Croatian Department of Statistics (www.dzs.hr), [Accessed 15.2.2011]

Coleman, D. (1996): **Europe's Population in the 1990's**, New York: Oxford University Press

Domar, E.D. (1946), **Capital Expansion, Rate of Growth, and Employment,** *Econometrica***,** 14, 137-147

Frejka, T., Sobotka, T., (2008): **Fertility in Europe: Diverse, delayed and below replacement,** *Special collection 7: Childbearing Trends and Policies in Europe, Demographic Research*, Vol 19.

Grecic, V. (2009): **Mlada emigracija kao factor starenja populacije**, *Economic Annals*, n.183, p. 123-142

Harrod, R.F. (1939), **"An Essay in Dynamic Theory",** ***Economic Journal,*** 49, 14-33

Helpman, E.(2004), ***The Mystery of Economic Growth***, Cambridge, MA:Harvard University Press

Institut national d'etudes demographiques, Base de donnee des pays developpes, www.ined.fr/fr/pop_chiffres/pays_developpes/base_pays_developpes/ [Accessed 11.2.2011]

Kenici.H. (2009): **Izveštaj o reformama penzionog sistema u Srbiji: izazovi i pravci reformi**, in: ***Conference on pension reforms***, Belgrade, September 24-25 2009

Kose, M.A. and E. S. Prasad and M.E Terrones (2008), **Does Openness to International Financial Flows Raise Productivity Growth?,** International Monetary Fund, Working Paper**,** WP/08/242

Labour Force Survey , www.dzs.hr/Hrv/system/first_results.htm, [Accessed 15.2.2011]

Labour Force Survey, n. 180, April 2010, Statistical Office of the Republic of Serbia www.stat.gov.rs, [Accessed 9.2.2011]

Macura, M. (1982): **Fertility decline and the Emergence of Low Fertility in Yugoslavia**, *The Population Renewal Issue and Population Policy*, Belgrade: Economic Institute

Macura. M., (2010): **Economic growth, immigration and ethnic structure change in southeastern Europe: a look ahead**, *Economics of Enterprise*, September-October , p. 251-260

Mishkin, F.S. (2005), **"Is Financial Globalization Beneficial?", *NBER Working paper Series,*** WP 11891

Pension and Disability Insurance Fund, Republic of Serbia, www.pio.rs, [Accessed 16.2.2011]

Quarterly Monitor of Economic Trends and Policies in Serbia, issue 21, April-June 2010, Foundation for the Advancement of Economics

Snowdon, B., Vane, Howard R (2005): **Modern Macroeconomics, Its Origins, Development and Current State**, Cheltenham: Edward Elgar

Solow, R.M. (1957), **"Technical Change and the Aggregate Production Function", *Review of Economics and Statistics*,** 39, 312-320

Statistical Office of Republic of Serbia (www.rzs.rs), [Accessed 14.2.2011]

World Development Indicators (available at www.wdi.int), [Accessed 13.2.2011]

World Health Organization (available at www.who.int), [Accessed 10.2.2011]

RETHINKING THE ROLE OF THE STATE IN A CAPITALIST ECONOMY: LESSONS OF THE LAST CRISIS

Yuri Yevdokimov
University of New Brunswick/Department of Economics
7 MacAulay Lane, Fredericton, NB, Canada E3B 5A3
Phone: +1-506-4473221; Fax: +1-506-4534514
E-mail: yuri@unb.ca

Mikhail A. Molchanov
St. Thomas University/Department of Political Science
51 Dineen Drive, Fredericton, NB, Canada E3B 5G3
Phone: +1-506-460-0353; Fax: +1-506-460-0330
E-mail: molchan@stu.ca

Key words: *Capitalism, crisis, state intervention, Laissez faire, fiscal and monetary policy*

ABSTRACT

Recent financial and economic crisis has raised the question about validity of capitalism. As financial markets collapsed and instances of corporate fraud proliferated, the largest market economies of the world – the USA and the EU – went into a deep recession. Demonstrated inability of the market mechanisms to lead economies out of recession has led observers to speak of the unprecedented, systemic character of the crisis. In contradistinction to previous crises, the methods used to halt and reverse the most recent recession have been all based on active state intervention. The scope and scale of this intervention has been unheard of since the Great Depression. The character of the recent state's activism in Europe and America alike defies comparison to less dramatic cyclical disturbances. The size of fiscal stimulus packages, the range of monetary instruments used, and the very character of the state intervention in business practices have all been exceptional.

Parallel to that, the state-regulated economy of the People's Republic of China proved to be more resilient to the negative impact of the global crisis than a number of free market economies. Moreover, such large market economies as Canada, Australia, New Zealand, India, and Brazil benefitted from the historically stronger public regulatory policies and managed to weather the crisis better than their less regulated counterparts. The main lesson of the 2007-2009 crisis seems to be that market economies with a relatively large degree of state regulation or with regulation more effectively focused on key economic areas can manage both internal and external macroeconomic shocks better than laissez-faire economies. It is plausible that comparatively heavier regulated systems can be "taught" to withstand crises and operate more efficiently than comparatively under-regulated systems.

1. INTRODUCTION

The 2008-2009 financial and economic crisis, spreading from the USA to the continental Europe and further afield, affected much more than economies and finance of the developed world. It has become the first crisis of global capitalism – not only its three "core" areas of

North America, Europe and Japan – but also regional and global institutions that these three centres had created to service their needs. The overall structure of international trade and finance changed, and the total volume of market-mediated transactions shrunk, yielding space to business transactions initiated, and mediated by the national governments. According to the WTO (2010) estimates, the global economic crisis resulted in a 12.2% decline in the volume of global trade — the largest loss of trade since the 1930s.

In spite of the "official" ending of the crisis in 2010, there are few signs of the US economy getting on its feet. Both the US and countries of the European Union seem to be in the grips of a protracted recession. While China and India grew, most other emerging economies contracted. The talks of "zombie capitalism," "zombie banks," and the like underscored the almost complete loss of the laissez-faire optimism (Hall 2011). In a rather unprecedented for a market economy development, profit taking and performance incentives across the range of industrial sectors – from the automotive to the banking – became the subject of a political debate and state regulation. While the specter of communism failed to materialize, state capitalism made a looming appearance that both intellectuals and policy makers could not fail to notice. No nation affected by the crisis chose to rely on any version of the neoclassical approach to stabilize the economy. Amazingly, from Europe to Japan and from Russia to Brazil the so-called Keynesian approach prevailed. The stimulus package put together by the Chinese government ($586 billion over two years) was closely followed by Japan ($568 billion). The Bush administration's $170 billion in stimulus measures have since been dwarfed by President Barack Obama's $814 billion stimulus package. In all of these cases, it was the state, not the "catallactic" (F. von Hayek) markets that policy makers used to stabilize the economy.

Does this mean the definitive death of neoliberalism as a metanarrative of economic development and the motor of policy? Does state capitalism provide a better mold for the market economy? Or is it really not only most recent, but also the last, final stage in evolution of the world capitalist system, the first step toward "the most comprehensive socialization of production," as revolutionary Marxists would have had it after Lenin?

The present debate on the historical lessons of the last crisis cannot but raise the question of the essential characteristics of capitalism and, hence, its scholarly definition. Was the idea of capitalism itself questioned by the crisis – or was it just the problem of its inefficient, faulty implementation? Are some varieties of capitalism better equipped to withstand systemic shocks and "human errors" that may well threaten the very viability of the system? What should be the proper mix of monetary and fiscal policies that are called forth to alleviate the crisis? What should be the state's policies to prevent, postpone, or temper future recessions of the same or similar nature?

We start our discussion of the problem by taking stock of the available definitions of capitalism in an attempt to clarify its essential features. Our purpose here is to elucidate what some commentators call the "proper" nature of the relationship between the state and the market. We then continue by examining the question of how the last crisis exposed inadequacy of the classic capitalism model. Here, we shall focus specifically on the model's underlying assumption of fully rational individualistic behavior. While criticizing this assumption, we defend what we see as its alternative – a systems approach to the problem. Finally, we illustrate this approach with a case study of fiscal and monetary policies during recession.

2. DEFINING CAPITALISM

Much of the present debate converges on the notion of capitalism. Has the last crisis shown us that regulatory capitalism failed? Will neoliberal capitalism's free-for-all policy prescriptions inevitably lead to self-destruction? Did the European neocorporatist, or Nordic models fare any better than the Anglo-Saxon pluralist model of capitalism in preventing, containing, and overcoming crisis-caused dysfunctionalities, and if not, does the "varieties of capitalism" literature still hold water?

To be able to even approach these issues, we need to agree on some working definition of capitalism as such. There is no consensus on the precise definition of capitalism, nor how the term should be used as an analytical category. Economists, political economists and historians have taken different perspectives on the analysis of capitalism. Economists usually emphasize the fact that government does not control either markets or property rights (see, for example, Tucker 2004; Case 1997). Most political economists emphasize private property, power relations, wage labor and class. On the one hand, modern capitalism is defined as economy of a mixed type "which has a tendency toward the free-market extreme" (Craig Smith 1990: 15). The Columbia Encyclopedia insists that capitalism "is grounded in the concept of free enterprise, which argues that government intervention in the economy should be restricted and that a free market, based on supply and demand, will ultimately maximize consumer welfare" (Capitalism 2010). Here, the notion of capitalism is essentially synonymous with the notion of market economy, and the market economy is presumed to be essentially unrestricted by the government.

On the other hand, critics charge that "the concept of capitalism is not equivalent to the concept of market economy since it also refers to the study of social relations and dynamic patterns of evolution" (Boyer 2007: 2). Karl Marx described capitalism as the system of production and exchange based on the free sale of labor power as a commodity. Since the worker under capitalism is permanently alienated from the means of production, the juridically free exchange that happens between the worker and the capitalist is, in fact, structurally imposed on the worker. Thus, capitalism is an economy that goes beyond simple exchange of values that any (including pre-capitalist) market economy would imply. Capitalism necessitates commodification and market exchange of labor itself.

The confusion as to the exact nature of relationship between capitalism and the market extends further to a related problem of "proper" relationship between capitalism and the state. Marx's own writings on the "bourgeois state" range from the idea of the state as a committee to manage the collective affairs of the capitalist class to the idea of the state as an instrument of labor's exploitation and enslavement by the capital to the acknowledgement of a possibility of complete independence of the state apparatus from the collective desires of the capitalist class. Adam Smith, in spite of the market anarchist aura attached to him, has consistently argued for the state's activist role in the economy, suggesting, in *The Wealth of Nations* (Book V, Chapter I, Part III) the necessity of "erecting and maintaining those public institutions and those public works, which though they may be in the highest degree advantageous to a great society, are, however, of such a nature, that the profit could never repay the expense to any individual, or small number of individuals."

We should therefore disagree with an idea that any identifiable threshold that might separate the "classic capitalist" from the "non-capitalist" or "postcapitalist" methods of state regulation of, and intervention into, the economy can be reasonably pinpointed:

> Although the political-economic systems that Western nations actually employed involved little state ownership of the means of production (the classic definition of socialism), they did involve levels of government regulation that were incompatible with the classic definition of capitalism (Bradley Jr. & Donway 2010: 72).

Sweeping statements such as these tend to leave the question of the acceptable "levels of government regulation" deliberately underspecified. The "classic capitalism" then becomes an ideal-typical construct in both form and substance – something that exists in theory, but not necessarily in reality; something that refers to the ideal of a self-regulating market in deliberate avoidance of the question of its institutional and political embeddedness.

The capitalist ideal, in the neoclassical or Austrian schools of political economy, is essentially the system that combines spontaneous market order and private ownership of the means of production. The institutional envelope that such a reading is prepared to entertain is usually limited to the property and contract law. All forms of state regulation or intervention beyond the protection of property rights and contract enforcement are thoroughly eschewed.

The really existing capitalism is, of course, different. It has to deal with multiple problems that the spontaneous market order cannot resolve on its own. Systemic market failures and imperfections can only be resolved from outside the system, through the concerted efforts of society or its appropriately authorized agents. The government-led market interventions become inevitable when the very nature and/or the scope of the problem push it beyond the reach of individual market actors. The latest global crisis may serve a good example of the latter.

3. HOW CRISIS EXPOSED INADEQUACY OF CLASSIC CAPITALISM

Paul Krugman noted that the real reason behind the failure of neoclassical economics to explain and handle the recent crisis was its inability to account for the apparent irrationality of the markets. This criticism rings especially true when the financial markets' behavior is made the subject of an unbiased analysis. In economics, rationality is associated with the following features:

- Utility is discounted over time in a consistent way
- People have access to all relevant information
- All relevant information is expressed through market prices
- People can instantly weigh up the change in utility given by any buying or selling decision
- People act to maximize their utility

In financial sector we often observe what may be termed as irrational behavior, which shows itself as waves of optimism and pessimism, greed and fear. And when these waves of greed and fear, optimism and pessimism become excessive, rational behavior disappears, and we are left with the so-called crowd behavior. As a direct result of the crowd-like phenomenon of uncritical optimism as to the future behavior of the markets, different types of economic "bubbles" appear. Conversely, if markets start sending negative signals, the mob-like panic reactions may ensue, leading to capital flight and, if unchecked, eventual collapse of the markets.

However, what recent crisis has shown us is that humans are neither fully rational nor psychologically unbalanced. At a given point in time, they make their best guesses and use trial and error method to find the best strategy. If one strategy fails, they try another. If it works, they stick with it. It means that this type of behavior is logical but hardly fully rational. And why is that? In financial markets, asymmetric information, incomplete markets, time inconsistency and high uncertainty are all too real at any given point in time. It means that environment in which people make their "rational" decisions changes over time, and people make mistakes when adapting. Therefore, with passage of time old strategies become obsolete and new ones are called for. This is a dynamic process of decision-making which evolves and changes over time. The so-called behavioral economics tries to address this type of behavior of economic agents, taken as real-world persons and business entities, which is something quite different from the sterile picture of idealized rational behavior, which has been propagated by mainstream economics.

In fact, ideal-typical representations of individualistic behavior of market agents based on the invisible hand paradigm violate principles of the so-called systems approach. From a mathematical standpoint, it is possible to distinguish between user's optimum and system's optimum. Invisible hand paradigm produces user's optimum, since selfish independent agents care for themselves while maximizing utility and profits. However, user's optimum is almost always suboptimal. In real sector, this is not a big deal, and individualistic behavior in many cases leads to efficient equilibrium. However, it is not the case in financial sector.

Let us take a look at how the last crisis influenced the dynamics of the so-called systemic risk. At the time of recent financial crisis a lot of risk managers in financial firms believed their risk was perfectly controlled. However, in order to evaluate systemic risk and to see aggregate picture they needed to know what everyone else was doing. When their models based on rational individualistic behavior and efficiency of markets started telling them to sell, they all did, driving prices further down and triggering further model-driven selling.

In such a case, an imaginary "system administrator" or, rather, regulator could have changed the process, if this regulator saw the aggregate picture. And when we talk about regulator in financial sector, we usually refer to Central Bank. However, mainstream macroeconomics defines the role of Central Bank as the one associated with monetary policy, which, in turn, targets money supply, interest rate and exchange rate. We call these indicators monetary aggregates. At best, regulator defines some targets for these aggregates and uses open market operations to achieve these targets. Unfortunately, systemic risk is not a part of conventional monetary policy.

Where does it lead us? Recent financial and economic crisis showed that a capitalist system needs a systems approach. Classic capitalism is fine when there are no market failures and imperfection. However, real world is full of them, and only systems approach can address these failures and imperfections in consistent way. Therefore, it is necessary, first, to identify the areas in which such systems approach is beneficial from a social viewpoint. For example, stability of financial markets is definitely one of these areas, since it underlies basic functioning of a capitalist economy. Financial markets do not have to function on their own, producing new financial products for the sake of market activity, but should rather serve the real sector of economy - the one that defines the wealth of nation.

This is just one example of the systems approach and, of course, it is possible to find more. However, the point is: For a capitalist economy to develop without deep crises it should be

refined on the basis of the systems approach. In doing so, new type of ideology should be introduced to replace exaltation of pure individualistic behavior, and this is the new task of economists and political scientists for the years to come. In order to illustrate some elements of the systems approach from a macroeconomic viewpoint, let us take a closer look at fiscal and monetary policy applied by developed economies to overcome recent crisis.

4. FISCAL AND MONETARY POLICY DURING RECENT CRISIS

The United States and the European Union - two largest market economic systems in the world - were hard hit by the crisis. As a result, they used a variety of economic tools to, first, mitigate the impact of the crisis and, later, to fine-tune the economies on their way to recovery. Both the USA and the EU developed and applied fiscal and monetary stimulus packages to fight the very real prospect of a prolonged recession. Three years later, we can draw first conclusions and identify first lessons learned from these actions. Such an exercise is useful from both theoretical and practical standpoints. Practically, the lessons learned will help prevent future crises. Theoretically, the assessment of governments' actions and their systemic impacts on the economies in question will shed much needed light on the shortcomings of the mainstream economic analysis. It will also provide new material on resiliency, or the lack thereof, of different capitalist states to the economic and financial shocks that shook the capitalist system to its core. This new evidence can influence the debate on relative merits of the different varieties of capitalism.

4.1. History of economic thought regarding recessions

In history of economic thought, there are two competing views on the proper relationship between the state and the market, or, more specifically, on the government's proper role in periods of economic instability and crises:

(i) Classical (later neoclassical and new classical) view, and
(ii) Keynesian (later new Keynesian) view.

According to the first view, government does not have to intervene, and markets can do the job on their own. During recessions, when aggregate demand decreases adjustment in wages and prices leads to a new equilibrium which is economically efficient with all real macroeconomic variables unchanged. Classical approach is based on the so-called built-in stabilizers of market economies which eventually work through flexible price-wage mechanism. Austrian school of economic thought takes extreme view within this approach stating that everything (all goods and services) should be provided through free markets, and government is just a group of bureaucrats who can make things only worse. Active role of the government is completely rejected by this view.

According to Keynesian view, during recessions economy is out of equilibrium and can stay that way for a while. Keynes argued that in the short-run prices are fixed (later new Keynesians replaced fixed prices by sticky or sluggish prices), and any decrease in aggregate demand leads to disequilibrium. Moreover, any decrease in wages and prices at that time could make things even worse. This view accepts that, in the long-run, market economy can recover from a recession on its own, but it would take a long time, and it would be too painful. Instead, the so-called demand side management is proposed to fine-tune the

economy. Demand-side management is based on fiscal and monetary stimulus, which is discussed in more detail below.

While this theoretical debate between the two predominant schools in economic science has been going on for more than seventy years, amazingly, all developed economies during the latest crisis acted according to the Keynesian view! Therefore, let us take a closer look on the demand-side management approach that Keynes advocated.

4.2. Fiscal policy during recession

In general, when a recession occurs people become scared of future uncertainty, and they reduce their spending on consumer goods and services. In a market economy, consumption accounts for 2/3 or 66% of the gross domestic product (GDP), and therefore, reduction in consumption decreases aggregate demand significantly. Since demand is lower, producers cannot sell their products, and they accumulate inventories. Eventually they have to reduce their level of production and the associated costs. Workers get laid off which contributes to further decrease in disposable income and consumption by households, which in turn leads to further decrease in aggregate demand, and the process repeats itself. This is known as Keynesian multiplier process which works by the way in both directions.

Therefore, if at this time government stays idle a long recession would follow with decreasing wages and prices to reach new equilibrium. Keynesian approach suggests an increase in government spending to stimulate the economy at this point. According to this approach, if government can introduce and finance some infrastructure projects or other "public works", this will keep economy going since laid off workers from private sector would be employed in a public sector earning extra income. This income should stimulate consumption and eventually production in a private sector. Economy would grow out of recession.

As a matter of fact, during 2008-2009, all developed economies introduced fiscal stimulus packages in one way or another. This was exactly what Keynes argued for. USA introduced a fiscal stimulus package in 2008 (Bush administration) and later in 2009 (Obama administration). Countries of the European Union (EU) introduced similar packages in 2009. It turns out that while the size of the USA package was 1.8% of GDP, in EU it was just 0.9% (for comparison, the size of a stimulus package in China in 2009 was 7.1% of GDP).

As an example, the US 2009 stimulus package included:

- Repair and renewal of the USA infrastructure, including highways and roads, the electric power grid, dams, bridges, levees, water mains and sewer systems, airports, and more;
- Vital aid to beleaguered local school districts plus $300 million for increased teacher salaries
- Expansion of public transportation systems, building new high-speed passenger rail systems
- $116 billion in payroll tax relief for individuals making less than $75,000 annually, and for couples jointly making less than $150,000.
- $40 billion to extend unemployment benefits, and to increase benefits by $25 weekly
- Increased medical coverage for military members and their families, and $1 billion for the Veteran's Administration, which suffered major cutbacks under President Bush

- Food programs for low-income Americans, including $150 million to help refill food banks, $100 million for meals programs for seniors, and $100 million for free school lunch programs.

Economic historians argue that Keynesian-style spending was largely instrumental in pulling the USA out of the Great Depression, and in propelling growth of the USA and world economies in the 1950s and 1960s. Under current circumstances, according to economic community in the USA, if the stimulus package worked to shock the USA economy out of its steep 2008-2009 recession, and decreased the unemployment rate, then it would be judged a success. Unfortunately it did not happen. Experts concluded that the size of the stimulus package was too small on the one hand, and by trying to do everything at once, it did nothing well enough on the other.

In particular, some economists argue that fixed investment provided by the USA government through the stimulus package was too small. In general, fixed investment fell in all developed economies. While fall in private fixed investment was unavoidable due to financial market troubles and low economic activity, fall in state fixed investment could have been addressed through fiscal stimulus packages. Chinese experience showed that tremendous growth in state fixed investment resulted in high economic growth during 2008-2009. Of course, here we have two different economic ideologies: The prevailing ideology in the USA is that state intervention is bad; therefore a large scale program of state investment should not be implemented even when private investment was falling precipitately. On the other hand, there are no mechanisms in the USA capable of delivering a large program of state led investment.

4.3. Monetary policy during recession

Most scholars nowadays would agree that “any capitalist regime needs institutions and collective action to subsist (Jordana 2005: 184). Traditional Keynesian view supports active fiscal policy first. The reason is simple: when interest rates are low (during recessions), economy is in the so-called “liquidity trap,” in which monetary policy, according to Keynesian view, is useless. As we already commented, all countries followed Keynesian advice about active role of the government in terms of fiscal policy. However, all stimulus packages were coupled with active monetary responses. Why? First of all, there is a strong link between financial sector and real sector, and monetary instruments do affect real economy. Second, there is different time lag in implementation and impacts of fiscal policy and monetary policy. Third, 2008-2009 crisis has started in housing market but proceeded as financial crisis.

With regard to monetary policy, while sharing a common purpose of keeping high level of liquidity and stability of financial markets in general, the European Central Bank (ECB) and the Federal Reserve have relied on different channels of transmission which is justified by the profound differences in the financial and economic structures of the euro zone and the United States. The USA has a primarily market-based financial system. In contrast, the financial system of the euro zone is largely bank-centred. A few numbers illustrate these differences. At the beginning of recent crisis (end of 2007), the stock of outstanding bank loans to the private sector amounted to around 145% of GDP in the euro zone. The corresponding proportion of bank loans to GDP in the United States was only 63%. This means that the banking sector is more than twice as important in the euro zone than as is in the United States. It also means that to be effective, ECB policy had to focus first and foremost on the banking sector.

Similarly, direct debt securities account for 81% of GDP in the euro zone. The corresponding proportion in the USA is 168%. This means that market-based financing plays a much smaller role in the euro zone and is only half as relevant as in the USA. Therefore, the structures of private credit outstanding in the euro zone and the USA are almost mirror images: recourse to banks in the EU makes up two-thirds of non-equity external finance. On this side, the equivalent proportion is only around 30%. That is why it is natural that the Federal Reserve's policies of "credit easing" mainly targeted markets for debt securities, whereas ECB policies of "enhanced credit support" focused on banks.

In technical terms, acknowledging the existence of structural differences between the euro zone and the USA is crucial for understanding the mechanisms behind the policy models and concepts used in terms of monetary policy. Structural differences imply that the monetary policy response has to be calibrated to the structure of the economy.

Let us now explain these differences. The USA and the EU economies are distinct in three principal ways:

1. Very important role of small and medium-sized enterprises (SMEs) in the euro zone economy. These SMEs in general cannot access credit markets directly. Therefore, allowing continued access to bank loans is vital for SMEs to be able to finance their activities.

2. The housing market in the crisis. In the USA, the housing market was at the epicentre of the crisis. This was not the case in the euro zone. Nevertheless, the euro zone was indirectly affected as banks there held toxic assets partly backed by mortgage loans originated in the USA. Therefore, forcefully addressing the toxic asset problem is a pre-condition for reviving credit on both sides of the Atlantic. However, it should be addressed by means of fiscal policy, not monetary policy.

3. Flexibility of the economy. Prices of goods and services and wages are more sluggish in the euro zone than in the USA. This sluggishness, on the one hand, has drawbacks as it slows down the adjustment of the euro zone economy to adverse shocks. At the same time it offers some protection against very bad outcomes, since it provides a solid anchor for private sector expectations. In the euro zone, the institutional framework provides such an anchor through the medium-term stability orientation of fiscal policies and monetary policy geared towards fiscal sustainability and price stability. In this environment, overly activist policies risk destabilising expectations which leads to them being counterproductive.

These structural differences lead to the EU monetary policy focused on quantitative definition of price stability. ECB aims at an inflation rate of below, but close to 2% over the medium term. The precise quantification of monetary policy objective has proved an invaluable asset, a fail-safe mechanism against excessive swings in inflation expectations, downwards as much as upwards. Long-term inflation expectations in the euro zone, whether based on surveys or extracted from financial indicators, have thus far been exceptionally resistant to sudden short-term price changes. Therefore, the ECB's responses to the financial crisis were in line with the above described structural differences as well as with the EU medium-term objectives.

In the euro zone, six-month and twelve-month euro interbank offered rates are important benchmarks, which are widely used by banks to set floating rate loans to households (for example, for setting mortgage rates) and companies. These six- and twelve-month rates are

actually slightly lower in Euros than the corresponding rates for contracts denominated in US dollars. At the same time the benchmark ten-year government bond yield in the euro zone – the German bund yield – is broadly comparable to the yield on the ten-year US Treasury bills. This shows that under current circumstances, international comparisons of policy rates provide limited information about the effective credit conditions prevailing in individual markets. One key reason for lower market rates in euro zone is the fact that spreads are lower in the euro zone, implying lower risk as well as lower credit and liquidity risk premium.

Let us take a closer look at specific measures undertaken by the ECB.

1. Under normal circumstances, the ECB auctions a given amount of loans (mainly in refinancing operations with a one-week maturity) and lets competition among bidders (private banks) determine the interest rate at which these loans will become available to the banking system as a whole. When financial markets dramatically ceased to allocate liquidity, the ECB has turned that practice around. The ECB has been determining the lending rate – at a very low level – and was standing ready to fill *any shortage* of liquidity that might occur at that interest rate for up to six months. In a sense, these actions by the ECB replaced financial markets.

2. Before the crisis, the ECB had a long list of assets that it would take as collateral. During crisis the ECB expanded the list to accept a wider range of securities as collateral. Currently, government securities account for only 44% of the nominal value of securities on the list. The rest are private securities.

3. Before the crisis, 1,700 financial institutions in euro zone satisfied all relevant EBC criteria for re-financing. Following the changes in the ECB operational framework in October 2008, this number increased: In 2009, 2,200 financial institutions in the euro zone had the opportunity to refinance themselves with the ECB, and for most of the remaining 4,300 financial institutions it was not a problem to become eligible.

The USA monetary policy was conduced through other channels. Since mid-September of 2008, the Federal Reserve has embarked on a policy of direct “credit easing”. This policy involved, first, the provision of liquidity directly to borrowers and investors in key financial markets (for example, the so-called “quantitative easing”) and, second, the purchase of debt instruments such as commercial paper or asset-backed securities. These measures are targeted at directly addressing instability or declining credit availability in critical *non-bank channels* of intermediation.

In particular, monetary policy conducted by the Federal Reserve during the crisis included the following:

1. Interest rate policy. Starting from a target for the Federal Funds rate of 5.25% for the first half of 2007, the Federal Reserve has gradually reduced it to 0.25% by December of 2008. In its policy announcements, the Federal Reserve has made it clear that it expects to keep the rate at this level for a sustained period of time.

2. Quantitative policy. It concerns the size of the Federal Reserve’s balance sheet and the composition of its liabilities. Historically, the bulk of the liabilities of the Federal Reserve have consisted of currency in circulation, with a tiny amount of reserves by banks and deposits from the government and foreign central banks. With the crisis, the first change is that the Federal Reserve’s balance sheet more than doubled. Reserves

have accounted for much of this increase, and they are now mostly voluntary, since the penalty in holding reserves instead of lending in the federal funds market has effectively disappeared once the rates on both became the same. The final significant change in quantitative policy is that the main individual creditor of the Federal Reserve is now the USA government. As a means to provide the Federal Reserve with quick access to Treasury securities, the Treasury has greatly expanded the amount in its account, so it now holds more than one tenth of the Federal Reserve's total liabilities.

3. Credit policy. This consists of managing the composition of the asset side of the Federal Reserve's balance sheet. At the start, the assets of the Federal Reserve were mostly US Treasury securities, with a little over one third in Treasury bills, and the remaining two thirds in notes and bonds. It also had a few foreign reserves, other assets (e.g., gold) and almost no direct loans. By January of 2009, this picture had changed dramatically, with several new asset-purchasing programs announced. First, the Federal Reserve significantly shifted the maturity of its Treasury securities from short to long-term assets. Second, the Federal Reserve for the first time made direct loans to entities other than banks. Third, the Federal Reserve entered a swap agreement with foreign central banks to temporarily provide them with dollars against foreign currency, increasing the amount of foreign reserves on its balance sheet by a factor of almost 30. Fourth, the Federal Reserve started lending to banks for terms of 28 and 84 days against collateral at terms determined in an auction. These provided a means to lend to banks that kept the recipients anonymity in order to prevent these loans from being seen by the market as a signal of trouble by the debtor bank. In January of 2009 these credits over banks accounted for more than one quarter in the financing many companies directly without going through banks. Sixth, it created three limited liability companies to acquire and manage the assets associated with the bail-outs of AIG and Bear Stearns.

5. IS RECENT CRISIS A CRISIS OF CAPITALISM?

The style and substance of fiscal and monetary policies, as applied throughout the 2007-2009 crisis and its immediate aftermath in Europe and the USA, point to the increased role of government regulators. Moreover, the concrete style of these policies' implementation may be easily mistaken for the so-called command-and-control style of policy, rather than conventional market allocation or pure incentive-based policies. Is this a new feature of a new type of capitalism? Command-and-control policy is a feature of the so-called centrally planned economies (CPEs) like the former Soviet Union. However, there is nothing wrong with central planning *per se*: all market economies have been doing this throughout modern history. Call it dirigisme, neocorporatism, industrial policy, or fiscal policy, the state has always intervened, one way or another, in the functioning of the market economy. What is more important to consider is that the so-called CPEs are centrally *managed* economies, which means that the role of the government is near-absolute.

So, as it appears, a pure market economy (or pure capitalist system) must be fully at the mercy of the "invisible hand" of the market, or fully free from all government attempts to steer it by administrative methods, while CPEs must be 100% centrally managed. Recent history had shown that the latter was not sustainable in the long run. However, the last crisis has shown that the former is not sustainable either. Where is the truth, then? As usual, it is

somewhere in between. On the other hand, does it mean that economic systems with bigger role of the government like, for example, Chinese (or to a lesser extent the EU or Canadian economy) are more robust to withstand current economic challenges?

As one of the most important causes of current financial and economic crisis, many economists name the following: Traditional financial markets based on traditional capitalist features such as selfishness, individualism, greed led to huge misallocation of funds. Therefore, the problem was not the lack of funds but rather their misallocation. In a nutshell it implies that markets failed to allocate resources efficiently. According to the Keynesian view, when this happens there is a role for authorities to intervene.

According to Buiter (2009), the current crisis is not a crisis of capitalism, defined as an economic system characterized by private ownership of most of the means of production, distribution and exchange, reliance on the profit motive and self-enrichment (i.e. greed) as the main incentive in economic decisions, and reliance on markets as the main co-ordination mechanism. The financial crisis of 2007-2009 is a crisis of a specific manifestation of financial capitalism – a largely self-regulating version of the transactions-oriented model of financial intermediation (TOM) over the relationships-oriented model of financial intermediation (ROM).

Every real-world financial system is a combination of the TOM and the ROM. In the USA and the UK, the TOM model became too dominant. Buiter (2009) believes that this error will be corrected, and the world will move towards a greater emphasis on ROM, and financial capitalism will be with us a long time yet. However, he does not explain how and especially by whom this error should be corrected.

In the context of our earlier discussion with regard to degree of management of an economy, the financial sector is a critical component of a decentralized market economy. It permits the saving decisions of individuals, institutions and other economic entities to be decoupled from their investment decisions. When it performs well, it transfers resources efficiently from financial surplus units to financial deficit units. It facilitates the efficient allocation of the existing stock of financial wealth among competing financial instruments. And it permits risk trading in all its many manifestations. Without the specialized financial intermediaries - banks, pension funds, insurance companies, investment funds, pawn brokers, loan sharks, hedge funds, venture capital funds etc. - and without the steadily expanding range of financial instruments and organized financial markets, our inter-temporal allocation of resources and our allocation of resources across states of nature would be much less efficient. Society as a whole and most of its individual citizens and households would be worse off.

However, starting in the 1980s, the financial sector began to proliferate and expand in a way that defied common sense and logic. With passage of time traditional ROM-type financial intermediation has been replaced by TOM, which was characterized by the so-called “excessive behavior”. The global financial crisis of 1997-99 had shown with ample evidence that “capital market liberalization had brought instability and not growth” (Tabb 2008: 49). The 2007-2009 crisis was fully avoidable, yet brought about by predatory behavior of the financial institutions. As a result of the excessive behavior of financial intermediaries, coupled with financial market failure, time inconsistency and incomplete information, the whole system near collapsed.

On the other hand, the crisis brought understanding that financial stability is a public good which public authorities are mandated to safeguard. It is essential to do so because of the link between financial sector and real economy. The failure of a number of important banks has been at the core of budgetary problems in many countries. There are various channels through which banking problems can affect budgets and the real economy. For example, during booms tax revenues increase dramatically which adversely affects budget discipline in terms of government spending. It leads to misallocation of resources which, in turn, hurts real economy.

Because of the current crisis many economists argue that banks need to return to the "first principles of banking", i.e. they need to be a safe place for customers' savings, be responsive to customers', the economy's and society's needs, take less risks, diversify their loan portfolio better, and work more closely with regulators, the government and all stakeholders. Rather than focusing on short-term gains, banks need to focus on the longer-term future. Rather than relying on profits in the real estate sector, banks should develop expertise in modern growth centers and develop their services for SMEs. Lending should focus more on cash flow rather than property or other assets.

The link between financial sector and real economy is two-directional since there are also pressures from the budget on banks. High and unsustainable public debt can sharply raise funding costs for banks. Furthermore, cross-border holdings of sovereign debt can put pressure on bank balance sheets. Finally, the introduction of various forms of bank taxes to consolidate budgets can be the source of future financial risks if it prevents banks from building up sufficient safeguards or triggers circumvention.

This brings us back to our main argument in favor of the systems approach to manage the modern capitalist economy. It turns out that in many cases regulator, whether it is the central bank or the government or both, has a better understanding of the economy as a whole than individual economic agents, consumers and producers. Therefore, it is in a society's interests to grant some rights to manage economy to the regulator. In turn, regulator has to be able to synchronize various aspects of economic policy. In economic terms it means that first, optimal combination of fiscal and monetary policies should be at the heart of any public policy, and second, the link fiscal policy-monetary policy should work in both directions. This implies that in a modern capitalist economy the role of regulator should be strong, and it should be even stronger during crises. Of course, it should not be the command-and-control style, but rather a supervisory style when authorities stand by with fiscal and monetary instruments to correct market failures and imperfections based on systems benefits.

6. LESSONS AND CONCLUSIONS

So, what lessons can be learned and what conclusions can be drawn from recent financial and economic crisis with respect to a capitalist economy?

Lessons:

1. Frequently market economies produce the so-called excessive behaviour of economic agents based on personal agenda, which is inconsistent with the pure theoretical model of rational behaviour.

2. Excessive behaviour leads to systemic losses not observed on a full scale by individual economic agents.

3. Response by individual economic agents to systemic losses is sub-optimal.

4. Excessive behaviour of individual economic agents during crises can lead to the so-called crowd behaviour with all the negative consequences that the latter bring about.

Conclusions:

1. Classical capitalism characterised by private ownership of the means of production, distribution and exchange, reliance on the profit motive and self-enrichment as the main incentive in economic decisions, and reliance on markets as the main co-ordination mechanism is not capable of dealing with current challenges associated with international trade liberalization and globalization.

2. Active role of the government is needed not only during crises but also during normal economic activities. It is needed (i) to correct market failures and imperfections, (ii) to prevent excessive behaviour of economic agents, and (iii) to achieve sustainable path of economy in terms of economic, environmental and social goals.

3. Fiscal policy and monetary policy should be synchronized, well tailored to special macroeconomic conditions in individual countries and conducted on the basis of systems approach.

4. Development of capitalism should proceed along the lines of continuously optimized regulation, but not in a state capitalist form. Instead, regulation must evolve "internationally, sector by sector, as firms and markets increasingly globalize" (Jordana 2005: 184). It must also rely on strong supervisory capacities at the national level, as global regulatory capitalism can only arise when national "system administrators" are well embedded in their respective economies and have developed effective instruments to synchronize their activities across the national borders.

5. In regards to the process of regulation itself: not *more* but *better* regulation is needed, based on systems costs and benefits, as well as progressive institutionalization and development of international regulatory frameworks.

BIBLIOGRAPHY

Boyer, R. (2007): **Capitalism Strikes Back: Why and What Consequences for Social Sciences?, *Revue de la régulation: Capitalisme, institutions, pouvoirs***, 1: 1-25.

Bradley, Jr., R. L.; Donway, R. (2010): **Capitalism, Socialism, and "the Middle Way": A Taxonomy, *Independent Review***, 15: 71-87.

Buiter, W.H. (2009), **Lessons from the Global Financial Crisis for Regulators and Supervisors**, Paper presented at the 25th anniversary Workshop "The Global Financial Crisis: Lessons and Outlook" of the Advanced Studies Program of the IFW, Kiel, 8-9 May, http://eprints.lse.ac.uk/29048/1/Lessons_from_the_global_financial_crisis.pdf [Accessed 5.12.2011]

Capitalism (2010) ***Columbia Electronic Encyclopedia, 6th Edition*** [serial online]. July 2010:1. Available from: Academic Search Premier, Ipswich, MA. [Accessed 12.03.2011]

Case, K. E., (2004): **Principles of Macroeconomics**, Upper Saddle River, NJ: Prentice Hall.

Craig Smith, N., (1990): **Morality and the Market: Consumer Pressure for Corporate Accountability**, London: Routledge.

Hall, I., (2011): **Varieties of Zombieism: Approaching Comparative Political Economy through *28 Days Later* and *Wild Zero***, ***International Studies Perspectives***, 12: 1 – 17.

Jordana, J. (2005): **Globalizing Regulatory Capitalism*, The ANNALS of the American Academy of Political and Social Science***, 598: 184 – 190.

Tabb, W. K. (2008): **Four Crises of the Contemporary World Capitalist System*, Monthly Review***, 60, 43 – 59.

Tucker, I. B. (1997): **Macroeconomics for Today,** Mason, OH: South-Western College Pub.

Trichet, J.-C. (2009): **The Financial Crisis and Our Response So Far**, Keynote address given at the ***Chatham House Global Financial Forum***, New York, 27 April, http://www.ecb.int/press/key/date/2009/html/sp090427.en.html [Accessed 5.02.2011]

World Trade Organization (2010) **Trade to expand by 9.5% in 2010 after a dismal 2009, WTO reports**, http://www.wto.org/english/news_e/pres10_e/pr598_e.htm [Accessed 26.03.2011]

SERBIA 2020: CAN NEW GROWTH MODEL PROMOTE EMPLOYMENT?

Jelena Žarković Rakić
Faculty of Economics, University of Belgrade
Kamenicka 6
Phone: ++ 381 11 3021 171; Fax: ++ 381 11 2639 560
E-mail: zarkovic@ekof.bg.ac.rs

Saša Ranđelović
Faculty of Economics, University of Belgrade
Kamenicka 6
Phone: ++ 381 11 3021 171; Fax: ++ 381 11 2639 560
E-mail: randjelovic@ekof.bg.ac.rs

Key words: *new growth model, micro-simulation, labour tax reform, low-paid labour, Serbia*

ABSTRACT

Serbia's high economic growth rates in 2000-2010 period have not been followed by an increase in employment. High labour tax burden is regarded as one of significant reasons for such jobless growth, especially among low skilled (low paid) labour. Namely, labour tax wedge amounts to 40% of the total labour costs for wages in the middle and top of the wage distribution. However, for low paid workers, particularly for those below the 10th percentile of the wage distribution, the tax wedge amounts to approximately 100% of the total labour costs.

Authors of the new growth model, therefore, propose two ways of tackling the unemployment trap for low skilled individuals: reduction of social security contributions for those worker types and/or increase in the progressivity of the personal income tax.

This paper uses the tax and benefit micro-simulation model for Serbia (SRMOD) in order to simulate alternative tax policy reforms proposed in the new growth strategy and evaluate their effects on labour supply incentives, particularly among low skilled (low paid) workers.

1. INTRODUCTION

Starting from the year 2000 Serbia has based its economic development on inflow of capital through privatization of state-owned companies, inflow of FDI and cross-border loans and development of financial and commercial sector. Such approach has resulted in several undesirable features of the economic system:

- Significant increase in foreign trade deficit. The reasons are twofold: a) consumption was exceeding production, b) industry and export oriented sector was neglected. This deficit was financed with capital inflows from privatization, FDI and cross-border loans.

- Faster growth of wages than the productivity. Growth of wages in nominal and real terms, combined with the appreciation of Serbian dinar against Euro, starting from 2004, has resulted in deterioration of price competitiveness of Serbian economy, through increase in unit labor costs.
- Jobless growth. Although Serbian economy grew in average by 5-6% in this period, that growth was not accompanied with the increase in employment. On the contrary, the unemployment rate rose significantly, due to the fact that many employees were made redundant after the privatization, as well as due to rather low labor productivity in general.

The global economic crisis caused significant contraction on global capital markets, which made capital rather scarce resource. Due to this, inflow of FDI and cross border loans significantly declined throughout 2008 and 2009, which threatened to jeopardize equilibrium in the payment balance. Since the possibilities for further economic growth based on import, inflow of capital from abroad and large domestic consumption are limited, according to the New growth strategy for Serbia (Stamenkovic et al., 2010), future economic development will have to be based on the other pillars:

- Development of export-oriented industry
- Rise in employment
- Increase in domestic saving and decline of consumption.

Increase in export and employment are partially conditioned on the labor costs. New growth strategy identifies high labour tax burden as a major obstacle for employment growth especially among low skilled (low paid) labour. Namely, labour tax wedge amounts to 40% of the total labour costs for wages in the middle and top of the wage distribution. However, for low paid workers, particularly for those below the 10th percentile of the wage distribution, the tax wedge amounts to approximately 100% of the total labour costs.

Authors of the new growth model, therefore, propose two ways of tackling the unemployment trap for low skilled individuals:

- Reduction of social security contributions for these worker types
- Increase in the progressivity of the personal income tax.

This paper uses the tax and benefit micro-simulation model for Serbia (SRMOD)[1] in order to simulate alternative tax policy reforms proposed in the Strategy and evaluate their effects on labour supply, particularly among low skilled (low paid) workers.

With its socio-demographic structure, Serbia can be seen as a typical Western Balkan country. Also, given that tax and labour market structures of these economies share many similarities, especially among former Yugoslav republics, the qualitative results of this analysis could be of interest to a wider range of countries in the region.

[1] SRMOD is based upon EUROMO which is tax and benefit micro-simulation model for the European Union developed and maintained by the micro-simulation unit of the Institute for Social and Economic Research (ISER), University of Essex. More details are available at: http://www.iser.essex.ac.uk/research/euromod. For more details about SRMOD construction, see Žarković-Rakić (2010).

The paper is structured as follows. After this introduction, Section 2 describes the institutional setting of the Serbian labor tax system. Data and methodology are given in Section 3. Section 4 includes the simulation results whereas the last section concludes.

2. INSTITUTIONAL SETTING

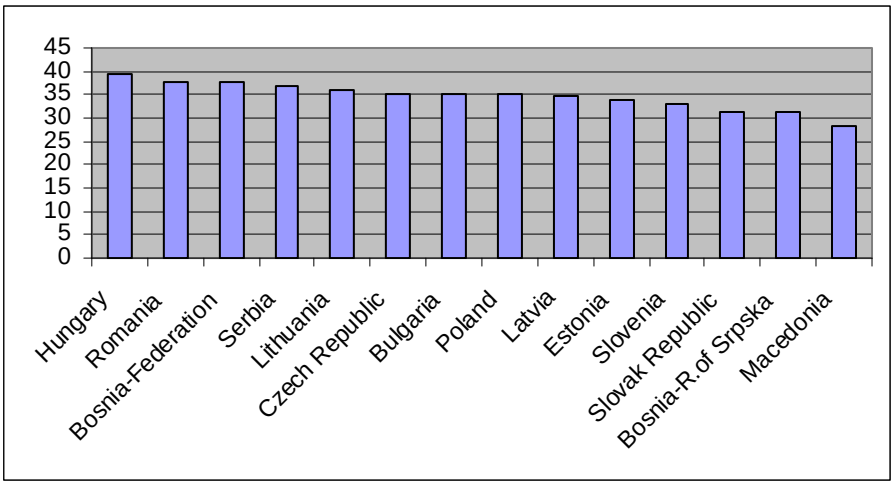
Social security contributions in Serbia are used to finance the old age, disability and survivours pension, health benefits for sikness and maternity, and unemployment benefits. In 2001 they were set at 32.6% of the average wage, equally split between employers and workers. The first increase in mandated contributions occured in 2003 with an increase of 1%. Next modification was done in 2004 and currently the overall social security tax rate amounts to 35.8 percent of gross wage: 22 percent for pensions, 12.3 percent for health insurance, and 1.5 percent for unemployment insurance.

Particular feature of social security system in Serbia, as well as in the region, is the universal minimum base for social contributions set at 35% of the average wage, or, in nominal terms, at around RSD 66,500 annually, equally paid between employers and employees. Due to the minimum contribution requirement, every person that earns less than RSD 192,000 annually pays a share higher than the overall contribution rate of 35.8 percent of the gross wage (World Bank, 2010).

Even though the social contributions in Serbia have increased several times since 2001, they are not high when compared to other Western Balkans countries[2]. On the other hand, what is unique in Serbia is a relatively higher labour tax burden for low wage earners than for high-paid employees.

In Figure 1 Serbia is compared to several Western Balkan countries and new EU member states[3] in terms of the tax wedge on labor for lower wage levels. Tax wedge in Serbia, for a single at 33 percent of the average wage, is one of the highest, at 36.7 percent.

Figure 1. Tax wedge for a single with no children at 33 percent of average wage (2008)

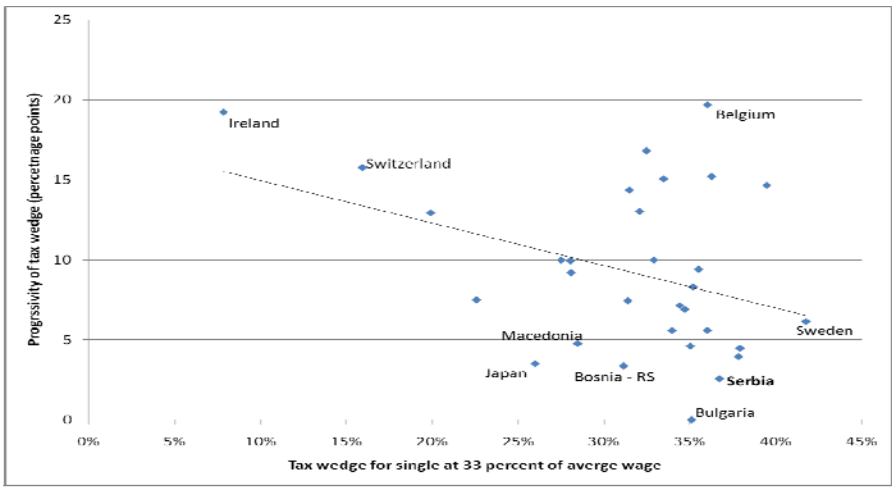


Source: World Bank (2010, p. 29). Note: values for Bosnia, Serbia and Macedonia refer to 2009.

[2] For a comparison of a social security contribution systems among Western Balkan countries, see Arandarenko and Vukojevic (2008).
[3] We use EUROSTAT classification of "10 new EU members" comprising of Czech, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Slovenia, Slovakia

Although for a country with high tax wedge for low-wage earners we can expect less progressive labor taxation, the regressive nature of the Serbia's labor tax system stands out. In most countries displayed in Figure 2, labour taxes increase significantly with the wage level. Moreover, in many countries tax wedge by over 10 percentage points between 33 and 100 percent of average wage level. However, in Serbia, labour taxes increase by only 2.6 percentage points (World Bank, 2010).

Figure 2. Scatter plot of tax wedge for a single at 33 percent of average wage (percent) versus progressivity of tax wedge (percentage point change) for select European countries (2008)



Source: World Bank (2010, p. 12).

Low level of progressivity of labour taxation is due to several reasons among which minimum contribution base is one of the prominent ones. Given that the base is not adjusted for hours actually worked implies that low-paid part time workers are also subject to it. This further increases the burden on the law-wage labour. In addition, labour tax reform after 2001 brought the abolishment of fringe benefits. Two most important benefits of this kind were cash allowances in the form of hot meal allowance (paid monthly) and annual (vacation) leave allowance (called 'regres'). Given that both types of fringe benefits were untaxed and paid in the lump sum, equal amounts to each worker, they provided substantial progressivity in labour taxation.

Authors of the new growth model for Serbia propose several policy options in order to reduce the tax burden for low paid labour. For the purpose of this paper, we analyse the effects of abolishment of the minimum social security contribution base, which affects labour supply of low paid employees the most. Therefore, in our reform scenario, social security contributions are paid on the reported (real) amount of employment income, unless gross wage exceeds the maximum social security contributions base (in that case, contributions are calculated on that maximum base).

3. DATA AND METHODOLOGY

During the last decades Public Economics literature has developed very useful tools to analyse and evaluate the equity and efficiency effects of tax and benefit reforms. On the one hand, the theoretical analysis has experienced substantial progress with the appearance of the Mirrlees model of optimum taxation. The model provided a key framework to identify the elements that determine the effects of direct taxes and cash benefits on equity and efficiency.

At the same time, development of the tax-benefit micro-simulation models and the labor-supply models provided high-quality empirical research (Atkinson, 2009).

To evaluate effects of tax reform on inequality and equity we use tax and benefit micro-simulation model for Serbia (SRMOD) which is based upon EUROMOD platform. As other tax-benefit models, SRMOD operates on a micro-data for a representative sample of households, within a population to be observed. Living Standards Measurement Survey (LSMS) from 2007 is currently used as the SRMOD dataset. This dataset was chosen since it includes detailed information both on various sources of income and on paid taxes and claimed benefits. Although actual amounts of income and consumption have changed since 2007, structural changes (in relative terms) are not expected, which is why the results obtained based on this data set can be extrapolated to 2011.This allowed for conducting micro-validation (comparison of simulated and real values of benefits at the household level) with greater accuracy and thus for a more reliable estimate of the model's conformity with the actual tax system and benefit policy. Using elements of income from the survey data and combining them with simulated taxes and benefits, the model calculates disposable income for each household (see Table 1). The basic SRMOD output therefore consists of information on changes in disposable incomes of households after certain policy reforms are introduced. The model shows distributions of household original and disposable income and the tax-benefit components of these incomes by deciles.[4] Additional statistics provided in the model includes the percentage of people below the poverty line (headcount ratio) for the overall population and for selected groups and the Gini coefficient for equivalent original and disposable income.

Table 1. Main Income Concepts in EUROMOD

Original income (employment and self-employment income, income from agriculture, income from capital, income from property (rent))
+ *Social benefits* (family benefits, pensions, unemployment benefit, social assistance benefits, housing benefits)
- *Social Insurance Contributions* (employee, self-employed)
- *Personal Taxes* (income and other direct taxes)
= Disposable Income

Source: Paulus et al. (2009)

Since the baseline tax-benefit policy year and income data reference period are the same, there was no need for income uprating. The only modification to the original dataset was net-to-gross imputations. Namely, since the original dataset recorded incomes net of taxes, we have performed tax-benefit calculations in order to compute gross incomes.

4. SIMULATION RESULTS

4.1. Work incentives: effective average and marginal tax rates

In this section, we analyze the effects of social security contributions cuts on the effective average (AETR) and marginal (EMTR) income tax rates as a measure for the efficiency effects. Effective tax rates capture the net tax burden resulting from the interaction of different types of taxes and contributions on one hand and benefit payments on the other. Average

[4] Decile groups are formed by ranking according to equalised household disposable income using the modified OECD-equivalence-scale and weighted by household size

effective tax rates (AETRs) express the resulting net payments as a fraction of the income on which they are levied. Marginal effective tax rates (METRs), on the other hand, measure the degree to which any *additional* income would be 'taxed away'. METR is, therefore, usually used as an indicator of labor supply incentives.

Changes in effective average tax rates are of special interest for the extensive labour supply margin (labor force participation) which seems to be more important for particular subgroups at the bottom of the income distribution than the intensive margin (hours-of-work response), which is affected by the effective marginal tax rate (Immervoll, 2002). Differences between these two tax rates are driven by the degree of nonlinearity in the tax-transfer schedules, particularly important at the lower end of the income distribution.

Marginal tax rates could be found analytically by taking first differences of the relevant effective tax schedule, that is:

$$t_m = \frac{dT(y)}{dy}$$

where t_m is marginal tax rate, y stands for income, and T for the tax schedule. However, this is not feasible in practice, as tax-benefit systems are characterised by discontinuities. Therefore, METRs are numerically derived by altering income by certain percentage, then using a tax-benefit model to re-compute relevant taxes and benefits and finally comparing the results with the original situation.

To calculate METR in this paper, for the working population, the income being changed refers to employment and self-employment income. For each individual in the household, earnings are increased in turn by 3%, while the change in all benefits and taxes (including social insurance contributions) is observed at the household level.

To calculate EMTR, we use the following formula:

$$EMTR_i = 1 - \frac{\Delta X_j}{d_i}$$

where d_i is the income increment for individual i and X_j disposable income of household j to which this individual belongs. The effective average tax rate is also calculated for the working age population as:

$$EATR_i = \frac{T_i}{Y_i}$$

where T_i is total tax payments and Y_i stands for the market income of individual i.

Effective marginal tax rates for the baseline and the reform scenario are given in Table 2. Abolishment of the minimum social security contribution base decreases the effective marginal tax rates for all decile groups. As expected, the reduction is most pronounced for lower deciles given that they are the most affected by the minimum contribution base. Decrease in EMTRs is expected to lead to increasing labour supply incentives, i.e. to increase in the number of working hours.

Table 2. Distribution of effective marginal tax rates by decile groups (%)

Decile	Baseline	Reform scenario	Change
1	20.6	19.5	-1.11%
2	23.2	21.9	-1.28%
3	22.2	21.1	-1.15%
4	21.9	21.2	-0.76%
5	21.2	20.7	-0.51%
6	21.4	20.6	-0.77%
7	20.4	19.9	-0.55%
8	21.7	21.3	-0.38%
9	20.4	19.8	-0.60%
10	21.3	20.8	-0.54%

Source: own calculation using SMROD

Results displayed in Table 3 show that policy reform would reduce average tax rates by more than it would reduce marginal rates. In isolation, this generates a larger participation response than hours-of-work response. We also observe that EATR are reduced for all income groups.

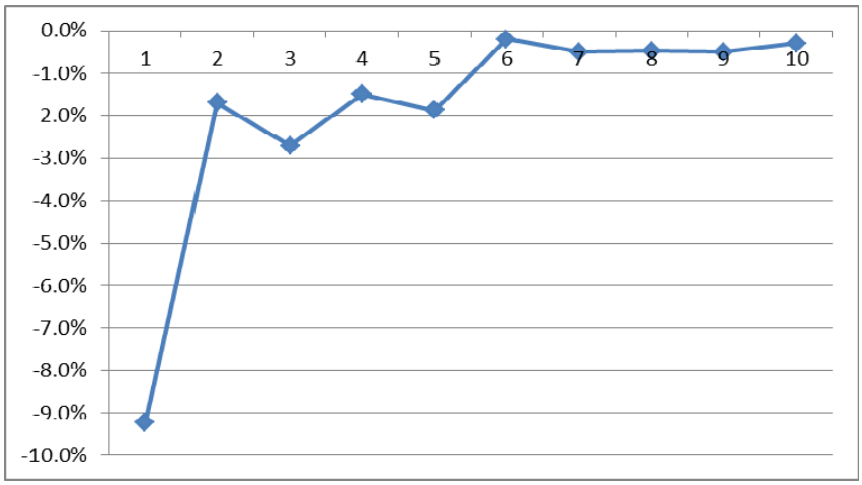
Table 3. Distribution of effective average tax rates by decile groups (%)

Decile	Baseline	Reform scenario
1	52.5%	43.3%
2	46.1%	44.4%
3	47.4%	44.7%
4	46.4%	44.9%
5	47.0%	45.1%
6	45.5%	45.3%
7	45.9%	45.4%
8	46.2%	45.7%
9	46.3%	45.8%
10	46.5%	46.2%

Source: own calculation using SMROD

As shown in Figure 3, the first decile would experience the largest decrease in EATR, that is, the strongest incentive to participate in the labour market.

Figure 3 Change in effective average tax rates by decile groups after the reform



Source: own calculation using SMROD

4.2. Distributional effects

The problem of the optimal design of tax policy is usually related to the existence of efficiency-equity trade-off. Since analysed reform of social contributions system would apparently improve efficiency (reduce METR and AETR, and thus provide more working incentives), we will now investigate the impact of policy reform on equality.

The information on Gini coefficient (measured on the basis of disposable income) illustrates the total income inequality in the country, which is result of market processes and public policies.

Results presented in the Table 2 indicate that the inequality, stemming from market processes, is relatively high in Serbia, but still within the range in other European countries. Namely, Gini coefficient measured on the basis of original (market) income amounts to 47.03. At the same time, average before-tax and before-transfers "market income" Gini coefficient in developed countries ranges between 34 and 54 (average value is 44). The results also suggest that the tax and benefit policies in Serbia make significant impact on reduction of inequality of income distribution, i.e. the total inequality (measured based on disposable income) is reduced by approximately 25%. However, according to the data for OECD countries, tax and benefit policies in these countries cut Gini coefficient by approximately 33%, which suggests that there is a room for further improvement of redistributive features of Serbian tax and benefit policies. As Table 4 shows, the abolishment of minimum social contributions base would reduce inequality, the decrease being relatively small (Gini coefficient on disposable income would drop from 34.82 to only 34.75).

Table 4. Gini coefficient

	Baseline	Reform scenario
Gini coefficient - original income	47.03	47.03
Gini coefficient - disposable income	34.82	34.75

Source: own calculation using SMROD

The analysis of redistribution effects of tax reform based on Gini coefficient provides information on the size and direction of change in inequality, but still provides no information on losers and winners from the reform. This can be determined based on the information on the change in income distribution before and after tax reform across the deciles.

Table 5. Distribution of disposable income per deciles

Decile	Baseline	Reform scenario	Change (%)
Quintile share ratio (80/20)	6.81	6.81	
1	2.0%	2.1%	0.01%
2	4.1%	4.1%	-0.01%
3	5.5%	5.5%	0.03%
4	6.7%	6.7%	0.01%
5	7.9%	7.9%	0.03%
6	9.2%	9.2%	-0.02%
7	10.6%	10.6%	0.00%
8	12.5%	12.5%	0.00%
9	15.4%	15.4%	-0.01%
10	26.2%	26.1%	-0.05%

Source: own calculation using SMROD

Results given in Table 5 indicate that policy reform would only slightly trigger income distribution in the country. Share of disposable income for each decile group would remain almost the same.

5. CONCLUSION

Labour taxation in Serbia puts relatively high burden on low paid labour and makes it more at risk of unemployment, employment in the informal sector, as well as engagement in illegal (criminal) activities. For example, labour tax wedge amounts to 40% of the total labour costs for wages in the middle and top of the wage distribution. However, for low paid workers, particularly for those below the 10th percentile of the wage distribution, the tax wedge amounts to approximately 100% of the total labour costs. The regressivity of labour taxation is mainly due to existence of a mandatory minimum social security contribution base, which amounts to 35% of the average wage in Serbia. Existence of the minimum contributions base raises the relative costs of low-wage labour, which discourages employment in the low-wage labour intensive sectors.

Recent labor tax reform proposals have focused on the reduction of the social security contributions hoping to promote upsurge in employment. Even though decrease in contributions is expected to primarily boost labour demand in the country, this policy could also have positive impact on the labour supply incentives.

For the purpose of this paper, we analyzed the efficiency and distributional effects of the abolishment of the minimum social security contribution base. Simulation results indicate that this policy reform would reduce average tax rates by more than it would reduce marginal rates. As expected, a decrease in both tax rates is most pronounced for lower income groups given that they are the most affected by the minimum contribution base. On the other hand, our results show no change in income distribution after the introduction of the policy reform. With positive efficiency and no adverse distributional effects, the policy of the abolishment of the minimum contribution base could be recommended. However, abolishment of minimum contribution base would trigger decline in the social contributions revenue. Therefore, in order to be revenue neutral such reform would probably have to be accompanied with the changes in other elements of tax and/or benefit system.

One should also bear in mind that simulations were performed using static tax and benefit model. It enables the calculation of effective average and marginal tax rates which serves as rough indicators of labor supply incentives. Namely, a reduction of the effective marginal tax rate implies increasing incentives but does not necessarily lead to an increase in labour supply. To simulate labor supply responses to the tax change one need to have behavioral model. This provides an interesting avenue for future research.

BIBLIOGRAPHY

Atkinson, A, (2009): **An Enlarged Role for Tax-benefit Models** in: Orsolya, L. and Sutherland, H., ed.: ***Tax and Benefit Policies in the Enlarged Europe: Assesing the Impact with Microsimulation Models***. Surrey, UK: Ashgate

Arandarenko, M. and Vukojević, V. (2008) **Labor Costs and Labor Taxes in the Western Balkans**.http://siteresources.worldbank.org/INTECAREGTOPHEANUT/Resources/Betcherman&Arandarenkolabor_taxes_western_balkans.pdf. [Accessed 01/06/09]

Immervoll, H. (2002), **The Distribution of Average and Marginal Effective Tax Rates in European Union Member States,** EUROMOD Working Paper No. EM2/02, October 2002

Paulus, A., Čok, M., Figari, F., Hegedus, P., N Kump, Lelkes, O., Levy, H., Lietz, C, Lupsik, S., Mantovani, D., Morawski, L., Sutherland, H., Szivos, P. and Vork, A. (2009). **The Effects of Taxes and Benefits on Income Distribution in the Enlarged EU**. in: Orsolya, L. and Sutherland, H. ed.: ***Tax and Benefit Policies in the Enlarged Europe: Assesing the Impact with Microsimulation Models***. Surrey, UK: Ashgate

Stamenkovic et al. (2010). **Postkrizni model ekonomskog rasta i razvoja Srbije 2011-2020.** Beograd: USAID, FREN, MAT

World Bank. (2010), **Does formal work pay in Serbia? The role of labor taxes and social benefit design in providing disincentives for formal work.** Technical Note to serve as input for a Workshop between the Government of Serbia and the World Bank.

Žarković-Rakić, J. (2010). **Prvi srpski mikrosimulacioni model poreza i socijalnih davanja – SRMOD*, Kvartalni monitor***, 20, januar–mart 2010