University of Split
Faculty of Economics

10th International Conference

CHALLENGES OF EUROPE: THE QUEST FOR NEW COMPETITIVENESS

Conference Proceedings

8th - 10th May, 2013
Split, Croatia

ISSN 1847-4497
UDC 338.24(4)(063)

International Conference

CHALLENGES OF EUROPE:

THE QUEST FOR NEW COMPETITIVENESS

10th
CONFERENCE
2 0 1 3

Publisher:
Faculty of Economics, University of Split
Cvite Fiskovića 5
21000 SPLIT, CROATIA
Phone: + 385 21 430 600
Fax: + 385 21 430 701

For the Publisher:
Željko Garača, Dean

Managing Editors:
Mrnjavac Željko
Vinko Muštra

Typesetting:
Josip Grgić, Diana Mijačika, Velimir Skroza

Cover Design:
Maja Ćukušić

CHALLENGES OF EUROPE:
THE QUEST FOR NEW COMPETITIVENESS

Tenth 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, May 08-10, 2013

UDC 336.71(4)(063)
504(4)(063)
ISSN 1847-4497

Tenth International Conference on Challenges Of Europe

Under the auspices of:

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

Programme Committee:

Željko Mrnjavac, Chairperson (Croatia)

Nick Adnett (UK)
Will Bartlett (UK)
Milford Bateman (UK)
Jan van de Borg (Belgium, Italy)
Marin Buble (Croatia)
Giuseppe Canullo (Italy)
Božidar Cerović (Serbia)
Alberto Chilosi (Italy)
Muris Čičić (Bosnia-Herzegovina)
Petar Filipić (Croatia)
Vojmir Franičević (Croatia)
Robert M. Grant (Italy)
Branko Grčić (Croatia)
Iraj Hashi (UK)
Ewa Helinska-Hughes (UK)
Michael Hughes (UK)
Tanja Kesić (Croatia)
Evan Kraft (USA)
Josef Langer (Austria)
Lubomír Lízal (Czech Republic)
Katarina Ott (Croatia)
Janez Prašnikar (Slovenia)
Dani Rodrik (USA)
Antonis Simintiras (UK)
Jan Svejnar (USA)
Milica Uvalic (Italy)
Krešimir Žigić (Czech Republic)

CONTENTS

BUSINESS SOPHISTICATION

FOREWORD

Dear Colleagues,

it is our honor and pleasure to present you the Proceedings of our 10th conference "Challenges of Europe". We are proud that we have hosted the jubilee, 10th conference in the row. In addition, it was held just a few weeks before Croatia (finally) accessed the EU.

The idea for the Conference was born in the early 1990s. At the time, transition was a broad and widely used term, connected with many different fields and processes in the modern society and economy. Obviously, transition was a process with incremental role in the economic activity in this part of the globe and therefore the title "Enterprise in Transition" was aimed at stimulating the scientific analysis and research of this specific phenomenon. By changing the name from ""Enterprise in Transition" to "Challenges of Europe" in 2009, the Conference wanted to continue a dialogue between scientists and practitioners in quest for solving burning economic issues, and at the same time stress the fact that these countries today face the same challenges as other European countries that are struggling to find ways to cooperate with one another and manage the complexity of the current economic situation.

The transition process has been replaced by the short-term crisis management and investigation of the fundamentals that underpin economic growth and development for the longer term. We integrated into the title of the conference, our belief that the idea of competitiveness, both within the EU and regarding the EU in the global context, was far from exhausted. In fact, it remains the main challenge.

The world economy is undergoing significant shifts, and not only because of the global financial crisis. The role of emerging economies in the global context has accelerated the major economic transformations in Europe and other advanced economies. This context creates challenges on all levels of modern economy: it requires business sophistication from individual enterprises that should create new value-added products, processes, and business models through innovation; it requires a new role of the local institutions that can create a prosperous environment to foster these innovative and competitive changes enabling collaboration and integration of the economic life in the model of sustainable development; it requires that policymakers accelerate structural reforms by identifying and strengthening the transformative forces that will drive the future economic growth. Although these questions have occupied the minds of economists for a very long time, we hope to provide new insights and stimulate discussion on the best practices and strategies in the quest to overcome the obstacles hampering competitiveness. As challenges continuously evolve, so the quest for new ways of achieving individual and collective competitiveness never ends.

The missions of the 10th International Conference "Challenges of Europe: In Quest for New Competitiveness" was to foster knowledge transfer and benchmark the factors underpinning new competitiveness in the modern challenging economic environment. Plenary sessions, attractive guest speakers, numerous presentations of papers and working papers, panels etc. were organized in order to ensure that research findings receive the greatest exposure and to provide maximum opportunity for presentation by young researchers.

A special thanks goes to the keynote speakers Alan V. Deardorf and John Bachtler who provided their valuable time and knowledge not only in their presentations, but also greatly

contributed in the discussions of presented papers and gave valuable advice to young researchers. Furthermore, this Conference and these proceedings would have not been possible without the commitment and enthusiasm of the members of our international program committee that ensured meticulous double-blind reviewing process that enabled us to present here selected papers written for this Conference. I would also like to convey my gratitude to the organizing committee who ensured this event not only ran smoothly during all three days of work, but also organized a memorable informal gathering that further strengthened the scientific network of friends and colleagues. In this way, our Conference hopefully left a strong and long-lasting impact not limited only to the papers presented in these proceedings.

Split, November 2013

Programme Committee Chairperson
Professor Željko Mrnjavac

Sponsors of the Tenth International Conference

Challenges of Europe: The Quest for New Competitiveness

Sponsors of the Tenth International Conference

Challenges of Europe: The Quest for New Competitiveness

Tako lako.

SPLITSKA BANKA

SOCIETE GENERALE GROUP

KONČAR

Končar - Power Plant and Electric Traction Engineering Inc.

Splitsko dalmatinska županija

HPB

HRVATSKA POŠTANSKA BANKA

Sponsors of the Tenth International Conference

Challenges of Europe: The Quest for New Competitiveness

MINISTARSTVO ZNANOSTI
OBRAZOVANJA I ŠPORTA
Ministry of Science, Education
and Sport

Grad Split

DALMACIJACEMENT

HRVATSKA BANKA ZA OBNOVU I RAZVITAK

DALMATIA

CENTRAL

Split - Dalmatia
County
Tourist Board

Tourist board
of Split

I

NATIONAL AND EUROPEAN DEVELOPMENT FRAMEWORK

SKILL MISMATCHES AND ANTICIPATION OF THE FUTURE LABOUR MARKET NEED: CASE OF CROATIA

Predrag Bejaković
Institute for Public Finance
Smičiklasova 21, 10 000 Zagreb, Croatia
Phone: + 385 1 488 64 55; Fax: + 385 1 48 19365
E-mail: predrag@ijf.hr

Željko Mrnjavac
University of Split, Faculty of Economics
Cvite Fiskovića 5, 21000 Split, Croatia
Phone: + 385 21 430 672; Fax: + 385 21 430 701
E-mail: mrnjavac@efst.hr

Key words: *Skill mismatches, Future labor market needs, Educational output, Management of the education system, Croatia*

ABSTRACT

Skills are the key elements contributing to the prosperity of nations and to better lives for individuals. That is why countries have invested heavily in skills over past decades. For workers, skills mean employability and social mobility. For society, skills represent a major component of its productivity, competitiveness and innovation. An important dimension of labour market disequilibria is the mismatch of supply and demand of different skills at the sectoral, regional and occupational levels. This is due to slow adjustment of skill structures in periods of rapid structural change that characterizes the post-transition economy. Skill mismatches may be caused by ineffective signalling of labour market demands to education and training providers and to individuals, but they are very often a consequence of a lack of responsiveness on the part of education and training providers to information about skills demand. Croatia is not unique in having a relatively high interest for adjusting (matching) educational output with dynamic trends on the labour market. Croatia does not have a system of labour market information on occupational trends. Thus, it is impossible to specify which kinds of future requirements and unmet demands are commonly perceived. Taking into account the process of globalization process Croatia is undergoing, economic restructuring and the pressures of competition, demographic factors, there is an obvious need for more effective planning and management of the education system particularly to put more attention to long-term forecasting of labour market needs. Thus, it will be necessary to monitor systematically the labour market and occupational trends to insure better labour market information on occupational trends. Furthermore, it is important to provide and/or improve transparent information on employment status of graduates from various education programmes, and to insure more flexible adjustments of enrolment quotas in education and training programmes.

1 GENERAL SITUATION

1.1 Introduction: the importance of the issue

Skills are key elements contributing to the prosperity of nations and to better lives for individuals. That is why countries have invested heavily in skills over the past decades. For workers, skills mean employability and social mobility. For society, skills represent a major component of its productivity, competitiveness and innovation. Many countries, particularly middle-income and post-transitional, are facing specific challenges in producing the right mix of skills for the actual and future needs of labour markets. In context of dynamic and complex labour markets, improved matching of skills and jobs is of paramount importance. High youth unemployment and a delayed and precarious entry of young people into the labour market may raise the question why young people are the most affected group. High shares of young populations, outmigration and brain drain create a high need for more and better jobs. Future skills demands and requirements will differ from the past and present. Initial education training has a long-term perspective, therefore it should take into account the future needs.

In many countries the future skill needs of the economy and society are not being researched, and there is no central information on the training on offer. Furthermore, problems are not only in insufficient attention to the future labour market and skill needs, but also there is a very week relationship between current educational outcome and labour market needs. Little connection seems to exist between the number of people who are enrolled in programmes and the labour market demand for graduates of such programmes. For example, in Croatia political science and journalism graduates have average job accession rates of 25% in the year after graduation. However, the number of first-year students enrolled in these programs has grown at a greater-than-average-rate (Babić, Matković and Šošić, 2006). Even if such individuals find a job, it is likely that it will be outside their field of study. Those forced to take a job outside their field have lower wages, worse promotion prospects and lower satisfaction with their job.

Skills have been analysed in various disciplines. Becker (1962) reminds that the distinctions between general and specific skills have been particularly important from an economic perspective. These distinctions are based on the value of skills in the labour market. Classical human capital theory proposes that completely firm-specific investments in skills will not be visible in compensation as workers are not able to use this type of human capital outside their employing organisation. General human capital, on the other hand, is applicable in many different contexts and will be reflected in wages, as firms not rewarding these skills would risk that other firms poach these workers by offering them a higher wage. Economic research has relaxed the harsh distinction between firm-specific and general skills (Nordhaug, 1993; Stevens, 1994).

The objectives of this paper are to explain the importance of mismatches and methods of labour trends anticipation, with particular attention to the situation in Croatia. After this introductory note related to the importance of the issue, the second part is dedicated to the definition and measuring various kinds of mismatches and methods of labour trends anticipation, followed by a part which provides an overview of the activities on the European level. In the second chapter attention is oriented towards the situation in Croatia. The Third part contains conclusions and recommendations for improvement.

1.2 Types of mismatches and methods of labour trends anticipation

Given Becker's theoretical formulation of education and training in terms of an investment model, the relative underdevelopment of the empirical side of the investment approach to human capital is perhaps somewhat surprising. Many papers have been written which seek to measure the benefits of education and training but very few have attempted to relate costs and benefits. Barret (Cedefop, Barrett, 2001) explains that concerning the costs and benefits of education and training, three types of research works are distinguished. The first group looks at how the earnings of individuals with greater amounts of training differ from those with less training. The second group looks at how firms that offer higher amounts of training differ from other forms in terms of productivity growth. The third set of papers is concerned with how growth rates across countries can be related to differences in investment in education.

Skills are acquired through practice and through the field of study, which a student has studied. Different fields of studies may lead to similar skill sets, but educational programmes at the same level of education, for example upper secondary vocational education, rarely lead to the same skills (Gatelli and Johansen, 2011). The question of educational matching is occasionally phrased as a question of qualifications: how is the match between the number of people with certain qualifications and the number of available jobs corresponding to those qualifications (Bartlett, 2007). Shortages and oversupply may refer to a shortage or an oversupply of either skills or qualifications. *Shortages* appear when the number of people holding certain qualifications (or skills) is lower than the number of available jobs requiring those qualifications (or skills). The opposite situation, where there are more people available holding particular qualifications/skills than the number of vacancies requiring those qualifications/skills, is said to be characterised by *oversupply*. Mismatches are often discussed at the macro level, but this obscures the fact that there may be shortages in one sector and oversupply in another.

Furthermore, there are *vertical* and *horizontal* dimension of mismatch Vertical shows that the attained education level is inappropriate to the education level required for a particular occupation, or in other words that person is overeducated or undereducated for a job where he or she is working. Horizontal dimension of mismatch shows that observed occupation belongs to the area, for which a person had been educated, regardless of the complexity of occupation, therefore does an individual work "in the field of his/her major education programme and/or university studies".

Whilst it might be widely accepted that a major role of education is to provide labour market skills, there is no established approach as to how this should be achieved. At one end of the spectrum is the free market or student choice model, whereby secondary and/or tertiary education provision is determined by what students wish to study. The assumptions are that students will tend to choose schools and courses that are in demand in the labour market, and that mismatches will be addressed through provision adjusting to student demand. It assumes that students are well-informed about future career opportunities, and that the system can adapt and respond effectively to clear signals. A major problem is that student choice is based on current (or past) and not future, labour market needs. At the other end of the spectrum is the centrally planned model whereby the government predicts, and partly determines, future employment needs, and designs secondary and tertiary provision accordingly. This assumes that such needs can be reasonably well predicted.

Neither of these extreme approaches can be expected to bring about the desired results (the sole market fails among others because of the involved information problems of the individual actors, whereas planning fails among others because of the problems of 'true' forecasting and implementation). The problem with both models is that both student and governmental knowledge of future skill needs is limited. This does not mean that no aspects of future demand can be identified. A combined approach, planning provision around more certain aspects of future needs, and ensuring that future students are well informed about probable needs, avoids the more extreme pitfalls of either model. However, as rightly stressed in Duke et all (2007) this approach is currently hampered due to the paucity of labour market and skill needs analyses (and data).

According to Hartog (2000) there are three criteria that can be used in measuring mismatch between educational output and labour market needs. First one is "realized matches" required education is derived from what workers in the respondent's job or occupation usually have attained, e.g. the mean or the mode of that distribution. This method has been applied by Verdugo and Verdugo (1989) and Groot and Maassen van den Brink (1995). Matching with this approach is defined theoretically, regarding the determined real output in population. Such results primarily show distribution of output (and identified individuals and groups that deviate from the norm), but do not show substantial widespread of mismatch. Another approach is through "job analysis": systematic evaluation by professional job analysts who specify the required level (and type) of education, for the job titles in an occupational classification. For horizontal mismatch this criteria is easier to follow because each VET and study field has determined area and group of occupations. The third approach is from worker self-assessment (WA): the worker specifies the education required for the job. It may be a direct and explicit specification of the type of schooling required, or it may be indirect, stating whether, compared to the worker's actual education, a higher or a lower (or a different) education is needed.

Lassnigg (2012) explains some basic elements and main traits of the framework for mismatch and anticipating skills needs analysis. First, there is a need to make *a distinction of practices at different levels, individual and aggregate*, needs to be made. At the individual level the people on the supply side (students and learners, graduates, employees, job seekers, unemployed, etc.) and on the demand side (different kinds of employers and enterprises, their executives and managers, etc.) need to be considered. At the aggregate level, the importance of institutions (frameworks of rules) and systems (frameworks of organisations) need to be recognised. Second, *the core practices of matching and anticipation are going on at the individual level*. The processes constantly shaping and re-shaping the masses of potential matches between individual people and the jobs they might undertake, through mobility and flexibility, including the anticipation of how their current activities might be related to future outcomes and developments are continually evolving. These processes include many different aspects such as the duration of matches, life and career expectations, business strategies, general economic prospects, etc. The goal of the individual actors is to reach a 'good match'. Third, at the *aggregate level*, the core practices of matching and anticipation are embedded in the behaviour of the labour market and the employing organisations operating within it, as well as in a set of other kinds of institutions (industrial relations and collective bargaining, occupational frameworks, social security provisions, regulation of migration, etc.). Matching primarily goes on in the labour market and in the employment system (including both 'external' and 'internal' labour markets, both of which are becoming increasingly transnational (including various kinds of migration flows). Fourth, an important point is that education is functionally a part in these practices. However, it is not directly

involved; because it is very clear in general *that* there is a contribution of education, but *how it works*, and particularly, *how it can be influenced*, is very much less clear. Education comes into play mainly through its outputs and results: it somehow rusts and changes individual people's characteristics, which they then bring into the matching practices, but its mission is much broader, and it has no direct influence on the characteristics of the jobs which are performed by the various individual actors in the economy, and which constitute the other side of the matching process.

It must be expected that some combination of the market and policies by the creation of the right institutional frameworks that support the actors to take the right decisions will lead to an improvement of matching and anticipation. Asan important contribution factor for improvement of the situation, many different activities have been realised on European level.

1.3 Activities on European level

Skill mismatch has become a growing concern for policy-makers at national and EU levels. A core element in the current European debate is that to adapt to rapid change, matching skills to jobs is crucial in sustaining productivity and competitiveness. In response to EU Member States' needs, the European Commission launched the 'new skills for new jobs' initiative, which supports the capacities for proactive action and anticipation to be better prepared for future challenges. The initiative should help to improve the capacity to anticipate and match labour-market and skills needs in the EU; to reach the objectives set out in the EU's growth and jobs strategy; to make the best use of existing initiatives and instruments; to gather results comparable at EU level and to promote a truly European labour market for jobs and training that corresponds to citizens' mobility needs and aspirations (The European Centre for the Development of Vocational Training, 2009).

Hence, European Commission's (2008a) Communication is focused on skills matching with special emphasis on upgrading skills and new skills required in the labour market and forecasting and anticipation of the skills since there has been a rise in unemployment and mismatch of skills in the EU member states. As a part of new initiative "An Agenda for new skills and jobs", Commission states that a substantial improvement in capacity "to forecast future skills and labour market needs is a precondition for the design of efficient employment, education and training policies and individual career choices". Although it acknowledges the fact that the forecast is not an easy task as the financial crisis has illustrated, it still tries to understand the future labour market, at least the general trends. Thus, Commission reminds that in Europe there is a long tradition of forecasting skills needs, but national experiences differ in terms of the periodicity, level of detail and methodology used.

European Commission (2008b) as part of *the Europe 2020 Strategy* identifies the possible risks of mismatches between labour market supply and demand of the EU up to 2020. There is underlined the importance of "the assessment and anticipation of skills and labour market needs …as a key instrument: for the efficient functioning of labour markets and the mobility of labour within the EU; for a better match between labour supply and demand to reduce bottlenecks; and for a better definition of the content and structure of education and training systems as they seek to develop human resources, skills levels, creativity and entrepreneurship."

The main methodological approaches employed to assess changing skills needs are: surveys of employers and employees; quantitative projections of employment based on econometric

models (by occupation, sector and required level of education); and foresight qualitative analysis, including, for example, the development of alternative future scenarios for employment and skills needs. In-depth studies focusing on a particular sector or occupation can use a variety of approaches. Some countries - for example Denmark, Spain, Greece, Hungary, Lithuania, Latvia, Portugal, Slovakia and Slovenia - have decentralised systems for anticipating skills needs, developed mostly at trade, sector or local level. Others in contrast, for example Austria, Germany, France, the Netherlands, Sweden and UK -coordinate a comprehensive system at national level, combining forecasts for the country and regional and sectoral studies (European Commission, 2008a).

Next to the mentioned methods for anticipating changing skill, there are other tools and techniques (Wilson, 2008) like *ad hoc* sectoral or occupational studies (involving both quantitative and qualitative methods), focusing on the situation in particular areas and/or foresight analysis using scenario development exercises based on expert opinion (including setting up 'observatories', focus groups, round tables and other Delphi-style methods, to reach a consensus view). "Each approach has its strengths and weaknesses. No single approach has the monopoly on 'truth' nor can a single method provide a full and complete picture: both qualitative and quantitative assessments are needed. All such projections should be seen as part of an on-going process rather than the final word" (European Commission, 2008b). Generally, there has been a shift in the objectives of identifying future skill needs from manpower planning to more general assessment of skill needs to inform all labour market participants. Furthermore, systems are becoming more sophisticated and complex, and there is a clear trend to combine methods (Wilson and Zukersteinova, 2011).

Regardless of significant differences, primarily reflecting stage of economic development and different industrial and occupational structures, there are many common trends across countries. On the demand side, there are broadly similar changes projected by sector, occupation, and qualification, including replacement needs. On the supply side increases in the numbers of those with high level qualifications and decreases in numbers with low level qualifications are a common feature. There have been strong cohort effects operating here (younger people are much better qualified), but the impact of this is moderating, as previous generations that were less well qualified drop out of the working age population as they reach retirement age. As rightly stated by Wilson and Zukersteinova (2011) regarding significant differences between countries, there is also a process of convergence and catch up effects for some countries, although others still lag behind.

Wilson and Zukersteinova (2011) also believe that the most important changes will be realised on sectoral level, so the analysis on this level is of crucial importance. The sector studies realised by Oxford Research (2010) for DG Employment, Social Affairs and Equal Opportunities reveal the increasing polarization of the demand for skills and competencies. On the one hand, the desire of European production to pursue an excellence strategy, in order to sustain competitiveness in an increasingly competitive world, drives a strong demand for high skilled professionals. At the other hand, the growth of service industries drives a steady demand for both high skilled and low skilled workers.

All economic sectors report a need for continuous up skilling of the labour force among others driven by internationalisation, specialisation, rising climate concerns, ICT and new technological possibilities. To deepen the challenges for Europe even further, most sectors also expecting a shrinking supply of labour available due to the ageing of the European labour force. All sectors will be forced to focus increasingly on more flexible communication with customers, a higher degree of flexibility in satisfying customer needs will be demanded

and there will be an increased need to use on-line technologies. This is why E-skills knowledge and technical knowledge will be among those knowledge categories where is expected the most robust increase in requirements. ICT and E-skills will be needed both user and expert level. Of technical competences increase can be expected for skills and knowledge related to new materials and new processes as well as skills related to health and climate and environmental solutions. A major increase in the importance of legislative and regulatory knowledge is related to the necessary expansion into foreign markets. As regards social skills, in particular will be required good communication and intercultural skills and capabilities for team work. The skills most demanded in the problem skills category primarily include analytical skills. The most important entrepreneurial skills are the capabilities of understanding customers and innovativeness. In terms of management skills most important will be process optimizing skills, intercultural management, international value chain as well as international financial knowledge and expertise.

Also, there seems to be a tendency towards multiskilling and the need for new combinations of skills and competencies within many sectors. For example in occupations not traditionally related to management, managerial competencies - such as financial management and strategic planning - seems increasingly to be needed. Highly desired is combination of two sets of skills normally belonging to two different occupations. New skills and competences are especially related to sustainability related to environment, climate changes, health and similar (Oxford Research, 2010). In the self-management category that will see the largest increase in importance is primarily a high level of flexibility and also stress and time management.

European Commission (2008b) reminds that at European level, the surveys undertaken for the Tuning project by European Training Foundation aim to obtain the opinions of graduates, academics and employers on skills requirements, curricula and learning outcomes. Such consultation has been undertaken twice on quite a large scale. Every university participating in the surveys had to select graduates, academics and employers known to hire graduates of the university, and ask them to fill in a questionnaire on the importance of a list of competences and the level of achievement in these competences:

- *instrumental competences*: capacity for analysis and synthesis, capacity for organisation and planning, basic general knowledge, grounding in basic knowledge of a profession, oral and written communication in one's native language, knowledge of a second language, elementary computing skills, information management skills, problem solving, decision making;

- *interpersonal competences*: critical and self-critical abilities, teamwork, interpersonal skills, ability to work in an interdisciplinary team, ability to communicate with experts in other fields, appreciation of diversity and multiculturality, ability to work in an international context, ethical commitment;

- *systemic competences*: capacity to apply knowledge in practice, research skills, capacity to learn, capacity to adapt to new situations, capacity for generating new ideas, leadership, adaptability to work autonomously, project design and management, initiative and entrepreneurial spirit, concern for quality, will to succeed.

Each university was expected to do the analysis, compare its outcome to other institutions and draw its own conclusions and develop its own strategy. In that way the Tuning project is developed by universities for universities in order to allow them to better adapt their curricula

and define degree programmes in terms of learning outcomes, which leads to qualifications that are more transparent and ultimately better tuned to the needs of the labour market. One can hope that all mentioned activities will produce positive outcome for reduction of labour market mismatches and improvement in anticipation of labour trends.

2 SITUATION IN CROATIA

2.1 Analysis of labour market mismatch

As mentioned, in Croatia there are limited activities related to analysis of labour market mismatch. Matković (2011) calculated the frequency of vertical and horizontal mismatch between educational outcome and employment according to each applied criterion and examined if obtained estimations are consistent throughout the whole educational spectrum. Regarding the vertical mismatch it is possible to examine overqualification and underquafication for first offered job after the finishing of education (Table 1).

Table 1: Obtained vertical mismatch between level of education and first job according to three criteria: frequency of overqualification and underquafication for the whole sample and particular educational groups

Outcome	**Percentage of overqualified**			**Percentage of underqualified**		
Criterion	**Level of occupational complexity**	**The announced employer's requirement**	**Worker's self-assessment**	**Level of occupational complexity**	**The announced employer's requirement**	**Worker's self-assessment**
Total	18.5	25.7	40.0	1.7	5.1	6.8
Three year secondary vocational school	10.3	5.7	24.1	1.8	11.5	10.6
Four year secondary vocational school	8.8	38.2	52.3	0.2	0.3	3.4
Withdrew from tertiary education	11.4	23.9	46.0	1.3	2.8	9.1
Non-university education*	50.9	47.1	55.8	12.7	14.4	15.8
University education	38.4	32.5	38.1	/	/	/

**mostly higher tertiary education, but it partly encompasses post-secondary education*

Source: Survey on educational and employment careers of the Croatian youth, taken from Matković (2011).

Both outcomes are based on the criterion of administrative systematisation of the level of occupational complexity. Thus, only 2% of youth are underqualified for the current job, while 18% are overqualified. Employers in 26% sought lower educational level than that acquired by interviewed person, while in 5% of the cases youth persons were able to employ on the jobs where higher educational level was required.

Similar results are obtained in the Survey by Croatian Employment Service (2010) performed in three regions in Croatia. The answers tend to be relatively uniform as 61.6% of the employers in the Pannonia region to 68.8% of the employers in the North West region think that educational outcomes are not attuned to their needs. Overall, one third of all employers are satisfied with the quality of skills of young workers. Also, around one third of employers required lower level of education in comparison to that achieved by youth persons. However,

when asked to evaluate very specific skills of young workers, this apparent satisfaction expressed here dissolved into relatively low marks.

The highest level of vertical mismatch is achieved using the criterion of workers' self-assessment. Thus, 40% of interviewed persons believe that they are overqualified for their current job, while 7% consider that their job requires higher education level in comparison to that they have reached. Older respondents in all three regions think that educational system has prepared them adequately for employers' demands at the medium level, while in North-West and in Pannonia region the younger age group seems to be more satisfied with the knowledge and skills acquired in the schools.

In the mentioned report, the situation on the labour market and education mismatch is underlined as an area where employers should systematically collaborate with educational institutions. Employers should be clear about and express what they expect from their recruits. It is also apparent from employers' responses that skills are only one aspect: behaviours (reliability and motivation to work) are ranked higher than occupation-related skills when they are considering new recruits. This is most definitely an area where schools and the CES can help unemployed by developing a greater appreciation of the value of work-related behaviours and competences. The mismatch between employers' demand and employees' self-assessment is mostly recorded where employed are young persons with four year secondary education, while what is really required are employees with three year secondary vocational school. According to all three criteria the assessment of vertical mismatch for individuals with tertiary education are consistent and with similar level.

There seems to be quite a high congruence between the self-evaluation of the young unemployed and the ranking of the importance of skills by employers. This again tends to indicate that the comprehension of the structure of supply and demand is plain to both the young job seekers and the employers. The Mentioned situation points to the conclusion that the mismatch problem is more linked to the lack of practical skills which are not adequately covered by regular educational programmes. The problem for the young is how to gain valuable work experience. Even though the employers are positive about the advantages of employing youth, practice shows a different picture. Can the employers rightly complain about the lack of practical skills of young workers when they are not prepared to help them get this experience?

Table 2: Horizontal mismatch between level of education and first job according to administrative criterion and employer's self-assessment. Frequency for the whole sample and particular educational groups.

	Occupation mismatches the field of education	**Employer did not require the same or similar field of education**
Total	41.5	37.5
Three year secondary vocational school	40.2	40.1
Four year secondary vocational school	54.3	52.6
Non-university education	38.2	34.7
University education	28.7	15.6

Note: not included are youth that finished gymnasium, withdrew from secondary school or tertiary education.
Source: Survey on educational and employment careers of the Croatian youth

Regarding the mismatch between a first job and the field of previous education, only two criteria are available: match between occupation and the field of previous education and data on employer's requirement. There is a significant difference in obtained results for the total

sample. According to the first criteria, for 42% of youth their first job does not correspond to their field of previous education (for example, professor of psychology works as a secretary).

The question is where is Croatia in comparison to other European countries? Using data from 2000s, Wolbers (2003) got the empirical results that show how a number of individual, structural and job characteristics affect the likelihood of having a job mismatch. In almost all European countries the frequency of horizontal mismatch is between 30% and 40% (with the exception of Italy where it is more than 50%). According to the mentioned result, it could be assessed that Croatia is among the countries with relatively high horizontal mismatches, although the criteria used for Croatia is less strict in comparison with those used by Wolbers. In 38% of first jobs, where young persons with VET or tertiary education were employed, there was no need for their and similar occupations according to employer's announced requirement. This is very similar to the results obtained by Herceg (2010) in examining employment of youth persons that finished VET. There around 69% of interviewed persons found a job inside the field for which they were educated. On the individual level, these two criteria overlap in three fourths of cases. Some differences between two criteria could be found by the persons with university education, where the mismatch regarding the formal criterion is double in comparison with employers' requirement.

Around two fifths of youth have worked on the jobs completely unrelated to their achieved education. If the mismatch between educational outcomes and employment is a quantitatively structural issue, or a consequence of too many or too few persons with a particular educational level or a field of education, the mismatch will be less present in "surplus" occupations and education levels, and more where the supply does not satisfy demand. But if education is a hierarchical position good, where the level and direction of education primarily provide positive signals on the candidate in comparison to all other, then the mismatch could be more present by less demanding fields and education levels.

2.2 Activities linked with long-term assessment of labour market needs

In the last few years, the Croatian Employment Service (CES) realised a Survey on previous and expected employers needs for workers for the next year. The questionnaire also asks questions related to the requirements regarding occupation, knowledge and skills of the possible employees. The purpose of the Survey is to propose measures for better adjustments of demand and supply on the labour market. The Survey for 2011 was realized during six weeks in January and February 2011 and encompassed a relatively high number of employers: 11,963, which is 81.3% of the number in the selected sample (14,711 employers). They employed 648,935 workers which is 44.0% of total employment in Croatia. The sample included employers with five or more employees: small firms 80.4%, medium firms 15.9% and big firms 3.7%. The questionnaire was sent by CES to employers by mail, but it was also possible to respond online through the CES web page (www.hzz.hr). Most employers underlined that they had problems finding employee(s) with adequate qualifications and professions but very often they also complained about the lack of workers with required work experiences as well as with low level of employee interest and motivation for offered jobs. It is a pity that the results of the mentioned Survey are not published (although they are available on the web) and that they are almost unknown to the broader public. One could estimate that the influence of mentioned Survey on labour and market policies is relatively limited.

In July 2010, the Government of Croatia issued the Decree on Monitoring, Analysis and Forecasting Labour Market Needs for Particular Professions, and on Making and Taking into

Account the Recommendations for Educational Enrolment Policy. The Government obliged the CES to develop a methodology of analysis and forecasting labour market needs, and to produce the recommendations for enrolment policy. The Managing Board of CES adopted the methodology in September 2010. The methodology was implemented by regional offices of CES and the recommendations were produced and sent to the MSES and to educational institutions in December 2010. Two main data sources were used for analysis: the register of the unemployed; and an employers' survey. The relative speed of outflow from unemployment to employment has been analysed by narrow field of completed education; for example, how fast persons who completed tertiary education in mechanical engineering or law or pharmacy leave the unemployment register for employment. In other words: what is the ratio of those who left the register within 6 months after they registered to the total number of the registered with the same education field completed. Data on younger and middle-aged persons have been used for analysis as the work career of older persons is more affected by their work experience and other factors. The outflow indicator was calculated for every narrow field of education and a rank-list of educational fields is made: those that find employment fast are put at the top of the rank-list while those that are slow to find employment are put at the bottom. The ranking based on statistical data is also checked with officers who work in employment mediation to see whether their intuitive knowledge based on everyday experience confirm statistical results. The value of the indicator and the rank of particular field of education throughout years have been used to forecast its future medium-term relative position on the rank-list using linear extrapolation. Results from the employers' survey conducted by CES were also used in the analysis and forecasting; if employers say that there has been a shortage of workers of particular professions, and if they repeat it year after year, then that has been taken into account when the rank-list is made. As the rank-lists have been made at the level of regional and local labour markets, analysts from regional offices also have taken into account regional and local development plans and their workforce implications. The final rank-lists have been used to make recommendations for the enrolment policy; for those educational fields at the top an increase in the number of students is recommended, and for those at the bottom a decrease is recommended. The recommendations are made separately for 3-year and 4-year vocational education programmes and for university and so called professional studies programmes. This kind of analysis and recommendations should be made every year but the results will probably not change much from year to year. There are huge shortcomings of the previously described methodology: the unemployment register does not cover all the persons that completed education because some persons never register especially those highly educated; and flow indicators are unstable and therefore less reliable than stock indicators. Methodology is not taking into consideration causes of different employability indicators as well as stability of jobs or possible mismatch as long as they are no more on CES register. For example, differences in filling vacancies among rural and urban areas have nothing to do with universities' enrolment policies. Therefore more comprehensive data sources and more stable and reliable stock indicators are needed. Enrolment policy is not part of the Decree, but mentioned results are recommended to be used as guidance for it despite its obvious shortcomings.

Taking into account the process of globalization and the stabilization process Croatia is undergoing, economic restructuring and the pressures of competition, demographic factors, as well as the need for modernization and the development of a knowledge-based society and economy, there is an obvious need for more effective planning and management of the education system and particularly to put more attention to long-term forecasting of labour market needs. Currently there is inadequate preparation and/or insufficient coordination

between various line Ministries and bodies, but different activities have been realised by various institutions and on the diverse levels.

As a means for improving matching and anticipation of trends on the labour market the National Committee for the Croatian Qualifications Framework (CROQF) was established, as a Government body in which representatives of all stakeholders and social partners will participate. CROQF is a vital factor in the organisation of the system of lifelong learning, which is the axis of a knowledge-based society. It has been set up on the foundations of Croatian educational tradition, the current situation and the development of society, the needs of the economy, individuals and society as a whole, the guidelines of the European Qualifications Framework and international regulations which the Republic of Croatia has accepted.

Furthermore, preparations for the European Social Fund work have started in particular in the framework of the Instrument for Pre-accession Assistance (IPA) and its component on human resources development, with particular attention to labour market anticipation. In this context, work has started on the relevant programming documents including the single Operational Programme. As part of preparations for the utilisation of the IPA, the Croatian Government adopted the Regulation on the scope and content of responsibilities and powers of the bodies responsible for IPA management. Under the Regulation, Ministry of Science, Education and Sports (MSES) in co-operation with various other Governmental bodies and agencies, is in charge of anticipating labour market and future skill needs, but exact output has not yet been presented. For improving matching and reduction in the number of unemployed persons and vacant jobs as a mean of strengthening of CES capacities various training activities have been organized.

The Vocational Education Agency is an example of positive practice. It established 13 Sector Councils (for 13 VET sectors). These bodies comprise representatives of relevant stakeholders but half of its members are representatives of the economic sector. In the content proposed for VET legislation, the role of Sector Councils has been defined accordingly. Sector Councils are bodies that define the needs of the labour market, provide analysis and data, evaluate and approve occupational standards, as well as propose new learning programmes network in accordance with labour market needs. Moreover, each occupational standard is developed by the occupational expert group whose members are coming directly from the economic sector. For now, the assessment of needs for the sector electrotechnics (electrical engineering) and computer science (ECS) has been finished. There adequate attention to demand for occupations and competences has been given. Also, as a supply for occupation and competences in mentioned fields is analysed. Furthermore, conditions on the labour market for sectoral occupations are investigated. Finally, the attention is oriented towards matching of supply and demand. Mentioned survey consists of five main parts. First section describes demand for occupations and includes scope of sector, number and types of occupations needed (including the data on number of employed, unemployed and inactive on the national level), usages of sectional occupations, long-term employment trends in key economic activities, incomes, number of companies and number of employed and vacancies in sector. Second section is dedicated to demand for competences includes the matrix of competence where necessary competence are listed for particular occupations based on different questionnaires, national strategic documents, EU development documents and prediction of technological development. Section 3 provides labour market indicators - unemployment, employment and activity rates, the age structure of labour force, occupations regarding education level getting and analyses the development of educational programmes during the time. Conditions in the labour market the work for sectional occupations are

presented in Section 4 where net salaries, kinds of employment contract (for example, fixed or non-fixed-term employment), hours of work, size of companies and ownership structure etc. Finally Section 5 deals with matching of supply and demand with adequate attention to replacement of existing labour force and recommendations for enrolment policies. Mentioned analysis should be considered as the starting point for further examination of ECS sector's labour force need. Therefore it is necessary to deepen future surveys in various directions.

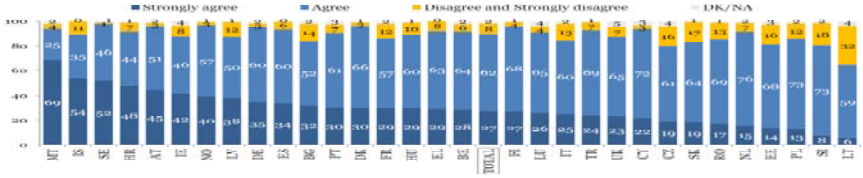
Firstly, it will be useful to analyse trends of occupation employment through time using Labour Force Survey from longer period, because long-term trends give adequate base for anticipation of future movements. Moreover, there is a need to gather detailed data on required competences for jobs in the area of electrotechnics, in order to prepare matrices of competences and provide reliable conclusions on contents of future qualifications. In future versions of sector's profile it is necessary to realise additional analysis which complement the sectional profile. There is a particularly visible lack of analysis of current supply of competences in existing educational programmes. Similar activities are planned for other 12 Sector Councils, but probably will not be realised in the near future. Explained activities are not a part of the mentioned Decree and it will be very useful if they would be broadened to other sectors in future.

There is another survey by Croatian Chamber of Economy (CCE) although it is not a classical anticipation of the skill demand. Croatian Chamber of Economy has conducted, in last three years, the on-line survey on the educational needs in small and medium enterprises (SME) and craft with particular reference to entrepreneurial skills through their County Chambers. In the poll, selected enterprises were obliged to respond to the questionnaire. The used method was self-respond to the questionnaire according to own initiative of particular firm after receiving the questionnaire. In 2010, 973 (or 26.6%) of total 3656 small and medium enterprises from the CCE database responded to the questionnaire , while 784 (21.4%) finished with complete responding. 399 of total 2661 craftsmen entities from the Croatian Chamber of Trade and Craft database responded the questionnaire, while 359 (13.5%) finished with complete responding. The main goal of the research and realised analysis was to identify skilling, training and education needs of the employees. The survey have questioned the importance of following traits: readiness and openness for the improvement of business processes; readiness for facing the changes; capability of clear communication; capability and readiness for co-operation; taking own initiatives for discovering and proposing new solutions; readiness and dedication for lifelong learning; personal responsibility and readiness for the risk taking for own initiatives in the work; orientation towards the result, persistence and efficiency in the work, and positive attitude and readiness for work in multi-ethnic and multicultural environment. According to the results, development of all nine mentioned characteristics is desirable for all employees, but for managers it is crucially important. Orientation towards the result, persistence and efficiency in the work is the most important characteristic, followed by readiness for facing changes

Similar information focused on important skills for graduates can be found in the European research that included Croatia. Flash Eurobarometer "Employers' perception of graduate employability" provides insights into the needs and perceptions of graduate recruiters through monitoring the opinions of senior staff in companies with at least 50 employees and across a range of business sectors, public and non-public. The survey covers all 27 EU Member States, as well as Norway, Iceland, Croatia and Turkey. Companies included in this study had recruited higher education graduates in the past five years and/or were planning to recruit such graduates in the next five years. Overall, 7036 companies were interviewed (200 in Croatia), between 30 August and 7 September 2010.

Almost all skills and capabilities listed in the survey were considered to be very or rather important when recruiting higher education graduates and Croatian employers answers were above average. In the list of the highly ranked skills for Croatian employers, computer skills (92%) are followed by team working skills (89%), good literacy, being able to adapt to new situations, communication skills, analytical and problem-solving skills, planning and organization skills and sector-specific skills (74%). A large majority (94%) of Croatian employers - who had recruited higher education graduates in the past five years - agreed that these graduates had the skills required to work in their company. Moreover, 69% of respondents strongly agreed with this proposition.

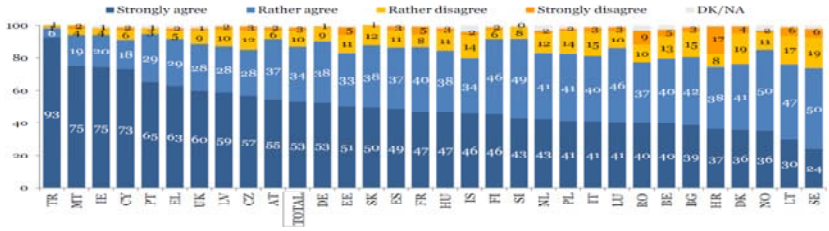
Figure 1. Higher education graduates recruited in the last 3-5 years have the skills required to work in respondents' companies



Source: European Commission 2010

Besides the set of skills, work experience of graduates was highly important for recruiters. In total, 75% of Croatian graduate recruiters agreed with the statement that work experience is a crucial asset for new recruits.

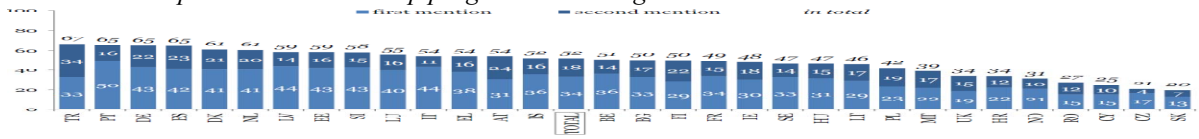
Figure 2. Work experience is crucial asset for new recruits



Source: European Commission 2010

Consequently European employers most frequently selected sector-specific work placements as an integral part of study programme when asked how universities could improve the employability of their graduates, but only a minority of graduate employers in Croatia preferred cooperating with higher education institutions by participating in internship programmes.

Figure 3. Opinion about the best ways of cooperating with higher education institutions on recruitment Participation in an internship programme with higher education institution



Source: European Commission 2010

Although there is very popular view that educational institutions are not willing to follow labour market needs it is important to take into account the most important actors in educational process – students. Despite that one should expect that students should be interested to enrol in those studies that guaranty better employability, research by Potočnik (2008) shows that 90% of students enrol in studies of their own choice according to their interest for a profession despite that they are aware of differing chances on labour market after graduating.

During the past two decades Croatian tertiary education system went through considerable massification as the number of enrolled has almost doubled. Process is most visible in professional studies, and academic courses in business, economics and law faculties. Despite expansion of system and prolongation of average study duration, completion rate has somewhat increased during the past decade. Taken together, this was reflected as a considerable increase in number of students and proportion of cohort that successfully completes tertiary education. Though, with about 40% of students failing to graduate, Croatia still lags behind majority of EU and OECD countries, both with regard to proportion of cohort which graduates and number of students who drop out of tertiary education (Matković 2009)

Characteristic for Croatian students is a very long average time to degree completion and a high dropout rate. There is no significant difference among those that pay tuitions and those that study for free. Explanation for poor progress through the university system could be also sought in students' motivation. Poor motivation emphasized by employers as one of biggest problems in finding adequate workers can be seen in students' approach to their education as well. The dilemma after completion of secondary education is usually not: participate in the labour market or continue education on tertiary level, because the alternative to study is not employment but mostly a long period of unemployment. Student status is preferred both by student and by his family, which continues to support him financially despite the average duration of studying being almost double than needed. This kind of problems could be path dependent as higher education in former Yugoslavia was also characterized by long periods of study and high dropout rates. The Bologna process changed approach to teaching, but it looks like students approach to studying has not changed in the same direction as many of them aim to acquire a diploma in any way as their primary goal, rather than to achieve the knowledge that should make them competitive on the labour market as soon as possible. The previously presented statistical data, while allowing that university diploma is not a sure ticket for a secure and well-paying job, nonetheless indicate that university graduates are in a much better position on average than those with secondary school or lower attainment.

3 CONCLUSIONS

All related Croatian strategic documents underline the importance of improving the capacity to anticipate future labour market and skills requirements. However, concrete actions and programmes are often missing and/or are only partially implemented. As stated reasons are manifold; probably most are linked to the lack and/or low level of institutional capacity. Furthermore, poor communication and coordination between various responsible ministries and agencies undermine the quality of economic, labour and educational policies. Overall, there is consensus on the direction of economic and educational policy, but intergovernmental communication and coordination needs to be strengthened.

In Croatia, there is a serious need for a comprehensive system of information and data about the outcomes of the education system, particularly at the tertiary level, which could assist the formulation of policies. It is necessary to monitor the quality of outcomes in education and research through the design and implementation of appropriate policy instruments and measures.

Investments in human capital are necessary to keep pace with the growing demand for high skills. Although the workforce in Croatia is (mostly) well educated, employers often have difficulty finding workers with the right skills. The upgrading of skills will be one of the major tasks in order to overcome the problem of the skill mismatch. Participation rates in

education need to be raised throughout the educational system including education at all levels.

The Croatian workforce should move towards knowledge-based industries, jobs and innovation-driven economic growth, and workers should be able to change jobs quickly, manage themselves and others, and engage in continuous learning. Students and employees should learn to work together by developing a team spirit and appropriate social behaviour while at the same time allowing their individual preferences and talents to develop.

In Croatia proper analyses of current and projections of future labour market needs is still missing, so that the educational system and future students are not adequately informed. Active labour market measures need to be further developed in order to remedy the current mismatch of skills on the labour market. A more strategic approach to employment needs to be developed and matched by appropriate capacity building for analysis, implementation and assessment. The strengthening of the public employment services should be supported by the continuation of modernisation initiatives.

Education and training have to adjust to changing skill requirements in the labour market. Schools and training centres should restructure their courses to discontinue programmes where there is clear surplus labour and replace them with programmes offering skills on demand. Curricula have to be constantly adjusted and modernised to include newly required competencies, and teaching should be made more proactive and participatory. Employment of graduates should be one important criterion for assessing the quality of training programmes, while the funding of schools and training centres can be used as leverage.

Employers should recognise their role in education as introducing practical skills and work experience in educational process cannot be done without them. Public policy should support them in these activities. Students and their families should accept responsibility for their own future and to rationally choose studies and courses that will allow them to compete on future labour market. If students continue with pressure to enrol in the same professions educational system will not be encouraged no able to change.

Curricula in schools should be reformed to increase links with the needs of the economy and to reduce compulsory subjects and increase optional subjects, begin specialization in the vocational track in later school years, broaden specializations, emphasize problem solving, develop teamwork, increase the ability to learn, develop students' ability to manage themselves and others, build communication and technical/ICT skills, and reduce the emphasis on memorization of facts. The curriculum reform should be accompanied by new textbooks, teacher guides, and learning materials, changes in teaching methods, and new measures of learning outcomes. Schools and universities should be accountable for results.

Educational policy should be formulated in a partnership of the relevant ministries with the social partners. There is a need for regular analyses and short to medium-term projections of demand for labour and skills through surveys of employers and forecasting models to inform and direct educational policy. The social partners should also be actively involved in the implementation and evaluation of educational policy at all levels.

4 BIBLIOGRAPHY

Babić, Z., Matković, T., Šošić, V., (2006): **Structural Changes in Tertiary Education and Impacts on the Labour Market**, *Privredna Kretanja i Ekonomska Politika*, (108): 26-66.

Bartlett, W., (2007): *Economic restructuring, job creation and the changing demand for skills in the Western Balkans*, in Fetsi, A. (ed.), **Labour markets in the Western Balkans: challenges for the future**, Turin: European Training Foundation.

Becker, G.S., (1962): **Investment in human capital: a theoretical analysis**. Journal of Political Economy, Vol. 70, No 5, p. 9-49. http://ideas.repec.org/a/ucp/jpolec/v70y1962p9.html [Accessed 7.2.2013]

Cedefop, Barrett, A., (2001): **Economic performance of education and training: costs and benefits**. in Cedefop; Descy, P.; Tessaring, M. (2001): *Training in Europe: second report on vocational training research in Europe 2000*: background report volume 2 . Luxembourg: Publications Office, p. 383-404. http://www.cedefop.europa.eu/EN/Files/3008EN242Barrett.pdf, [Accessed 5.2.2013]

Duke, C., Hasan, A., Cappon, P., Meissner, W., Metcalf, H., Thornhill, D., (2007): **Croatia: Thematic Review of Tertiary Education**. Paris: Organisation for Economic Co-operation and Development, Directorate for Education Education and Training Policy

European Commission, (2008a) **New Skills for New Jobs: Anticipating and matching labour market and skills needs**, Brussels: Communication from the European Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - adopted on 16 December 2008. http://www.dges.mctes.pt/NR/rdonlyres/955D4EFD-5E99-409F-868B-1A78993C6033/3671/new_skills.pdf, [Accessed 6.2.2013]

European Commission, (2008b) **Commission Staff Working Document, New Skills for New Jobs Anticipating and Matching Labour Market and Skills Needs,** Brussels: Communication from the European Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Brussels: The European Commission http://ec.europa.eu/education/lifelong-learning-policy/doc/sec3058_en.pdf, [Accessed 7.2.2013

European Commission, (2010): **Employers' perception of graduate employability,** Flash Eurobarometer No. 304 http://ec.europa.eu/public_opinion/flash/fl_304_en.pdf [Accessed 6.2.2013]

Gatelli, D., Johansen, J., (2011): **Measuring mismatch in ETF partner countries,** Turin: European Training Foundation.

Groot. W., Maassen van den Brink. H., (1995): **Allocation and the returns to overeducation in the United Kingdom**. Universiteit van Amsterdam. *Tinbergen Institute Discussion Paper* TI 3–95–205.

Hartog. J., (2000): **Over-education and earnings: where are we, where should we go?** *Economics of Education Review*. 19(2): 131-147. http://www1.fee.uva.nl/pp/bin/594fulltext.pdf, [Accessed 6.2.2013]

Lassnigg, L., (2012): **Anticipating and Matching Skills Demand and Supply Synthesis of National Reports,** Turin: European Training Foundation. http://www.etf.europa.eu/webatt.nsf/0/31F36458BEACA338C1257AAD0039765D/$file/Skills%20matching_synthesis%20report.pdf[Accessed 7.2.2013]

Matković, T., (2009): **An Overview of the Tertiary Education Participation, Completion and Tuition Fee Indicators in the Republic of Croatia 1991-2007,** *Revija za scoijalnu politiku*, 16 (22): 239-250,

Nordhaug, O., (1993): **Human capital in organizations, competence, training, and**

learning. Bergen: Oxford University Press.

Oxford Research, (2010) **Report prepared by Oxford Research for DG Employment, Social Affairs and Equal Opportunities,** Frederiksberg**:** Oxford Research, http://ec.europa.eu/social/main.jsp?langId=en&catId=782&newsId=731&furtherNews=yes, [Accessed 7.2.2013]

Potočnik, D., (2008): **Izbor studija: motivacijska struktura upisa i očekivani uspjeh u pronalasku željenoga posla,** *Sociologija i prostor,* 46 (3–4): 265–284

Stevens, M., (1994): **A theoretical model of on-the-job training with imperfect competition**. ***Oxford Economic Papers***, 46 (4): 537-562.

The European Centre for the Development of Vocational Training - Cedefop, (2008): ***Skill Needs in Europe. Focus on*** *2020*, Luxembourg Cedefop: The European Centre for the Development of Vocational Training.

The European Centre for the Development of Vocational Training - Cedefop, (2009): **Skills mismatch: Identifying priorities for further research,** Cedefop working paper No 3, Thessaloniki: The European Centre for the Development of Vocational Training, http://www. cedefop.europa.eu/EN/publications/5987.aspx [Accessed 7.2.2013]

The European Centre for the Development of Vocational Training - Cedefop, (2010) **A bridge to the future. European policy for vocational education and training 2002-10,** http://www.cedefop.europa.eu/EN/Files/3058_en.pdf**,** [Accessed 5.2.2013]

Wilson, R., Zukersteinova, A., (2011): **Anticipating changing skill needs**, Warwick: Institute for Employment Research University of Warwick: http://www.newskillsnetwork.eu/doc/868?download=false [Accessed 7.2.2013]

LONG-TERM UNEMPLOYMENT IN THE VARIETIES OF CAPITALISM

Alberto Chilosi
University of Pisa
Via S. Andrea 48 56127 Pisa, Italy
E-mail: chilosi@sp.unipi.it

Key words: *Varieties of Capitalism, Long-term unemployment, Employment protection, Economic fallacies*

ABSTRACT

This paper considers how the different varieties of capitalism affect the rate of long-term unemployment. The liberal market variety, where employment protection is the lowest, presents lower rates of long-term unemployment than the continental European and the Mediterranean varieties. In the latter both employment protection and long-term unemployment are the highest and labour market participation the lowest. The social-democratic Scandinavian variety gets the best of both worlds: low rates of long-term unemployment, high rates of labour participation, lower degree of inequality, with relatively high levels of employment protection. However the Scandinavian model may be hardly applicable in countries, such as the Mediterranean ones, where a sizable part of public opinion adheres to the three standard economic fallacies that are described in the appendix. Low rates of long-term unemployment and high levels of labour participation are also produced by the far-Eastern Asian variety, but at the cost of a markedly dualistic labour market structure.

1 INTRODUCTION

The main object of the paper is to consider how employment protection leads to different long-term rates of unemployment in the different varieties of capitalism. In the varieties of capitalism literature at the centre stage of labour market performance is the aggregate rate of unemployment.[1] But this is misleading: the real social and economic issue is not unemployment as such but long-term unemployment. Indeed, short-term unemployment can be seen as physiological to the functioning of the labour market, while long-term unemployment is uncontroversially pathological. This paper innovates, alongside a previous one centred on issues of corporate governance (Chilosi, 2012), by putting long-term unemployment instead of aggregate unemployment as such at the centre stage of the comparison between the labour market performance of different varieties of capitalism.

2 EMPLOYEE PROTECTION AND REPRESENTATION, AND THE VARIETIES OF CAPITALISM

A priori we may think the different ways in which workers' interests are protected to be substitute to each other: for instance mandatory representation in corporate boards or in work councils vs. collective trade unions rights or to individual employee rights. In reality rather than substitution complementarity applies, different economic and institutional traditions and different social and political values achieving different overall levels of employee protection.2

Labour market institutions, together with complementary ones relating to social policy and the economic role of the state, or the working of financial and commodity markets, allow to distinguish different varieties of capitalism. Following Hall and Soskice (2001), and Amable (2003) we may distinguish the following varieties of developed capitalist economies:

1. Liberal market
2. Continental European
3. Mediterranean European
4. Social-democratic Scandinavian
5. East Asian.[3]

3 LONG TERM UNEMPLOYMENT AND LABOUR MARKET PERFORMANCE IN THE VARIETIES OF CAPITALISM

In the tables that follow we show labour market outcomes, and in particular rates of long-term unemployment, for the above varieties, as well as the degree of employment protection, as indicated by OECD's aggregate employment protection index[4] (averages for the years 1991-2007):

[1] Cf. Calmors and Driffil (1988), Hall and Soskice (2001, p. 20); Amable (2003). Some consideration of the issue can be found in Becker (2009), p. 157.

[2] Cf. Chilosi (2012). Hall and Soskice, following Aoki (1994), rather than pointing to the different ideological and cultural backgrounds, consider the issue in terms of efficiency, as complementarity between institutions applies when the "presence (or efficiency) of one increases the returns (or efficiency of the other)".

[3] Hall and Soskice concentrate their analysis on the dichotomy between liberal market and coordinated market economies, but also a separate Mediterranean variety is mentioned by them (p. 21).

[4] "Unweighted average of version 1 sub-indicators for regular contracts (EPR_v1) and temporary contracts (EPT_v1)", where EPR_v1 is "sub-indicator for dismissal of employees on regular contracts" and EPT_v1 is "sub-indicator for strictness of regulation on temporary contracts". "Summary indicators are on a scale from 0 (least restrictions) to 6 (most restrictions)" (OECD 2010).

Table 1. Long -term unemployment, employment protection, and the varieties of capitalism: the Liberal market, Central European and Mediterranean European varieties[a)].

	Long-term unemployment rate	Unemployment rate	Participation rate	Youth long-term unemployment rate	Employment protection index
USA	0.5	5.4	66.1	0.6	0.21
UK	2.2	6.7	61.4	2.7	0.66
Canada	1.0	8.4	65.6	0.7	0.75
Australia	2.0	7.4	63.5	2.6	1.05
Ireland	4.5	8.4	57.4	5.5	0.98
New Zealand	1.3	6.5	65.2	1.6	1.15
Average	**1.9**	**7.1**	**63.2**	**2.3**	**0.80**
Germany	4.2	8.6	58.5	2.5	2.54
France	3.8	10.3	55.3	5	3.01
Belgium	4.5	8.2	51.1	6.6	2.52
Netherlands	2.2	4.8	61.4	0.6	2.4
Austria	1.2	4.1	58.3	1.1	2.13
Average	**3.2**	**7.2**	**56.9**	**3.2**	**2.52-**
Italy	5.8	9.8	48.1	15.8	2.69
Spain	7.3	15.5	52.4	10.9	3.31
Greece	5.1	9.6	52.1	13.3	3.27-
Portugal	2.5	5.9	60.7	10.9	*3.67*
Average	**5.2**	**10.2**	**53.3**	**12.7**	**3.24**

*Country **a**verages for the years 1991-2007.*

Source: ILO (2011);. last column: OECD (2010).

Table 2. Long -term unemployment, employment protection, and the varieties of capitalism: the Scandinavian, and East Asian varieties.

Country	Long-term unemployment rate	Unemployment rate	Participation rate	Youth long-term unemployment rate	Employment protection index
Denmark	1.5	6	66.1	0.8	1.71
Finland[5]	2.9	10.8	61.7	1.9	2.08
Sweden	1.7	7.1	64	2.3	2.44
Norway	0.6	4.3	65.6	0.6	2.69
Average	**1.7**	**7.1**	**64.4**	**1.4**	**2.23**
Japan	1	3.9	62.4	1.3	1.58
Korea	0.1	3.5	61.2	0.1	2.32
Taiwan	NA	3.1	NA	NA	NA
Singapore	0.1	3.7	65.4	NA	NA
Hong Kong	NA	4.3	61.4	NA	NA
Average		**3.7**	**62.6**		

*[a)] Country **a**verages for the years 1991-2007.*

Source: ILO (2011);. last column: OECD (2010).

[5] Finland relatively high rates of unemployment may be explained as a consequence of the economic shock of losing Soviet trade after 1990.

Table 3. The varieties of capitalism: resilience to the crisis. Average rates of long-term unemployment in the years 2008-2011

USA	1.9	Germany	3.4	Italy	3.7	Denmark	1.1	Japan	1.6
UK[6]	2.1	France	3.4	Spain	5.7	Finland	1.5	Korea	0.0
Canada	0.8	Belgium	3.6	Greece	5.5	Sweden	1.1		
Australia	1.0	Netherlands	1.1	Portugal	5.3	Norway	0.3		
Ireland	5.0	Austria	1.0						
New Zealand	0.4								
Average	**1.9**	**Average**	**2.5**	**Average**	**5.1**	**Average**	**1.0**	**Average**	**0.8**

Source: ILO (2010)

Table 4. Unemployment by duration: average number of months

	Australia	Canada	USA	Europe	G7
1991-2007	2.6	4.8	3.8	14.4	4.0
2008-2011	1.8	4.2	6.6	14.6	6.4

Source: OECD; averages of the two periods. NB: the OECD table includes only a few countries or countries aggregates. No singular European country is included with complete data for the period; partial data are available only for Finland and Norway.

From the data reported in the tables above it turns out that, with the notable exception of the Scandinavian and Far Eastern varieties, wherever there is greater employment protection, long-term unemployment is on average higher, and the participation rate lower. On the other hand, as it could be expected, the relation appears to be different in the different varieties and in the different countries, as the impact of employment protection depends on the specificity of the different institutional contexts and circumstances such as, for instance, the extent of compliance, and different juridical practices, or the extent and duration of unemployment subsidies.[7]

Looking at the individual countries we can see that there are two clear outliers: Ireland and Austria. Ireland has a long-term unemployment performance akin to that of the Central European and Mediterranean countries, notwithstanding a low level of employment protection; it is notable however that following favourable external factors as well as policy choices (such as centralized bargaining leading to wage moderation) its performance markedly improves since the half of the nineties,[8] leading to low rates of long-term unemployment, comparable to those of the other liberal market economies, towards the end at the nineties and during the following decade until the crisis.[9] Austria, whose institutions make it close the social-democratic Scandinavian model, has low level of long-term unemployment, together with a high level of employment protection. This applies to lesser extent also to the Netherlands.[10] We have put France in the central European variety following Amable, but it is

[6] Finland relatively high rates of unemployment can be explained as a consequence of the economic shock of losing Soviet trade after 1990.

[7] For a similar remark, on the dependency on other institutional circumstances of the impact of employment protection legislation on labour market flows see Boeri, Van Ours, 2008, p. 213.

[8] Cf. Walsh (2002).

[9] Amable (2003, p. 173), contrary to Hall and Soskice, puts Ireland in the Central European variety. We have followed Hall and Soskice owing to Ireland's low index of employment protection and the Anglo-Saxon legal tradition common with the other economies of the group.

[10] According to Boyer 1997 classification, quoted in Amable (2003, p. 83), Austria belongs, together with the Scandinavian countries, to a common social-democratic model. According to Andersen et al. (2007, p.14) not

on the borderline: indeed, according to Hall and Soskice (p. 21) it belongs to the Mediterranean variety"(marked by a large agrarian sector and recent histories of extensive state intervention").

If we now turn to the aggregate rate of unemployment, we see that the differences between the different varieties are much smaller. For the liberal market, central European and Scandinavian varieties the difference is practically nought. The rate is about half in East Asia, and about one third higher in the Mediterranean variety. From the above data we may draw the conclusion that in the liberal market and Scandinavian varieties the labour market is on average markedly more dynamic than in the other ones, as borne by the implied higher rates of short-term unemployment (but job to job transfers, another aspect of labour market dynamics, are not considered here).[11] It is in fact to be expected that in the liberal market economies where layoffs (and thus hirings) are less difficult and costly short run unemployment to be higher. Moreover leaving a job in order to look for a better one and to be more choisy in accepting a new job when laid off is less risky than wherever rates of long-term unemployment are higher (especially if unemployment subsidies are generous, as is the case in the Scandinavian countries).

4 THE SPECIAL SCANDINAVIAN CASE: THE BEST OF BOTH WORLDS?

According to the above data the Scandinavian model produces the best of both worlds: high levels of labour market performance with low levels of long-term unemployment, as well as high levels of employment protection, together with comparatively greater equality (as shown in table 5 below).[12]

---

only Austria, but also the Netherlands, another possible outlier, are close to the Scandinavian (or "Nordic") model.

[11] In countries where there is greater job protection the dynamics of the labour market could take the form of greater job to job transfers (Skedinger, 2010, p. 118). To have a dynamic labour market is particularly important for innovative and technological advanced production activities, where risks and rewards are potentially higher, and the burden of an almost fixed labour force protected from lay-off much more troublesome.

[12] As well as relatively high rates of economic growth (cf. Anderson et al., 2007, p. 15). Acemoglu et al. (2012) argue that the success of the Scandinavian economies has been made possible by the technological progress engineered by the more unequal, competitive and business friendly American system, which pushes forward the technological frontier to the advantage of everybody else. In other terms, according to them the Scandinavian model enjoys external advantages that would not occur if it were universally adopted. However Acemoglu's contention is not borne out by actual data, as provided by the Global Innovation Index (GII 2012). In the Global Innovation Index rankings the United States occupies the tenth position preceded by Sweden (rank 2), Finland (rank 4), and Denmark (rank 7). In the innovation output index sub-ranking the United States ranks 16-th and is preceded by the Scandinavian countries. For a commentary of the relative USA position see p. 15 of GII (2012) which concludes that "in a series of indicators, the USA has been facing a weaker performance. This is particularly evident in specific areas, mostly those linked to education and the tapping of global talent, and to research, patenting, and scientific publications." Moreover there is always the doubt of how much the economic outcomes of a particular country are the product of formal institutions rather than of the peculiar characteristics of the country itself, as rooted in its history, geography and demography. In particular, the alleged high propensity toward risk and enterprise, and the innovative propensity of the American economy, could be due rather than to the absence of a safety net, to a system of values which leads to the choice of not having a safety net (on the different value systems and the different perception of poverty and inequality in the USA and Europe, see Alesina, 2006). The safety net in itself is not adversary to taking risks, on the contrary it may reduce the personal riskiness of otherwise risky innovative activities: you may take risks more lightly if in case of bad luck the safety net guarantees a minimum living standard, instead of the prospect of utterly destitution. Indeed, a collective safety net provides a sort of collective insurance against destitution, in case the bets get sour, at much lower costs and lower moral hazard (since there is no problem of adverse selection and there is the advantage of increasing returns to scale), and with more complete coverage, than private insurance, even if it is true that the taxes needed to finance the collective safety net could have a negative impact on incentives. But in theory at

Table 5. Levels of inequality (Gini coefficients) and varieties of capitalism

USA	45	Germany	28.3	Italy	36	Denmark	23.2	Japan	38.1
UK	36	France	26.7	Spain	34.7	Finland	26.9	Korea	35.8
Canada	32.6	Belgium	33	Greece	35.1	Sweden	25	Taiwan	NA
Australia	35.2	Netherland	30.9	Portugal	38,5	Norway	25.8	Singapore	42.5
Ireland	34	Austria	31						
Average	36.6	Average	30	Average	36,1	Average	25,2	Average	38,8

Source: *WorldFactbook* 2007. The lower the value of the Gini coefficient, the lower is inequality

How does the Scandinavian model produce its labour market remarkable outcomes? As explained by a group of authoritative Scandinavian economists (Andersen et al, 2007), the labour market institutions entail "high unionization, highly coordinated wage bargaining geared to wage compression, active labour market policies, and relatively generous unemployment benefits" (p. 40). Thus, social cohesion[13] and centralized decision making bring about wage moderation, as the possible consequences of wage increases on aggregate employment are to some extent internalized. At the same time active labour market policies contribute to achieve low levels of incidence of long-term unemployment.[14]

5 IS THE SCANDINAVIAN MODEL EXPORTABLE?

It seems unlikely that the Scandinavian model could be easily exportable elsewhere. It is certainly not exportable wherever the trade union movement is fragmented and subjected to the competition of "ultras" trade unions sharing the zero sum view of a class struggle ideology, leading to a wage push incompatible with relative price stability and full employment, or whenever trade unions are poised to the defence of specific sectoral interests rather than paying attention to overall workers' interests (including the unemployed). In general "economies at the extremes - with highly centralized or highly decentralized labour markets – [have] better employment records than those economies 'betwixt and between'" (Freeman, 1988, p. 65)[15]. Moreover, independently of the formal institutions, cooperative solutions such as of the Scandinavian type are more difficult to achieve wherever, as is apparently the case in Mediterranean countries, important sections of public opinion and of the political class, as well of the trade union movement, are prone to wishful thinking and share the popular economic fallacies expounded in the appendix. The corresponding cultural background may be reflected not only in the extent of labour protection granted by the formal legal framework, but also in the way in which it finds actual judicial application. Finally "Nordic countries are small and ethnically homogeneous … Ethnic homogeneity is conducive to the emergence of trust, the key ingredient in "social capital", which is widely believed to improve the efficiency of society by facilitating coordinated action. In fact, the level of trust is higher in the Nordic countries (and the Netherlands) than elsewhere according to available

least the latter is not a foregone conclusion. Usually the substitution effect of taxation is considered, but the income effect should also be taken into account, as it would work in the opposite direction on incentives in relation to the substitution effect. Obviously much depends on the specific way the tax system is structured, and, in an international context, on the mobility of the relevant production factors. (On the ways in which a safety net can favour growth see Alderman and Yemtsov, 2013.)

[13] "The system is based on social cohesion in the sense of a perception that we are all, in one way or another, in the same boat" (ibidem, p. 65).

[14] For a sober appraisal of the efficacy of active market policies in Sweden see however ibidem, p. 115.

[15] On this see in particular Calmors and Driffil (1988).

indicators" (Andersen et al., 2007, p. 39). But these peculiarities of the Scandinavian (or "Nordic") social model are challenged by the recent processes of massive immigration (ibidem).

6 WHAT ABOUT THE SOUTH-EAST ASIAN MODEL?

It is based on a dualistic labour market solution: the core employees enjoy protection of their job legally or implicitly while the workers in the secondary market are subjected to a high degree of flexibility and much lower pay, functioning as a buffer stock. In particular there is high supply elasticity of the female component of the labour force, with a high propensity to retire from the labour market in case of downward employment pressure, as related to more traditional family values. In Japan "the majority of employees such as female employees, part-time workers and workers in smaller firms are not covered" by the long-term employment system reserved to men employees in big enterprises (Tachibanaki, 2000, p. 11). The coexistence of a core section of protected workers with a relatively large one of lesser paid temporary employees can be found also in the case of Korea, where the recorded incidence of long-term unemployment is minimal.[16]

7 INSIDERS AND OUTSIDERS

Let us return to what seems to be the more feasible alternative outside Scandinavia, a trade-off between employment protection and long-term unemployment. As it turns out from the data above the continental and Mediterranean varieties lead to better protection of insiders wishing to maintain their jobs, the Anglo-Saxon liberal market variety of outsiders wishing to find a job, as shown by the much lower average long-term unemployment rates in the latter variety. Putting ourselves in the perspective of the preferences of a representative worker over alternative institutional arrangements, it is by no means clear a priori that even the representative unemployed, if given the choice, would prefer a liberal labour market system, notwithstanding the lower probability to end up as long-term unemployed in the latter case. Indeed, even an unemployed worker may prefer to trade-off the greater difficulty of finding a job now with the shield provided by employment protection once a job is found.

Surprisingly enough, empirical inquiries in the satisfaction associated to different contractual arrangements in different normative setups do not report better feeling of security in case of stronger legal protection of permanent employment contracts. Wherever private employees are less protected, paradoxically, they feel more secure: the empirical studies surveyed by Per Skedinger (2010) "indicate that employees with permanent jobs perceive less security in countries with stricter legislation" (p. 118). In Clark and Postel-Vinay (2009, p. 207) "workers feel less secure in countries where jobs are more protected" (with the exception of "permanent public jobs, suggesting that such jobs are perceived to be by and large insulated from labor market fluctuations").

The positive relationship between labour market protection and long-term unemployment that is shown in the tables above can be an obvious explanation of the latter result. In the end greater security in the job does not lead to labour market security, aside from public employment where security in the job is felt to be absolute.[17]

[16] Grubb, Lee and Tergeist (2007), p. 12.

[17] "'Job security', taken literally, applies to security within the present job, while 'labour market security' is a wider concept which also includes the possibility of finding a new job if an employee has been fired" (Skedinger, 2010, p. 113).

An additional cost, from the viewpoint of workers' welfare, could be the greater probability of entrapment: as high rates of long-term unemployment tend to be associated with stronger legal protection of permanent employment, to leave a secure, even if unsatisfactory, job in order to look for a more satisfactory one could be too risky a decision. This impairs the allocative function of the labour market and the way in which workers pursue the search for more productive (and better paid), as well as more satisfactory, jobs.[18] In the end greater labour mobility could have positive effects on allocative efficiency, while higher wages could compensate for the negative welfare consequences of higher labour mobility ("churning rate").[19]

The above considerations are in agreement with the results of Origo and Pagani (2009). According to their inquiry on workers' job satisfaction, using the micro-data of the Eurobarometer Survey, "job stability and perceived security are not the same thing … job satisfaction is relatively low mainly when perceived job security is low. In addition, the combination 'temporary but secure job' (hence, the lack of only job stability) seems preferable to the combination 'permanent but insecure job' (that is, the lack of only job security). This indicates that the length of the contract may be less important if the worker perceives that s/he is not at risk of becoming unemployed" (p. 554).

Aside from what appears to be the case in the Scandinavian social-democratic variety, the protection of what is considered to be the weaker side in the employment relationship, the employee, can be to the cost of even weaker actors, the long-term unemployed, or the employed in the secondary labour market, as well as the discouraged workers. At the same time the weakness of the employee position, ceteris paribus, is all the greater the lower the probability of finding a job in case of layoffs and the lower the unemployment benefits (which are not considered in the present paper). Here the legislator faces trade-offs, which are dealt with in the different varieties of capitalism, as well as in the different countries, in different ways.

8 THE DYNAMIC PERSPECTIVE

Looking at the dynamic perspective, of changing the institutions of labour market, and, in particular, employment protection, the employed are usually a much larger proportion of the labour force and of the electoral constituency than the unemployed, and their voice by way of the trade unions may be louder. Moreover the employed, alike anybody else, may have a propensity to look at their perceived individual interest rather than to the broad picture. Thus, ceteris paribus, it may be politically easier to increase rather than decrease employment protection. At the same time if increased employment protection leads to lower probability of outflow from unemployment, thus increasing the loss associated to lay-offs, the perceived interest of the employed in employment protection is enhanced and any reduction in protection may become politically more difficult. The contrary process could lead for reciprocal reasons to the opposite outcome; thus labour market reforms could acquire their own momentum.[20]

[18] As expounded, in particular, by the hedonic theory of wages. On the negative consequences of employment protection on labour mobility and productivity growth see Martin and Scarpetta, 2011.
[19] Cf. Böckerman et al. (2011).
[20] On the political economy of employment protection and related literature see Bertola (1998), Saint-Paul (202).

9 CONCLUSION

In the end the choice between the varieties of capitalism, or the wholesale rejection of them, is a matter of individual (and in the aggregate, social) preferences and social choice. But one should not be deluded, as is often the case, by wishful thinking as to the overall consequences of employment protection in the different social and institutional environments. And attention should always be paid to the true nature of the outside options and of the opportunity costs, avoiding what we may call the general nirvana fallacy: if some social arrangement is not perfect it should be rejected because perfection is just around the corner.[21] Moreover what is relevant is not what alternative is theoretically possible, but what is actually possible.

Turning to current European debates, we may see that concretely the countries making up the European Union belong to different varieties of capitalism, embedded in different historical, cultural and legal traditions. The pretence by some political forces to impose a particular variety at the level of the European Union, in particular with respect to the subject matter of the present paper, the discipline of the labour market, would put the European Union institutions into needless dangerous strains.[22] This may be an area where the benefits of institutional variety, in terms of learning and competing, and adapting to local conditions and traditions, outweigh the advantages of institutional uniformity in establishing a formal play level field in terms of labour law for European businesses.

[21] For the Nirvana fallacy see Demsetz (1969, p. 1): "The view that now pervades much public policy economics implicitly presents the relevant choice as between an ideal norm and an existing 'imperfect' institutional arrangement. This nirvana approach differs considerably from a comparative institution approach in which the relevant choice is between alternative real institutional arrangements."

[22] Of course there is the argument of externalities, firms in a country where the labour protection legislation is more stringent can find some difficulty in competing with countries where the protection is lower. But this applies in general to the whole world, and in case competitiveness were affected by the stiffness of the labour market, some correction could be found in the wage levels. In practice however the burden could fall on the unemployed, on secondary workers, and on productivity growth. And there is no consensus in Europe as to what extent the interest the insiders should be privileged in relation to outsiders.

10 APPENDIX: THREE POPULAR ECONOMIC FALLACIES

Three popular economic fallacies often mar the public discourse about labour law, economic systems, and (un)employment (as well as about any other possible issue of economic policy) .

10.1 The fallacy of composition

If something is good for somebody it is good for the whole class of people to which the person belongs: if a worker's job is protected, and this protection is extended to all the jobs, this turns to the advantage of all the workers.

10.2 The lump of labour, and lump of something, fallacy

The amount of work to be done is given and independent of the provisions of the labour law. This fallacy can refer to other objects of discourse, whenever they are taken as independent of the relevant legal provisions: the number and structure of firms, entrepreneurs, or whatever else. We may call the generalization of the lump of labour fallacy as the general lump of something fallacy. Turning to labour law, its provisions affect the number of jobs not only by varying existing firms' demand of labour (i.e. offers of employment), but also the set of existing firms (i. e. employers) and the supply of entrepreneurship (of those willing to start and to develop a firm and create jobs). To some extent the fallacy of the lump of something is based on a confusion between the short and the long run: jobs, firms, entrepreneurs are given at a certain moment of time, but are by no means given in the longer time frame in which legal provisions exert their effects.

A popular instance of the fallacy of lump of labour refers to the idea that if somebody retires, his job is available for somebody else, and thus unemployment can be reduced by lowering the retirement age.

10.3 The zero sum fallacy

If somebody gets something more it means that somebody else gets less, if somebody's lot is improved, somebody else's must be worsened. Thus if employers gain, it means that workers lose, and vice-versa: a wage rise or a legal provision strengthening the bargaining power of trade unions, or enhancing jobs protection is considered to always to the advantage of workers, even if it leads eventually to bankruptcy and closure of the firm or to loss of competitiveness and slowing down of economic growth, higher long-term unemployment or high inflation.

Here too the fallacy concerns the time frame: what looks favourable in the short run may be ruinous in the longer run.

11 REFERENCES

Acemoglu D., Robinson J. A., Verdier T, (2012): **Asymmetric Growth and Institutions in an Interdependent World: Can't We All Be More Like Nordics?**, NBER Working Paper 18441, National Bureau of Economic Research

Alderman H., Yemtsov, R., (2013): **How Can Safety Nets Contribute to Economic Growth?**, World Bank Policy Research Working Paper 6437 (May)

Alesina, A., (2006): **Welfare Policies in the UNECE Region: Why So Different**, UNECE Discussion Paper 2006.3

Amable, B., (2003): The **Diversity of Modern Capitalism**, Oxford: Oxford Un. Press

Amable, B. (2009): **Structural Reforms in Europe and the (In)Coherence of Institutions,** ***Oxford Review of Economic Policy***, **25**: 17–39

Andersen T. M., Holmström B, Honkapohja S., Korkman S, Söderström H. T., Vartiainen J., (2007): **The Nordic Model, Embracing Globalization and Sharing Risks,** Helsinki: The Research Institute of the Finnish Economy (ETLA)

Aoki, M., (1994): **The Japanese Firm as a System of Attributes: A Survey and Research Agenda,** in M. Aoki, R. Dorem ***The Japanese Firm: Sources of Competitive Strength,*** Oxford: Clarendon Press: 11-40.

Becker, U., (2009): **Open Varieties of Capitalism: Continuity, Change and Performances,** Basinstoke: Palgrave McMillan

Bertola, G., (1998); **Microeconomic Perspectives on Aggregate Labor Markets,** EUI Working Paper ECO No. 98/23

Böckerman P., Ilmakunnas P., Johansson E. (2011): **Job Security and Employee Well-Being: Evidence From Matched Survey and Register Data,** ***Labor Economics***, 18: 547-554

Boeri T., Van Ours J., (2008): **The Economics of Imperfect Labor Markets**, Princeton: Princeton Un. Press

Calmors L., Driffil J., (1988): **Bargaining Structure, Corporatism and Macroeconomic Performance,** ***Economic Policy,*** 6**:** 13-47

Chilosi, A., (2012): **Stakeholder Protection, Varieties of Capitalism, and Long-Term Unemployment,** ***The European Journal of Comparative Economics*****,** 9: 197-228

Clark A., Postel-Vinay F., (2009): **Job Security and Job Protection,** ***Oxford Economic Papers***, 61: 207–239

Demsetz, H., (1969): **Information and Efficiency: Another Viewpoint,** ***Journal of Law and Economics,*** 12: 1-22

Freeman, R. B., (1988): **Labour Market Institutions and Economic Performance,** ***Economic Policy,*** 3: 63-80. Stable URL: http://www.jstor.org/stable/1344504

GII (2012): **The Global Innovation Index 2012**, INSEAD and WIPO (World International Property Organization), www.

Grubb, D., J. Lee, Tergeist, P., (2007): **Addressing Labour Market Duality in Korea**, OECD Social, Employment and Migration Working Papers, No. 61, http://dx.doi.org/10.1787/058184274204

Hall P.A., Soskice D., (2001): **Introduction**, in P.A. Hall., D. Soskice (eds.), **Varieties of Capitalism**, Oxford: Oxford University Press

ILO, (2011): **Key Indicators of the Labour Market (KILM)**, Seventh Edition, http://www.ilo.org/empelm/pubs/WCMS_114060/lang--en/index.htm

Martin, J., Scarpetta, P., (2011): 'Setting It Right: Employment Protection, Labour Reallocation and Productivity', IZA Policy Paper No. 27, http://ftp.iza.org/pp27.pdf

OECD, (2010): **Indicators on Employment Protection -** annual time series data 1985-2008, Version 2 - updated 24-09-2010, www.oecd.org/dataoecd/62/38/42773608.xls

Origo F., Pagani L., (2009): **Flexicurity and Job Satisfaction in Europe: The Importance of Perceived and Actual Job Stability for Well-Being at Work, *Labour Economics*:** 547-555

Skedinger P., (2010): **Employment Protection Legislation: Evolution, Effects, Winners and Losers**, Cheltenham: Elgar

Saint-Paul G., (2002): **The Political Economy of Employment Protection, *Journal of Political Economy:*** 672-704

Tachibanaki T., Taki A. (2000): **Capital and Labour in Japan: the Functions of Two Actor Markets**, Abingdon: Routledge

Walsh, B., (2002): **When Unemployment Disappears : Ireland in the 1990s**, UCD Centre for Economic Research Working Paper Series WP02/29, University College Dublin. School of Economics, http://www.ucd.ie/economics/research/papers/2002/WP02.29.pdf

EDUCATION-RESEARCH-INNOVATION POLICY TRIANGLE AND COMPETITIVENESS OF THE CROATIAN SME SECTOR

Nevenka Čučković
Institute for International Relations (IMO)
Ljudevita F. Vukotinovića 2, 10000 Zagreb
Phone: + 385 1 48 77 475; Fax: + 385 1 48 28 361
E-mail: nena@irmo.hr

Valentina Vučković
Institute for International Relations (IMO)
Ljudevita F. Vukotinovića 2, 10000 Zagreb
Phone: + 385 1 48 77 474; Fax: + 385 1 48 28 361
E-mail: valentina@irmo.hr

Key words: *Innovation, Education, Research, Competitiveness, SMEs*

ABSTRACT

The EU 2020 strategy places the smart and innovative growth at the centre of the future EU competitiveness. The paper examines the quality of education-research-innovation institutional and policy triangle for knowledge transfer in Croatia as a source of enterprise sector competitiveness, and draws on a variety of empirical evidence to identify the emerging pattern of innovation activities and knowledge transfer performance in the Croatian SME sector. Deterioration of international competitiveness has been a major policy concern in economies such as Croatia and this concern is getting stronger as the full accession to the EU approaches. The analysis is based on the premise that labour competences and skills could substantially trigger innovation and growth of the SME sector in Croatia. Therefore it is of utmost importance how SMEs use potentials offered by the education-research-innovation policy framework outside and inside the firms and how it is mirrored in increasing capacities for SME competitiveness. Mismatch between the demand and supply for the skilled labour in SME sector profoundly affects the potentials for future competitiveness of the Croatian SME sector. The authors start by examining the institutional framework for the innovation and knowledge transfer activities and measure the innovation performance of the Croatian SME sector by number of benchmark indicators to identify both the performance advantages and gaps, as compared to the average EU. The special emphasis is put on labour skills demand and competence based education as a determining factor for future SMEs competitiveness. Level of R&D investments; strength of science and business linkages; application of patents; research performance and knowledge transfer mechanisms as well as innovation governance are among issues closely examined when assessing the capacity for innovation of the SME sector. In conclusion, the paper identifies several policy implications and needed future initiatives toward supporting the stronger co-operation between innovative SMEs and academia.

1 INTRODUCTION

The development strategy "*Europe 2020*" (EC, 2010) and its flagship initiative "*Innovation Union*"[23] with their focus on the "smart growth" have put into spotlight the important link between innovation and economic growth and brought it at the centre of attention of analysts and economic policy makers across the Europe. Both documents put innovation, knowledge and creativity at forefront for smart economic development and job creation in Europe and demand increase of an investment into these areas as an answer to EU's underperformance in productivity growth, compared to the global competitors.

The awareness that Europe is lagging behind the main world competitors (USA, Japan and BRICS) in production of new knowledge, its transfer and commercialisation into innovative products and processes has motivated the EU policy makers to act more decisively on that front to ensure future economic growth, job creation, economic competitiveness and general social wellbeing. Although the drive towards knowledge based economy has been very profound in the last ten years and there is quite an explosion of the new firms started in the industries which intensively use research and innovation in their work, it is still insufficient to ensure the EU adequate competitive position at the global markets.

How would Croatia as a new EU member and its enterprise sector fit into processes of strengthening the smart growth? In this paper we examine the present capacity and performance of the "knowledge policy triangle" i.e. education-research-innovation framework in Croatia. The establishment of a well-functioning and efficient national innovation system (NIS) is perceived as the main support instrument of the Croatian transition to knowledge society which productively translates knowledge into innovative products and processes.

The article analyses some of the institutional and policy elements of NIS and their recent developments in Croatia to illustrate the main gaps and achievements as compared to the benchmark countries of the EU. The article also stresses the issue of governance capability, as an essential element of the innovation activities and performance without which it would be hard to move to a proclaimed goal of a knowledge society. The special emphasis is also put on assessing the capacity of Croatian SMEs to innovate, and the quality of human capital, i.e. labour skills and competences.

The text is structured as follows. Following the introduction, in the second section we present an overview of main theoretical and empirical foundations for innovation led economic growth. In section 3 we briefly portray the main characteristics of Croatian NIS and its evolution. Section 4 brings the analysis of innovation and R&D performance indicators in Croatia relative to the EU27 average and selected CEE countries. Furthermore, in section 5 we analyse the innovation performance of Croatia's SME sector relative to selected countries as well as the cooperation between science and private sector. Finally, we discuss some main strengths and weaknesses of innovation potential in Croatia (Section 6) and provide concluding remarks and policy implications (Section 7).

[23] See Innovation Union (EC, 2010), http://ec.europa.eu/research/innovation-union/index_en.cfm

2 BRIEF OVERVIEW OF THEORETICAL AND EMPIRICAL FOUNDATIONS FOR INNOVATION LED ECONOMIC GROWTH

Economic growth theories have widely accepted the importance of knowledge transfer, innovation and technological progress for fuelling economic growth, especially in the last two-three decades (Grossman and Helpman, 1991; Romer 1990). However, in the last fifteen years, the theories that prevail have gradually moved away from neo-classical perception of the knowledge, creativity and innovation as the economic externality towards understanding it as a determining factor and source of economic growth. Innovation and knowledge-based economic growth is now considered as a main drive for achieving more competitive economies at the global markets and consequently higher levels of social wealth and new jobs for national economy as a whole (Crescenzi and Rodriguez-Pose, 2011).

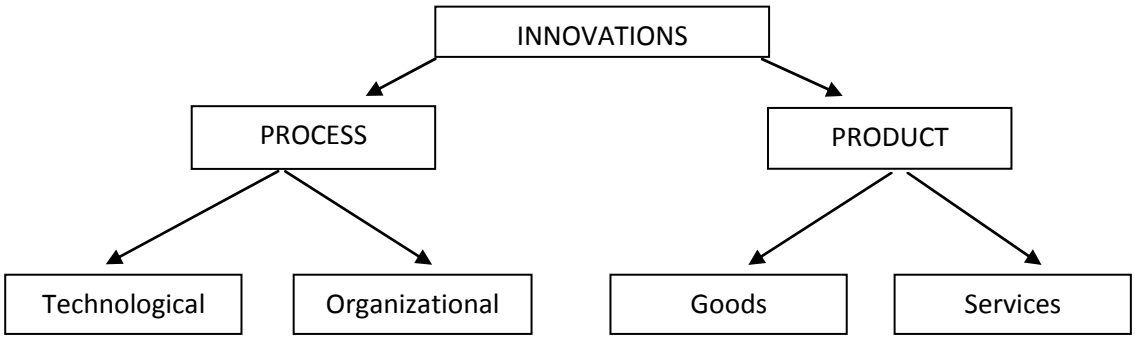
A great number of empirical studies is available to support the view that innovation activities (especially investments in ICTs) have a positive impact on both business growth and productivity and that it is usually determined by past economic performance, i.e. fast growing enterprises and economies innovate more (Roberts, 2001; Cainelli et al, 2006). Furthermore, there are more insights now that productivity and innovation act as a self-reinforcing mechanism, which further boosts economic performance. These findings provide empirical support for the endogenous nature of innovation activities in most economic sectors, especially in services (Cainelli et al, 2006).

Thus, the pressure to constantly innovate at the firm level is especially important in the era of globalised markets as it provides strength for establishing comparative and competitive advantages (Belitz et al., 2008). This is not only important for large enterprises and corporations but especially for small and medium-sized enterprises who are fighting for their niches in the market (Božić and Radas, 2011).

The preconditions for successful innovation policy system are set up by developed education and research sectors as well as capacity to transfer and diffuse the available knowledge and technology to those that need it (Rodriguez-Pose and Crescenzi, 2008). To assist the process, the successful National Innovation System should be in place, enabling knowledge policy triangle (education-research-innovation) to function and to have an impact on economic development.

What do we consider by innovation or innovative activity? There are many definitions in circulation within the literature, broader and narrower, and they differ among different economic and social theories. Broadly speaking innovations represent main gear between knowledge and its capitalisation, thus creating new value added be it in goods, services or processes. Following this understanding, by innovation in this text we have in mind all new and creative products (goods and services) as well as processes with significant technological or organizational novelty (Edquist, 2001).

Figure 1. A taxonomy of innovations



Source: Edquist, C. (2001), p.7.

Various authors have detected the important impact of the specific institutions and intangible assets (skilled human capital) on the capacity to innovate (d'Agostino and Scarlato, 2012; Crescenzi and Rodriguez-Pose, 2011, Radosevic and Raid, 2006). They have also attracted attention towards the need to have an efficient NIS in place in order to assist translating the knowledge into innovation and then further into the economic growth.

The main strand of innovation system literature (Lundvall, 1992; Lundvall, 2005; Freeman, 1995; OECD, 1997) underlines the high importance of institutional environment and organisations that feed innovative processes in firms such as universities and research institutes which have to be actively involved and linked to production, diffusion and absorption of innovation in the economy (d'Agostino and Scarlato, 2012). This strand of literature has put into focus the importance of efficient science-business linkages in order to create knowledge-based and innovative economies. Institutional differences to a large degree affect the extent and capacity of innovation among countries and generally the countries with higher quality of education (especially universities), greater ease of doing business and higher level of patent protection, consequently have more benefits from R&D and innovation outputs as well as international R&D spillovers in the economy (Coe et al, 2009). By boosting knowledge creation, support institutions indirectly impact the productivity of labour and consequently rate of economic growth. Furthermore, as Dias and McDermott (2006) detected in their empirical model, well-functioning support institutions stimulate entrepreneurship, encouraging workers to invest in education. In short, Dias and McDermott detected positive impact of institutions on technological change by examining correlation between institutions, human capital and knowledge accumulation.

What is actually a NIS? We take "on board" the definition of Freeman (1995) that is most widely used across the innovation literature and which under this term understands "*the network of organisations and institutions of the public and private sectors whose activities and interactions initiate, import, modify and diffuse new technologies and knowledge*".

Since the 1990s, the literature on innovation and NIS is growing rapidly. Central findings of most of the innovation literature imply that the firms' and individual abilities and capacity to innovate depend to a large degree on the extent and quality of interactions with the institutional environment which either supports or hinders the knowledge triangle. These findings have influenced that improving social and institutional quality has been included as one of the principle objectives of the future EU framework of sustainable development (Farole, Rodríguez -Pose and Storper, 2011).

3 INSTITUTIONAL FRAMEWORK FOR INNOVATION, RESEARCH AND KNOWLEDGE TRANSFER IN CROATIA: MAIN FEATURES AND SOURCES OF FUNDING

The intensive development of the institutional framework that supports research, innovation and knowledge transfer in Croatia has started already at the end of 1990s and since then a significant progress has been achieved, especially after the signature of the Stabilization and Association Agreement (2001) which paved the way towards the membership negotiations with the EU. Concerted efforts were made to strengthen and align the institutional framework of national innovation system (NIS) to be compatible with the S&T policy in the EU and consequently a more intensive development of the knowledge based economy became also a proclaimed development goal of Croatian government.

The pillar institutions of Croatian NIS have been created a decade ago and now there is a policy framework and plethora of different national, regional and local organisations in place that support creation, accumulation, diffusion and transfer of knowledge as a precondition for more productive innovation activities in enterprises and society as a whole. There are also many existing programs for supporting science-industry linkages and joint innovation activities which are now mostly aligned with the European Research Area (ERA). Some analysts (Švarc, 2011, p. 131) argue that the past efforts led to quite a complex and fragmented framework of different organisations that presently exist, often overlapping in their activities, so that the concept of NIS in Croatia *"...has been more "abused" then "used" as a model which could be efficient in accelerating innovation and transition to knowledge economy*". The nominal existence of support institutions also does not tell much how efficiently the funding has been spent in achieving the proclaimed goals of fostering innovation, as the present NIS lacks systemic periodic evaluation, benchmarking and monitoring instruments of the innovation impacts on the economy (Švarc et.al, 2011). Furthermore, the Croatian NIS is still rather deficient in the sector of industrial research and business development (WBC-INCO, 2011a).

In this section we briefly portray the development of the institutional framework with a focus on innovation infrastructure in charge of implementation of innovation policy. The Croatian Programme for Innovative Technological Development (HITRA) started in 2001 as a first comprehensive and integrated program aiming to enhance cooperation between science and business sector on new technology development. It laid initial institutional grounds for development of the NIS in Croatia.[24] The main mission of HITRA was to enhance the commercialization of innovations and transfer of knowledge on technological innovations from academic research centres to the enterprise sector through two programs TEST (Pre-commercial research activities of new technology development) and RAZUM (Seed funding for start-up companies and new innovative products). The programme lasted till 2005 and later its sub-programs continued to be implemented by two pillar organisations of the NIS.

Since the start of established institutional architecture of national innovation system, the Ministry of Science and Technology (now Ministry of Science, Education and Sports), was in charge of national innovation and technology development policy, and later on for implementation of the Science and Technology Policy 2006-2010, as well as S&T Action Plan, 2007-2010. After 2006 the Ministry has streamlined the NIS especially to support

[24] For elaborate and up to date overview see: Wbc-inco.net (2011), Innovation infrastructure: Croatia, available at: Croatia http://wbc-inco.net/attach/1Croatia_Public_Final_v02.pdf

innovative and technology-based entrepreneurship by focusing on the activities of the two pillar institutions: Business Innovation Centre of Croatia (BICRO) and Croatian Institute of Technology (HIT).

BICRO was established by Ministry of Science already in 1998 and during 2001-2006 helped implementation HITRA's program RAZUM but after 2006 developed into one of the main project implementing agencies. Its main mission is to facilitate technology transfer and commercialisation of innovations primarily in SME sector through development of seed and venture capital for several projects; science and technology parks as well as business incubators, science clusters and other related organisations and institutions. The six national support programs administered by BICRO are: a) Seed funding for start-up companies and new products (RAZUM); b) Commercialisation of research and transfer of knowledge from science to business (TECHCro); c) Provision of Proof of Concept (PoC) grants to verify commercial viability of research results; d) Support of industrial companies to substantially increase their R&D activities and cooperation with scientific institutions (IRCro); e) Co-funding of consultancy services with the goal of increasing industrial competitiveness (KONCro) and f) Development of venture capital funds and industry (VENCro).

HIT was established in 2006 with the primary mission to create conditions conducive to fast application of new knowledge and its transformation and capitalisation into commercial technologies and products. The work focused on facilitation of applied research; science-industry collaboration, technology transfer and business intelligence activities. HIT also took over implementation of the HITRA's program TEST.

Since 2012 these two pillar organisations of the NIS merged into single Business Innovation Agency (BIA) which main tasks are promoting innovative and technology-based entrepreneurship as a way of better adjustment to fulfilling the goal of smart and innovative growth of Croatia as a new EU member state. Its main mission would be to enhance synergy and coordination of the activities of BICRO and HIT and increase effectiveness of using available government funding to avoid overlapping and fragmentation.

In addition to the main agencies that are charged to implement research, innovation and technology development policies, there is a developed and diversified infrastructure of other organisations for technology development and transfer in Croatia. According to the World Bank (2012) Croatia actually overinvested in physical infrastructure development, especially in science parks. According to WBC-INCO Report on innovation infrastructure in Croatia (2011a) in total there are six fully operational Technology Parks and five Offices for Transfer of Technology at Universities of Zagreb, Rijeka, Split and Osijek and Institute Ruđer Bošković. There are also 32 business incubators with 370 entrepreneurs involved. Most recently established in November 2012 is a science incubator BIOCENTAR for commercialisation of innovations in biosciences through spin-off firms of academic institutions, financed by EU IPA funds.

The bulk of Croatian research community (over 80%) is concentrated in public research and education sector (7 universities, 26 research institutes), while the private sector employs only around 19% of all researchers (ERAWTCH, EC, 2011a). With around 2.700 researchers per million inhabitants, Croatia is presently at 58% of the EU27 average number of researchers per million inhabitants.

Key sources of funding innovation and transfer of knowledge are: Science and Innovation Fund (SIIF) financed through the IPA; Unity for Knowledge Fund (UKF) financed under

Science and Technology Project of the World Bank; Croatian Science Foundation; Croatian Agency for Mobility and EU Programmes and Competitiveness and Innovation Programme (CIP) within IPA IIIc funding. Additional funding would be available upon accession of Croatia to the EU when Croatia will become eligible for the structural funds' funding through European Regional Development Fund (ERDF) and European Social Fund (ESF). It is expected that in 2014-2020 Croatia will have available about €150 million for R&D and innovation from structural funds, what is according to World Bank (2012), almost 40% of the current R&D expenditures.

4 SELECTED COMPARATIVE INNOVATION AND R&D PERFORMANCE INDICATORS

General position of Croatian enterprise sector in creation and transfer of new knowledge and innovation is rather weak when compared to the average EU. For illustration, we start by presenting several indicators of availability of knowledge-based factors of growth that create conducive environment for innovation activity of the enterprise sector, including SMEs. Croatia is lagging behind its EU peers by most of these indicators. For instance, the total R&D expenditures (0.75% of the GDP in 2011) are declining and presently are among the lowest in the EU, i.e. only about 36% of the average EU investments. Namely, average EU27 R&D spending is about 2% of the GDP in 2011, but Finland and Sweden invest 3-4% annually. Another weak point is that about two thirds of the total Croatian investments into the R&D are coming from the state, while the private investments are still very much lagging behind, especially when compared to EU-27 average.

Data on research and development expenditure, by sectors of performance (Table 1) also show that Croatia records below EU27 average performance in all of the sectors. Moreover, while EU27 records increase in the average expenditure in the observed period, data for Croatia show downward trend, especially after the onset of global economic crisis in 2008.

Table 1. GERD by sectors of performance (% of GDP)

	Higher education sector		R&D Government sector		R&D Business enterprise sector		All sectors	
	EU27	Croatia	EU27	Croatia	EU27	Croatia	EU27	Croatia
2002	0.42	0.34	0.24	0.21	1.20	0.41	1.88	0.96
2003	0.42	0.38	0.24	0.21	1.19	0.38	1.87	0.96
2004	0.41	0.39	0.24	0.22	1.16	0.44	1.83	1.05
2005	0.41	0.30	0.25	0.21	1.15	0.36	1.82	0.87
2006	0.41	0.27	0.24	0.20	1.17	0.27	1.85	0.75
2007	0.42	0.27	0.24	0.20	1.18	0.33	1.85	0.80
2008	0.44	0.27	0.24	0.23	1.22	0.40	1.92	0.90
2009	0.48	0.27	0.27	0.23	1.25	0.34	2.02	0.85
2010	0.49	0.21	0.26	0.21	1.24	0.33	2.01	0.75
2011	0.49	0.21	0.26	0.21	1.26	0.34	2.03	0.75

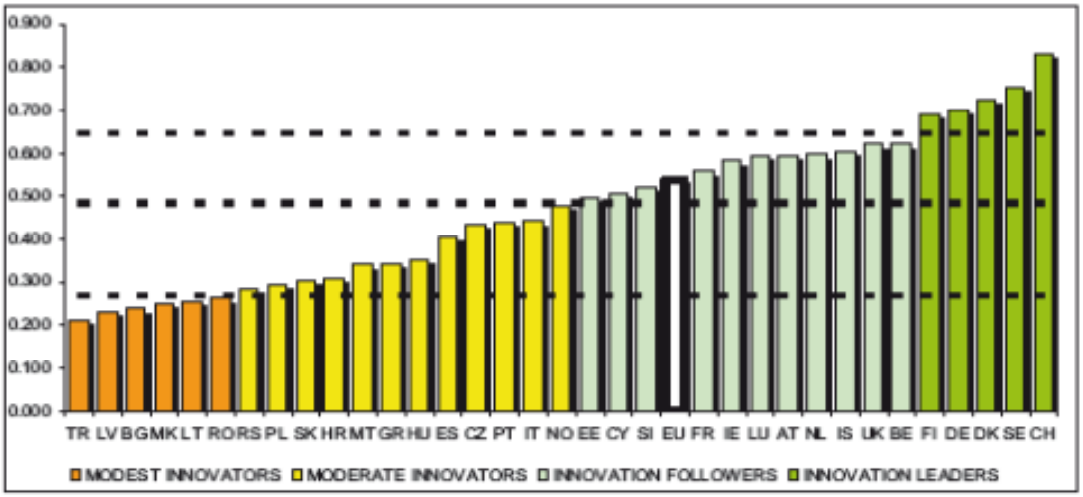
Source: Eurostat

Furthermore, the largest gap between the EU and Croatia exists in the application of patents. Namely, according to *Eurostat* (2010) in Croatia only 5.4 patents per million inhabitants are applied, as compared to 116 patents in the EU. Also, the revenues of patents and licences coming from abroad are marginal, 0.06% of total income, while average patent revenues in the EU represent 0.51%, according to *Innovation Union Scoreboard 2011* (EC, 2012a).

As for the general comparative perspective on Croatia's innovation performance, according to Innovation Union Scoreboard 2011, Croatia is placed among European moderate innovators in company of new EU members such as Poland, Slovakia, Czech Republic and Hungary as well as old EU members such as Greece, Portugal and Italy (Figure 2).

The score has shown some improvements over the time as compared to three-four years ago when it was placed to a lowest performing group of modest innovators.

Figure 2. Innovation Performance of European Countries in 2011



Note: Average performance is measured using a composite indicator building on data for 24 indicators ranging from a lowest possible performance of 0 to a maximum possible performance of 1. Average performance in 2011 reflects performance in 2009/2010 due to a lag in data availability.
Source: Innovation Union Scoreboard 2011 (EC, 2012a), p. 17.

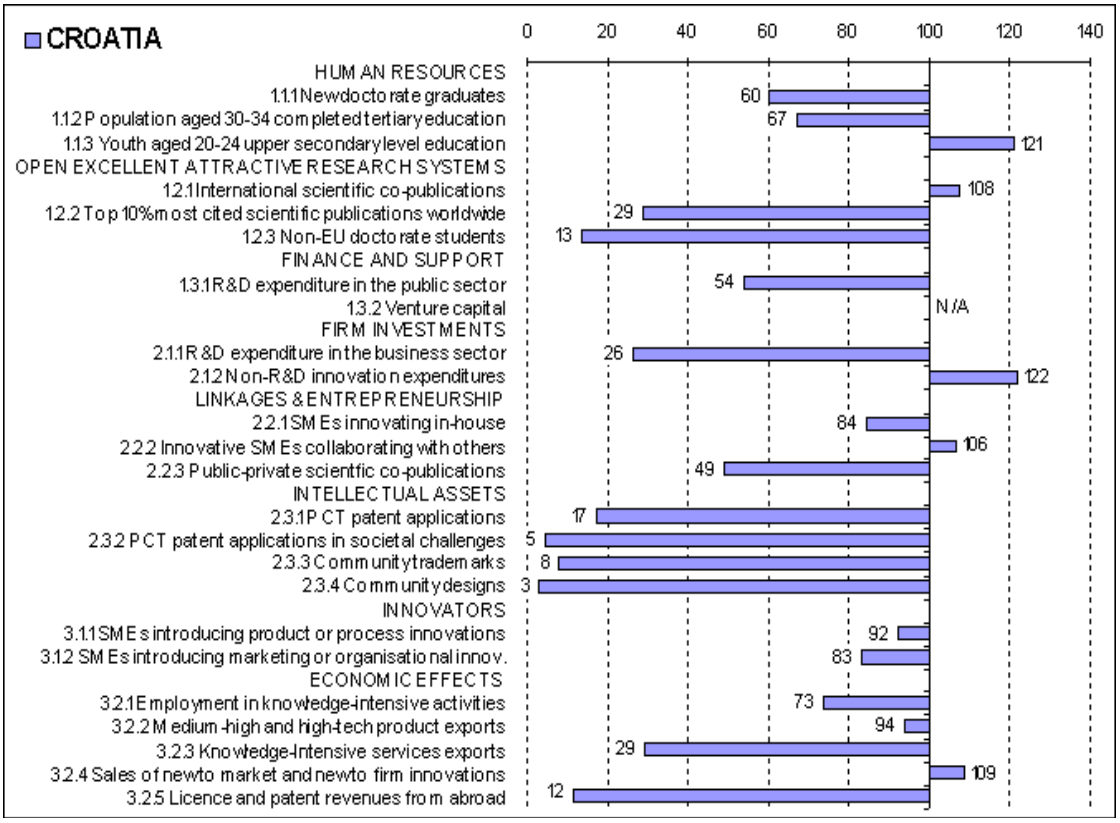
Nevertheless, this score is indicating that Croatia is still at the lower scale of the moderate innovators with unused potential for improvements in several areas. Overall innovation performance of Croatia largely reflects the inadequate availability of knowledge-based factors of growth; sporadic cooperation between private and public investors and also a low absorption capacity of the enterprise sector (EC, 2013).

Another major problem, apart from the low R&D investments, is rather low efficiency of R&D expenditures, which means that scarce resources are inefficiently spent on many fragmented projects and initiatives that lack synergy.

Also, the public funds spent on the creation of new knowledge and innovation at universities and research institutes are rarely translated into commercially viable products and processes, indicating that much of these funds are wasted when it comes to their impact on economic growth and broader social development.

More detailed country score profile from the latest *Innovation Union Scoreboard 2011* (EC, 2012a) indicates that Croatia recorded below average performance in relation to the EU27, showing relative strengths in *Human Resources*, *Finance and Support*, *Innovators* and *Economic effects*. On the other side, relative weaknesses are recorded in the area of *Open, excellent and attractive research systems* and *Intellectual Assets* (see Figure 3).

Figure 3. Indicator values for Croatia (EU27=100)



Source: Innovation Union Scoreboard 2011 (EC, 2012a)

Inadequate innovation performance is also reflected in the general competitiveness ability of the economy as a whole. The latest *Global Competitiveness Report 2012-2013* (WEF, 2012) shows that Croatia ranked 81st (relative to 76th rank in the 2011-2012 report) among 144 countries included in the sample.

From the aspect of innovation and sophistication factor, the rank is even worse (83rd). The position of Croatia relative to selected CEE countries from the aspect of innovation and entrepreneurial sub-indicators encompassed by GCR is given in the Table 2. From the aspect of overall competitiveness index, Croatia ranks better only relative to Bulgaria.

Table 2. Score values and ranks of selected entrepreneurship and innovation indicators encompassed by GCI (Global Competitiveness Index), 2012-2013

Indicator	Bulgaria	Croatia	Slovak Republic	Romania	Slovenia	Hungary
Intellectual property protection	3.0 (105)	3.5 (76)	3.8 (58)	2.9 (114)	4.3 (41)	4.0 (48)
Willingness to delegate authority	3.3 (103)	3.2 (109)	3.6 (80)	3.2 (112)	4.0 (47)	3.0 (126)
Reliance on professional management	3.7 (106)	3.6 (111)	4.2 (70)	3.5 (124)	4.0 (86)	3.9 (90)
Capacity for innovation	3.2 (64)	3.1 (72)	2.9 (88)	3.1 (77)	3.9 (31)	3.5 (45)
Quality of scientific research institutions	3.5 (75)	4.1 (48)	3.4 (90)	3.4 (84)	4.8 (29)	5.1 (20)
Availability of scientists and engineers	3.6 (98)	3.8 (86)	3.9 (79)	3.8 (82)	3.8 (84)	4.4 (50)
University-industry collaboration in R&D	3.0 (117)	3.5 (80)	3.2 (100)	3.1 (113)	3.9 (49)	4.3 (37)
Company spending on R&D	2.9 (92)	3.0 (76)	2.9 (85)	2.9 (97)	3.4 (47)	2.7 (103)
Venture capital availability	2.8 (58)	2.1 (112)	2.8 (60)	2.5 (76)	2.1 (113)	2.1 (115)
Production process sophistication	3.4 (93)	3.2 (104)	4.5 (34)	3.2 (103)	4.0 (49)	3.6 (67)
GCI 2012-2013	**3.3 (133)**	**4.0 (81)**	**4.1 (71)**	**4.1 (78)**	**4.3 (56)**	**4.3 (60)**

Note: Numbers in parentheses represent the rank of individual country among 144 countries
Source: Global Competitiveness Index 2012-2013 (WEF, 2012)

5 SCIENCE-ENTERPRISE LINKS AND INNOVATION PERFORMANCE OF CROATIAN SMEs

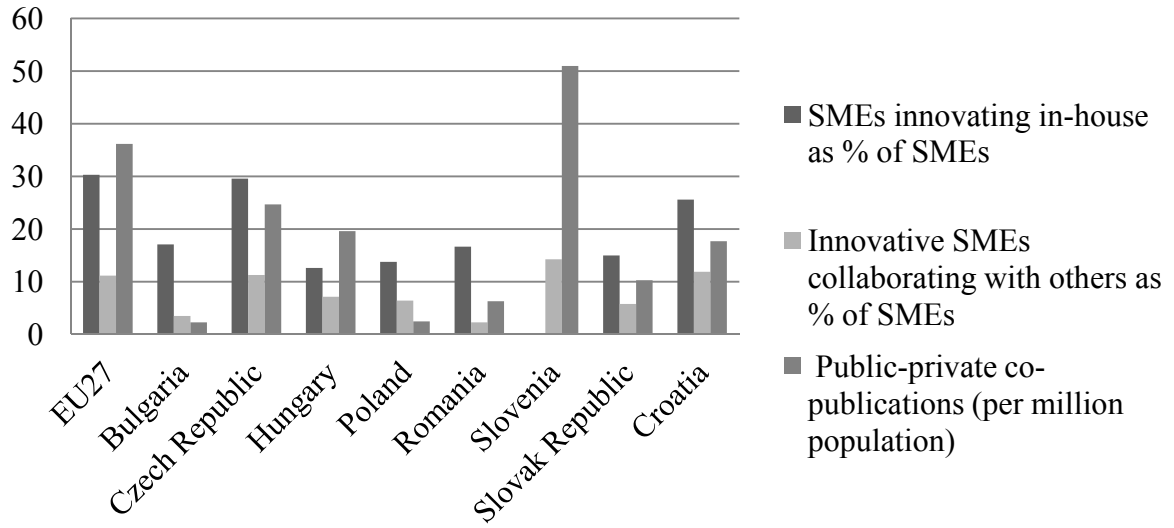
Since the concepts of innovation and entrepreneurship are closely related, critical issue regarding the competitiveness of SMEs in Croatia stems from their innovation performance. Croatian SMEs are especially vulnerable when it comes to competition from the technologically much more advanced enterprises from the EU. This vulnerability is accented with the fact that most of the present investments in the R&D in Croatia is concentrated in large companies in a few sectors (such as telecommunications, pharmaceutical industry, motor vehicles and shipbuilding), according to BERD data (ERAWATCH, EC, 2011a). Also, large enterprises traditionally innovate more and prevail among those 42% of Croatian enterprises that are involved in innovation activities in 2008-2010.[25] Therefore, closely monitoring indicators of SMEs innovation and knowledge linkages is very important for shaping their future competitiveness policy.

Innovation Union Scoreboard 2011 of the European Commission (EC, 2012a) reveals several weak points when it comes to the competitiveness of the Croatian SMEs at the single European market.

The position of Croatia relative to the EU27 average and selected CEE countries from the aspect of two dimensions which measure innovation performance of SMEs: *Linkages & entrepreneurship* and *Innovators,* respectively is shown in Figures 4 and 5.

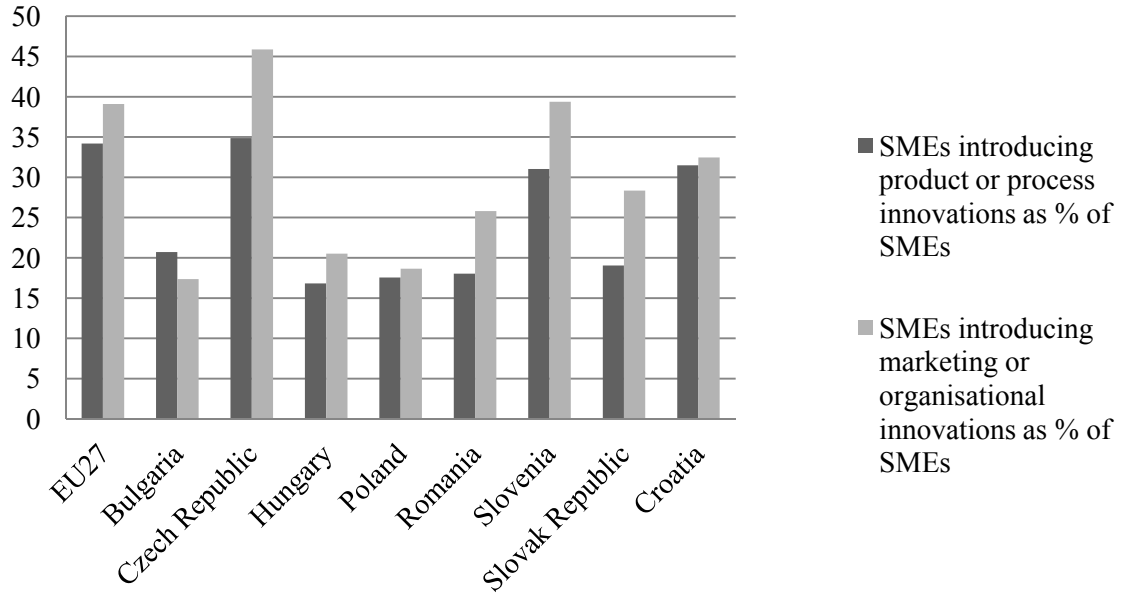
[25] Seventh Community Innovation Survey, Eurostat Newsrelease 5/2013, 11 January 2013.

Figure 4. Innovation performance in the Linkages & entrepreneurship dimension



Source: Innovation Union Scoreboard 2011 (EC, 2012a)

Figure 5. Innovation performance in the Innovators dimension



Source: Innovation Union Scoreboard 2011 (EC, 2012a)

When analysing the position of Croatia from the aspect of these specific dimensions, it records values above EU27 average only in the indicator of *Innovative SMEs collaborating with others* which measures the flow of knowledge between public research institutions and private firms as well as between firms and other firms (13% relative to the 11% for EU27). Moreover, technological innovation, measured by the *SMEs introducing product or process innovations* indicator, is the key ingredient in innovation in manufacturing activities where higher shares of technological innovators should reflect higher level of innovation activities (EC, 2012a). In Croatia, 31.5% of SMEs have introduced new product or process, which is below the EU27 average (35%). Finally, many firms innovate also through non-technological forms of innovation such as marketing and organisational innovations. Within this indicator, 32.5% of SMEs have introduced a new marketing or new organisational innovation in Croatia (the EU27 average is almost 40%).

From the aspect of increasing competitiveness, significant emphasis is put on the high-growth SMEs ("*gazellas"*). While high growth of SMEs may often stem from innovation, this innovation does not need to be related to technology but also to innovative production or business processes or to organisational innovation (EC, 2011b). In analysing growing enterprises, the *Global Entrepreneurship Monitor* (GEM) uses four criteria in order to assess whether they can be characterised as high-growth firms: (1) innovation in the use of new technologies; (2) innovation in new product development; (3) exposure to competition and (4) capacity for new employment (i.e. expected new employment in the period of 5 years). Table 3 shows the share of growing enterprises in Croatia according to the criteria of innovation through the use of new technologies and innovation through new product development. Since the year 2005, Croatia has had significantly more companies investing in the latest technologies than the average for "efficiency based" economies (around 13%). However, at the same time, it had significantly smaller share of enterprises with products that are new to everyone compared to the average of 18% for efficiency based economies. Such trend raises the question regarding the efficiency of investment in technology and the innovation within the companies which consequently reduces the possibilities for rebuilding the Croatian competitiveness (CEPOR, 2012, p.33). What Croatia needs is spreading innovation culture on all the enterprises, not only front running high-tech, in order to have a tangible impact of innovations on productivity of enterprise sector and consequently on economic growth (Radosevic, 2012).

Table 3. Growing enterprises in Croatia (by the criteria of new products development and the use of new technologies), data for start-ups

	Development of new products			**The use of new technologies**		
	Products new to everyone	**Products new to some**	**Products new to no one**	**Up to 1 year old**	**1-5 years old**	**No new technologies**
2005	10.46	21.20	68.34	30.11	26.47	43.42
2006	13.44	15.72	70.84	23.92	27.7	48.38
2007	10.47	19.84	69.68	24.76	26.6	48.59
2008	5.59	16.47	77.94	20.95	27.34	51.71
2009	9.91	13.03	77.06	20.59	26.29	53.11
2010	9.46	15.25	75.29	25.10	22.96	51.94
2011	12.63	25.16	62.21	16.48	23.77	59.75

Source: GEM Croatia 2002-2011 (CEPOR, 2012)

5.1 Knowledge transfer

Although the quality of scientific research institutions seems not to be among the most problematic areas (according to latest GCR 2012-2013, as shown in Table 2), the efficiency of these institutions represents a great issue. However, it can be improved through their cooperation with business sector. At the level of European Union, low levels of technology transfer from the academic to private sector are reflected in the so called *European Paradox* with low number of marketable products developed through research despite the presence of high-quality scientific research institutions (WEF, 2013). Table 4 shows the knowledge transfer and intellectual property protection in Croatia. Quality of the transfer of research from universities and research centres to business sector is among the lowest graded components of entrepreneurial environment encompassed by the GEM research in Croatia (CEPOR, 2012). However, it is significant that from 2002, Croatia is constantly below the average of all GEM countries from the aspect of both of these components which are crucial for the development of innovative capacity of SMEs.

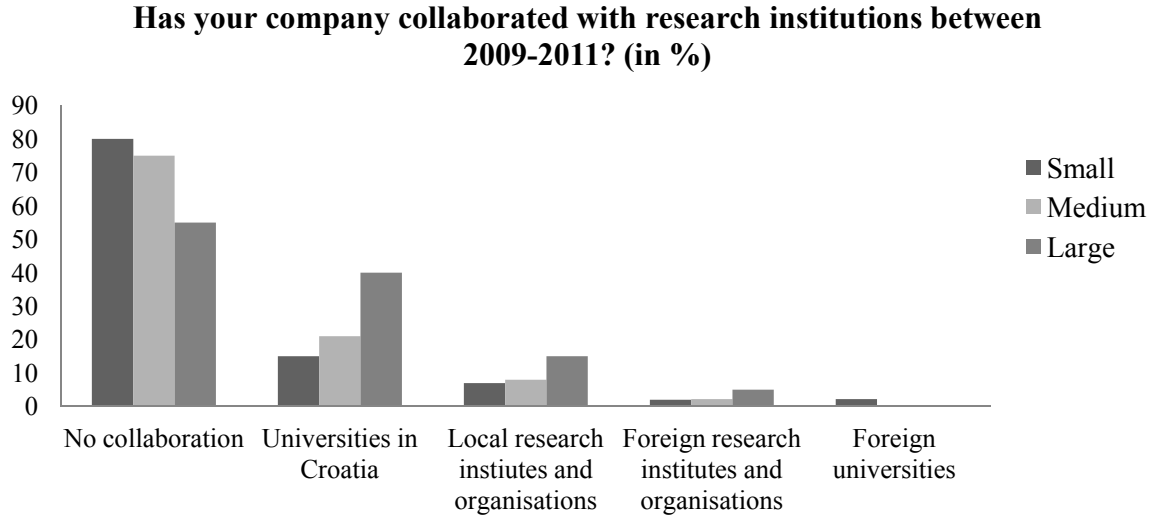
Table 4. Knowledge transfer and intellectual property protection in Croatia relative to the GEM countries

	Knowledge transfer	Intellectual property protection
2002.	2.05 (2.47)	2.36 (3.12)
2003.	2.11 (2.49)	2.44 (3.12)
2004.	2.18 (2.44)	2.52 (3.08)
2005.	2.06 (2.48)	2.36 (3.19)
2006.	2.19 (2.42)	2.63 (2.97)
2007.	2.23 (2.56)	2.68 (3.06)
2008.	2.20 (2.27)	2.66 (2.65)
2009.	2.26 (2.37)	2.53 (2.78)
2010.	2.30 (2.33)	2.62 (2.70)
2011.	2.25 (2.33)	2.61 (2.80)

Notes: Values in parentheses represent the GEM countries average
Source: GEM Croatia 2002-2011 (CEPOR, 2012)

Specifically, from the aspect of collaboration of firms with different types of research institutions, Figure 6 shows that most of the collaboration between research institutions and companies involves large enterprises and that these firms mostly collaborate with Croatian universities. Also, the bulk of the R&D investments are happening in the large enterprises rather than in the SMEs who have weak capacities to do so. For that reason, the efforts to intensify links with academic research organizations and universities are especially important for SMEs.

Figure 6. Cooperation between research institutions and firms

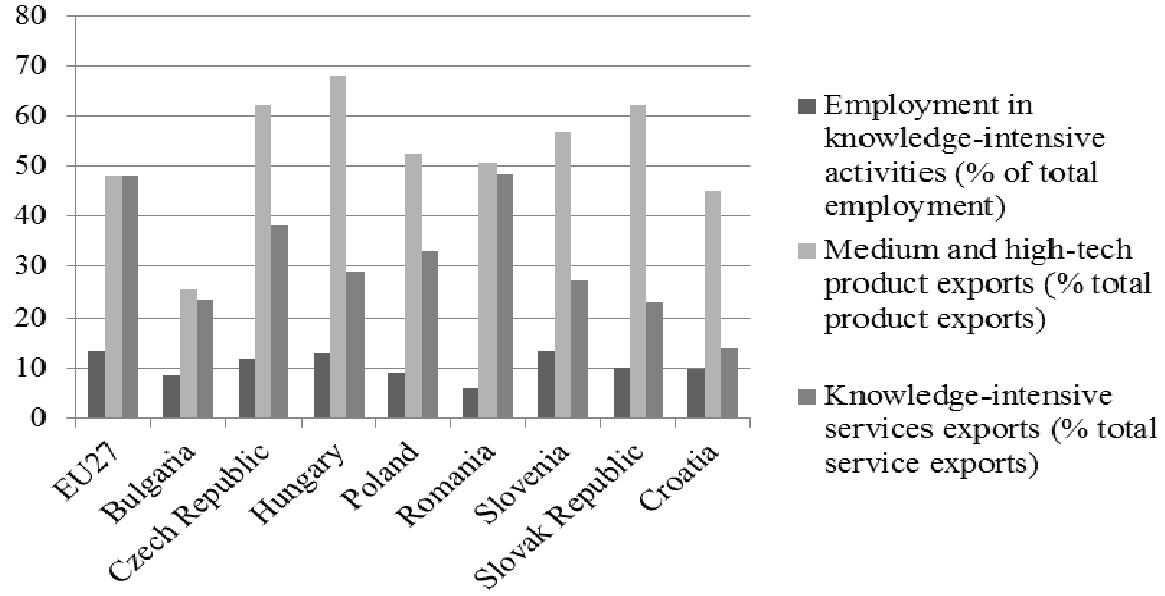


Source: Paić,A. (2013)

The latest *Flash Eurobarometer* (EC, 2012b) may reveal potential reasons for such pattern of science-industry cooperation in Croatia, especially in the SME sector. The results of this research show that smaller companies have the impression that public services for businesses have deteriorated: 20-21% of representatives at companies with 1-9 or 10-49 employees say this, as opposed to 16% of people who work at a company with 50-249 employees and just 8% of people who work at a company with 250 staff or more. On the other side, larger companies stated that public services for businesses have improved. Therefore, there is some discrepancy in the perception of quality of public services between SMEs and large companies which potentially points out to presence of problems in governance, especially from the aspect of initiatives toward supporting the stronger cooperation between research institutions and SMEs.

The need for stronger cooperation between research institutions and SMEs is even more highlighted if we look at the economic effects (outcomes) of innovation performance. Thus, Figure 7 shows indicators measuring the economic effects of innovation from the aspect of employment and exports. We can see from the figure that Croatia is dominated by medium and high-tech products exports (as % of total product exports) while it is significantly lagging behind selected countries from the aspect of the share of knowledge-intensive services exports (as % of total services exports).

Figure 7. Economic effects of innovation performance



Source: Innovation Union Scoreboard 2011 (EC, 2012a)

6 INNOVATION AND GOVERNANCE; SKILLS AND COMPTECENCES AND KEY CHALLENGES AHEAD

Quite a number of presented innovation capacity and performance indicators in the previous sections as well as in other analysis and surveys (World Bank, 2012, WBC, 2011b, ERAWATCH, 2012) have pointed more towards the main weaknesses rather than strengths of the Croatian innovation performance and smart specialisation process.

One of the weak points often mentioned is particularly connected with innovation governance problems especially reflected in the low efficiency of the government expenditures to boost these activities and also low participation of the business sector, especially SMEs in funding innovation and knowledge transfer. In short, the rate of return of public expenditures on R&D, education and innovation infrastructure is not adequate in terms of the results achieved as compared to the average results achieved for instance in the EU countries (Seker, 2011). Namely, more innovation is needed primarily to close the productivity gap between Croatian private sector and EU competitors. When measuring the contribution of innovation to labour productivity growth in Croatia, the World Bank (2011) found that it is about 8% less than in EU8 average. The contribution of skills to labour productivity was 7% less, while the contribution of R&D and innovation infrastructure was 4.5% less. In total, the contribution of innovation to total factor productivity (TFP) in Croatia is close to 30% less than in the EU8 countries although Croatia has about the same average R&D investments per worker (Seker, 2011), and that is where the biggest problem lies. Public funds invested in research and education obviously does not bring the results expected in terms of impact on productivity. Therefore, the governance of these funds should be improved by various policy measures that

would improve research performance and knowledge transfer of universities and research institutes, as well as other organisations that use public money. As the World Bank (2012, p. 41) rightfully noted, public funds were in the last period allocated without clear prioritization and focus on results. Also, the mobility of researchers between science and industry should be further promoted.

Although public R&D spending would most likely continue to dominate, innovation potential should be also unleashed by enhancing the participation and the innovation absorption capacities in private sector with focus on SMEs (World Bank, 2012).

However, the situation in SME sector with regard labour skills and competences that determine the potential for advancing innovation is even further aggravated with problems of skills and jobs mismatch and inadequate education structure of the labour. This situation in SME sector is a reflection of overall quality of education and training system in Croatia. To illustrate, Table 5 shows selected education and training indicators for Croatia and selected CEE countries encompassed by GCR 2012-2013. The lowest rank value is recorded in the extent of staff training, which is unsatisfactory result since highly-trained employees are considered to contribute the most to the company's innovation performance. Namely, under dynamic market conditions, firms have to constantly adjust their employees' training and skills to changing business needs (WEF, 2013).

Table 5. Education and training indicators

Indicator	Bulgaria	Croatia	Slovak Republic	Romania	Slovenia	Hungary
Quality of the educational system	3.2 (98)	3.2 (99)	2.8 (120)	3.1 (108)	3.8 (63)	3.4 (90)
Availability of research and training services	3.8 (90)	4.1 (74)	4.6 (40)	3.5 (112)	4.4 (50)	3.9 (83)
Extent of staff training	3.3 (118)	3.2 (124)	3.7 (95)	3.4 (111)	3.7 (91)	3.5 (110)

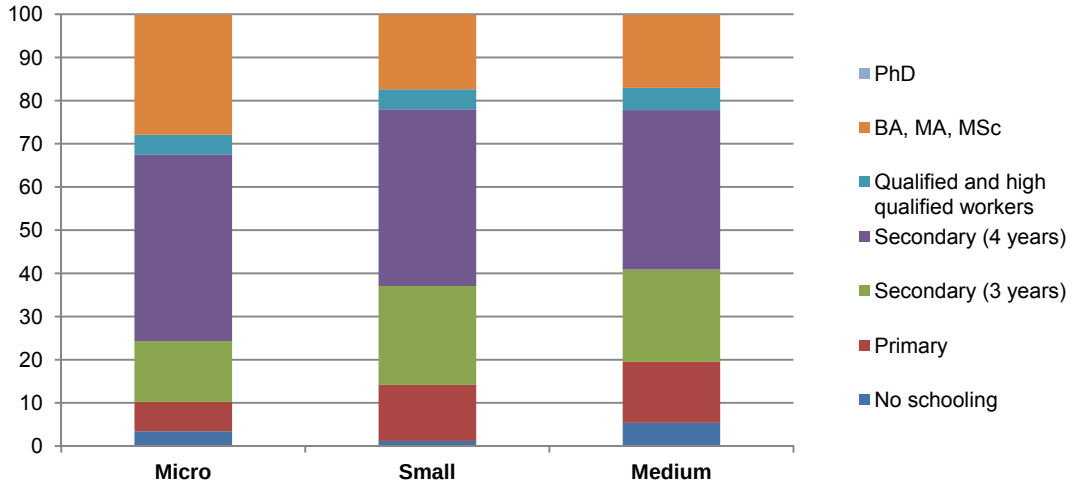
Note: Values in parentheses represent the rank of individual country among 144 countries.
Source: Global Competitiveness Report 2012-2013 (WEF, 2012)

The more detailed data on the structure of education of the labour in SME sector in Croatia (Figure 8) indicate a strong need for substantial skills upgrading which is critical to both short term recovery of the performance of the sector which significantly eroded due to the effects of the economic recession in Croatia (FINA, 2011), as well as for the long-term competitiveness of the sector at the single EU market and especially for future jobs generation. Furthermore, employability of labour and its capacity to adapt to constant changes, as well as ability to translate knowledge into productive and innovative business operations, would substantially increase with better skilled labour.

The third TNA survey done by the researchers of the Institute of Public Finance, Zagreb for the Croatian Chamber of Economy (2011) identifies that that Croatian SMEs have been relying predominantly on a low and medium-skilled labour. Specifically, about 60% of the employees in the surveyed SMEs have only secondary school level of education. However, when compared to the survey data for 2010, there are some encouraging signs that this is beginning to change towards employment of more high-skilled graduates especially in service industries. Namely, the share of the employees with tertiary education (non-university degree, university degree and postgraduate degree) increased to 18% which is about 4 percentage points more than in the sample of surveyed SMEs in 2010 (CCE, 2011, p.17).

The situation in the crafts with regard education structure of the employed is even worse, where 77% have only secondary school, while only 7% have university education (CCE, 2011, p. 40).

Figure 8. Educational structure of employees according to the size of SME (in %)



Source: Croatian Chamber of Economy, 2011, p. 17.

According to TNA survey 2011, the micro enterprises account for the largest share of the highly educated employees (28%), and most of them are working in the service sector (public and private) i.e. information and communication sector (58%), as well as in the education sector (47%), while very few work in industry. However, the source of concern should be that micro-enterprises in general have rather weak competitive potential when it comes to international markets as well as a weak potential for generating new jobs, as they tend to stay micro for quite some time in Croatia (apart from few "gazellas").

Better forecast of the demand side for the skills should be in focus and in this respect stronger employer-education linkages and active dialogue with stakeholders should be strengthened in order to ensure supply of skills needed (Čučković and Bartlett, 2012; ETF, 2011). In this respect, three types of specific drivers of skills change for Croatian SMEs should be taken into consideration when developing policy responses: a) accelerated market and technological change; b) shortage of adequately qualified labour and c) change of education standards. Without such tools, the mismatch between the needs and skills attained through the education might further deepen (Čučković and Bartlett, 2012). While any sort of educational reform will bring fruits in the long run, the life-long learning and training programs might fill the gap for the pressing entrepreneurial needs.

The awareness of the need to address these major weaknesses has risen and the government has in 2012 initiated the preparation of the new National Strategy of the Innovation Development 2013-2020, with two ministries in charge (Ministry of Science, Higher Education and Sports and Ministry of Economy) and with the assistance of OECD and local stakeholders. The new strategy will address the main challenges ahead and prioritize activities and sectors which would likely have high impact on smart specialisation and unleashing innovation in Croatia. The main purpose of the document is also to design more effective institutional environment and innovation policies conducive to increasing innovation capacities and targeted towards optimal use of the EU funding. In addition, this strategy is also a prerequisite for planning funds under the EU operational programmes 2013-2020. Last

but not least, the new document will also attempt to identify areas for potential regional cooperation with the SEE countries, to assist their Europeanization process in this area.

The background analyses for the strategy (Paić, 2013) have detected several key areas that would lead towards the increase of the investments into R&D and strengthen cooperation between the science and industry and consequently increase efficiency of knowledge and technology transfer and its commercialisation. The five pillar policy areas the National Innovation Strategy 2013-2020 is structured along, are aiming to: i) enhance business innovation potential and create more supportive regulatory environment; ii) increase knowledge flows and interaction between industry and science; iii) secure a strong science and technology base and strengthen capacities of research organisations; iv) strengthen human resources for innovation and v) improve governance of the national innovation system.

7 CONCLUDING REMARKS AND IMPLICATIONS FOR POLICY

In conclusion, we sum up the accents of the analysed potentials offered by the "knowledge triangle" policy framework for increasing capacities for SME competitiveness. Main challenges ahead of Croatia as a new EU member are mirrored in several key areas which need to be immediately addressed by policy solutions targeted to use new opportunities (but also to deal with threats) of an enlarged market.

Specifically, the analysis of selected knowledge-based indicators shows that Croatian SMEs are lagging behind the EU average in almost all of dimensions encompassed by the concept of innovations, i.e. innovations through new products or processes as well as through marketing and organizational innovations. Moreover, low (and decreasing) levels of knowledge transfer between academia and business alert to deteriorating efficiency of research institutions. Finally, from the aspect of human capital, the weakest area is inadequate quality of training system which contributes to the increase of the skills mismatch. All of the highlighted issues represent obstacles for improving the Croatian SMEs competitiveness position.

As for the institutional and policy framework (NIS) the measures should evidently be directed primarily towards improving governance through enhancing efficiency of innovation and R&D policy implementation, evaluation (both ex ante and ex post) and monitoring instruments. The draft of National Innovation Strategy 2013-202026 especially accented the commitment of the government to strengthen the present national innovation system to avoid further fragmentation and overlapping of activities and overemphasised focus on investment in infrastructure instead of impact on measurable results. Many other recent analyses have stressed the same (EC, 2013; WB, 2012, WBC, 2011b, Švarc et al, 2011).

The opportunities offered by the full membership in the EU enlarge the overall potential for creation, transfer, diffusion and absorption of new knowledge and technology as well as their further translation into innovative products and processes suitable for commercialisation. Apart from the enlarged markets, this is especially related to the increased access to additional EU funding of two structural funds, as well as to participation in the leading science networks and clusters. The membership in the single European market will also bring increased opportunities for the FDI in the leading knowledge intensive sectors, such as ICT, renewable energy production or green food production technologies. However, it is crucial to avoid already mentioned wasting of funds by taking into account possible complementarities or

[26] As presented by Alan Paic, OECD at the conference organised jointly by the Croatian National Bank and OECD „*International Competitiveness and Business Attractiveness of Croatia*" in Zagreb, on 15 Febrary 2013.

compatibilities between various programmes to avoid duplication. Increased funding opportunities should be in particularly used to strengthen the areas of excellence to increase the competitiveness of the SMEs (Paić, 2013).

Some of the present Croatian innovation deficits mirror quite well general EU problems in fostering innovation driven economic growth. Namely, as some analysts clearly pointed out (Radošević, 2012) Croatia also has a problem of much stronger science record on one side while on the other side it has rather weak innovation constituencies in enterprise sector, especially in the SMEs. This limits present ability to successfully translate the science results into commercially viable products and processes. The most challenging part for policy makers in Croatia as elsewhere in the EU will be to build efficient linkages between them including the stronger involvement of users in both funding and evaluation of research output, especially if the accumulated knowledge is financed by public money (Radosevic, 2012).

Strengthening human resources for innovation is one of the major policy challenges that should have an important impact on building these linkages in the future. Fortunately, this is also recognized among key areas on which the future policy will be focused, according to draft of the new National Innovation Strategy 2013-2020. The envisaged future measures include careful assessment and monitoring of training and skills needs in the enterprise sector, especially in the SMEs. The increased focus should also be on life-long learning and vocational training of the employees in order to continuously update the quality of skills and productivity of present workers, to increase the innovation absorption especially in industry sector.

The future policy measures for reducing the mismatch of skills and gap between the structure of demand and supply for skills and knowledge would include addressing the need for further increase of the flexibility of SMEs to labour market changes. On the other side, this requires an adaptability of job-seekers in upgrading the skills in order to meet the labour market demand. Furthermore, it would demand increasing the level and structure of investment in R&D, with stronger participation of private sector than presently, enhancing "knowledge clusters" through improved linking of the academic community with enterprise sector and decreasing the obstacles in regulatory framework thus making the adjustments in labour market more feasible. This might also increase the capacity for technology absorption and innovation, which is mutually reinforcing mechanism for upgrading labour skills and fostering competitiveness in the SME sector. Continuous monitoring, identification, forecasting and quality assurance of attained competences and skills would enable adjusting to changing needs of the Croatian enterprise sector which faces much stronger competition within the EU than ever before (Čučković and Bartlett, 2012).

8 BIBLIOGRAPHY

Belitz, H. and Schrooten, M. (2008): **Innovationssystemme – Motor der Wirtschaft: Editorial**, ***Quarterly Journal of Economic Research***, DIW Berlin, German Institute for Economic Research, 77(2): 5-10.

Belitz, H., Schmidt-Ehmcke, J. and Zloczysti, P. (2008): **Technological and Regional Patterns in R&D Internationalisation by German Companies**, ***Weekly Report***, DIW Berlin, German Institute for Economic Research, (15): 94-101.

Božić, Lj. and Radas, S. (2011): **Surmounting innovation project failure**, The Institute of Economics, Zagreb.

Cainelli, G., Evangelista, R. and Savona, M. (2006): **Innovation and Economic Performance in services: A Firm-level Analysis**, ***Cambridge Journal of Economics***, 3 (3): 435-458.

CEPOR (2012): **GEM CROATIA 2002-2011**, http://www.cepor.hr/GEM-brosura-2002-2011.pdf [Accessed 04.03.2013].

Coe, D. T., E. Helpman and A.W. Hoffmaister (2009). **International R&D Spillovers and Institutions, *European Economic Review***, 53 (7): 723-741.

Crescenzi, R. and Rodriguez-Pose, A. (2011): **Innovation and Regional Growth in the European Union**, Springer Verlag, Berlin-Heidelberg.

Croatian Chamber of Economy (2011): **Analysis of the Educational Needs in Small and Medium Enterprises and Crafts with Particular Emphasis on Entrepreneurial Skills**, Zagreb, September 2011.

Čučković, N. and Bartlett, W. (2012): **Skills Matching in Croatian SME Sector and Competence Based Education and Training: Progress and Prospects**, in M. Arandarenko and W. Bartlett,eds.: ***Labour Market and Skills in the Western Balkans***, FREN Belgrade and LSE London, pp. 155-175.

D'Agostino, G. and Scarlato, M. (2012): **Inclusive Institutions, Innovation and Economic Growth: Estimates for European Countries**, MPRA Working paper, December, http://mpra.ub.uni-muenchen.de/43098/ [Accessed 04.03.2013].

Dias. J. and J. McDermott (2006). **Institutions, Education, and Development: The Role of Entrepreneurs, *Journal of Development Economics***, 80 (2): 299-326.

Edquist, C. (2001): **The Systems of Innovation Approach and Innovation Policy:**
An account of the state of the art, Lead paper presented at the DRUID Conference under theme F ***National Systems of Innovation, Institutions and Public Policies***, Aalborg, June 12-15, http://folk.uio.no/ivai/ESST/Outline%20V05/edquist02.pdf [Accessed 4.03.2013].

European Commission (2010): **Europe 2020: A European strategy for smart, sustainable and inclusive growth**, COM (2010) 2020; Brussels: European Commission.

European Commission (2011a): **CROATIA, ERAWATCH Country Reports 2011**, http://erawatch.jrc.ec.europa.eu/erawatch/opencms/information/reports/countries/hr/report_0004 [Accessed 4.03.2013].

European Commission (2011b): **Policies in support of high-growth innovative SMEs,** INNO-Grips Policy Brief, No. 2, http://ec.europa.eu/enterprise/policies/innovation/files/proinno/inno-grips-policy-brief-2_en.pdf [Accessed 4.03.2013].

European Commission (2012a): **Innovation Union Scoreboard 2011***,* http://ec.europa.eu/enterprise/policies/innovation/files/ius-2011_en.pdf [Accessed 04.03.2013].

European Commission (2012b): **Innovation in the public sector: its perception in and impact on business**, http://ec.europa.eu/public_opinion/flash/fl_343_sum_en.pdf [Accessed 04.03.2013].

European Commission (2013): **Position of the Commission Services on the development of Partnership Agreement and programmes in the Republic of CROATIA for the period 2014-2020**, Position paper on the Future Cohesion Policy in Croatia, presented by Johannes Hahn, EC Commissioner for Regional Policy, 31 January, http://www.mrrfeu.hr/UserDocsImages/Vijesti/Position%20Paper%20Croatia%202014-20.pdf [Accessed 07.03.2013]

European Training Foundation (2011**):"Sustainable Development and Education and Training"**, ETF Position paper, Torino: European Training Foundation.

Farole, T., Rodrìguez-Pose, A. and Storper, M. (2011): **Cohesion Policy in the European Union: Growth, Geography, Institutions**, ***Journal of Common Market Studies***, 49 (5):1089–1111.

FINA (2011): **Financijski rezultati poduzetnika Republike Hrvatske / Financial results of entrepreneurs in the Republic of Croatia** (in Croatian), Zagreb: FINA.

Freeman, C. (1995): **The National System of Innovation: A historical perspective**, ***Cambridge Journal of Economics***, 19 (1): 5-24.

Grossman, G. M. and E. Helpman (1991): **Innovation and Growth in the Global Economy**, MIT Press, Cambridge MA.

Lundval, B. A. (ed.) (1992): **National Systems of Innovations: Towards Theory of Innovation and Interactive Learning**, Pinter Publishers, London.

Lundval, B.A. (2005): **National innovation systems- analytical concept and development tool,** paper presented at the ***DRUID Tenth Anniversary Summer Conference on Dynamics of Industry and Innovation: Organizations, Networks and System***, Copenhagen, 27-29 June.

OECD (1997): **National Innovation Systems**, Paris.

Paic, A. (2013): **„A new start for Croatian competitiveness",** presentation given at the Croatian National Bank and OECD conference ***International Competitiveness and Business Attractiveness of Croatia,*** Zagreb, 15 February.

Radosevic, S. and Reid, A. (2006): **Innovation policy for knowledge-based economy in Central and Eastern Europe: Driver of growth or new layer of bureaucracy?**, in: K. Piech, S. Radosevic, eds.: ***Knowledge-based Economy in Central and Eastern Europe: Countries and Industries in a Process of Change***, London: Palgrave, pp. 295–311.

Radosevic, S. (2012): **Industrial upgrading in the Western Balkans and policy implications: pointers for discussion**, presentation at the Workshop ***"From National Innovation System to Innovation Policy Learning in Bosnia and Herzegovina, Croatia, FYR of Macedonia and Serbia"***, Sarajevo, June 5-6, 2012. http://wbc-inco.net/object/document/10211 [Accessed 08.03.2013].

Roberts, P. W (2001): **Innovation and Firm-Level Persistent Profitability: a Schumpeterian Framework,** ***Managerial and Decision Economics***, 22(4-5):239-250.

Rodriguez-Pose, A. and Crescenzi, R. (2008): **R&D, spillovers, innovation systems and the genesis of the regional growth in Europe**, ***Regional Studies***, 42(1): 51-87.

Romer, P. M. (1990): **Endogenous Technological Change, Journal of Political Economy Increasing Returns and Long-run Growth,** ***Journal of Political Economy***, 94:1002-37.

Seker, M. (2011): **Estimating the Impact of R&D and innovation in Croatia**, background paper, World Bank.

Švarc, J. (2011): **Does Croatian national innovation system (NIS) follow the path towards the knowledge economy?**, ***International Journal of Technology Transfer and Commercialisation***, 10(2): 131-151.

Švarc, J.; Perković, J. And Lažnjak j. (2011): **Društvena evaluacija hrvatskog inovacijskog sustava na primjeru Test programa,** ***Sociologija i prostor***, 190 (2); 209-235.

WBC-INCO.NET (2011a): **Innovation infrastructure: Croatia**, http://wbc-inco. net/ attach/1Croatia_Public_Final_v02.pdf [Accessed 4.03.2013].

WBC-INCO.NET (2011b): **Comparative analysis of the innovation capacity in the WBC with particular focus on joint cooperation needs**, Deliverable D8.51 of the FP7 project, http://wbc-inco.net/object/document/7333 [Accessed 4.03.2013].

World Bank (2012): **Croatia Policy Notes: A Strategy for Smart, Sustainable and Inclusive Growth**, Report No. 66673-HR,
http://documents.worldbank.org/curated/en/2012/02/16264420/croatia-policy-notes-strategy-smart-sustainable-inclusive-growth [Accessed 4.03.2013].
World Economic Forum, (2013): **Rebuilding Europe's Competitiveness**, http://www3.weforum.org/docs/WEF_RebuildingEuropesCompetitiveness_Report_2013.pdf [Accessed 4.03.2013].

INTERNATIONAL COMPETITIVENESS AND ASYMETRY IN TRADE REGIME IN THE EU INTEGRATION: EVIDENCE FROM WESTERN BALKANS

Radmila Dragutinović Mitrović
Faculty of Economics, University of Belgrade
Kamenička 6, 11000 Belgrade, Serbia
Phone: + 381 3021 012
E-mail: radmilam@ekof.bg.ac.rs

Predrag Bjelić
Faculty of Economics, University of Belgrade
Kamenička 6, 11000 Belgrade, Serbia
Phone: + 381 3021 044
E-mail: bjelic@ekof.bg.ac.rs

Key words: *EU integration, Bilateral trade, International trade competitiveness, Asymmetrical trade preferences, Panel data*

ABSTRACT

This paper aims to investigate the relationship between the level of international competitiveness and asymmetry in trade regimes of Western Balkan economies in connection to European Union (EU) integration of this region, as well as their effects on bilateral exports. The second half of 20th century witnessed the introduction of new principles in international trade relations. The developing countries have been granted more favourable trade preferences, asymmetrical to their favour, by developed nations in numerous multilateral and bilateral trade initiatives. This is in line with low international competitiveness of developing countries.

The similar approach has been adopted by the EU towards candidate and potential candidate countries for EU membership. EU introduced Autonomous Trade Measures (ATMs) in 2000 that are non-reciprocal and asymmetrical in favour of Western Balkans. But international competitiveness remains also an important question in the Western Balkan integration into the EU since it is contained in Copenhagen criteria. To investigate the effects of the Western Balkans' international competitiveness on their bilateral exports, we estimated gravity model based on panel data in the period 2006-2011. Poisson pseudo maximum likelihood estimator is used, as commonly applied estimation technique when zero trade values appear. According to the results, international competitiveness has positive effects on the Western Balkans bilateral exports, but it fades out over the observed period as EU-Western Balkans trade regime becomes more symmetrical.

1 INTRODUCTION

The second half of 20th century is referred to as a golden age of world economy because of the dynamic rise of international trade flows. But small number of developing countries has capitalised on this growing trend of international trade and became one of the newly industrialised countries (NIC). The countries in the Asian Far East are typical representatives of this group. All other developed countries did not have substation economic development to bridge the development gap with the developed economies. The main reason is that most of developing countries are not competitive on world market.

The growth of international trade in second half of 20th century was spurred by the liberalisation in international trade regime for industrial goods brought by General Agreement on Tariffs and Trade (GATT). But by the end of 1980s it was clear that developing countries cannot use this favourable trade regime and they need further assistance in this field in order to compete with developed countries in international markets. Until then all trade concessions were reciprocally exchanged between economies engaging in some kind of trade liberalising agreements. These new initiatives were set to establish generalized, non-reciprocal, non-discriminatory system of preferences in favour of the developing countries, including special measures in favour of the least advanced among the developing countries. These measures in the form of non-reciprocal trade concessions were put in place to promote higher export earnings, industrialization and economic growth of developing countries (Bjelić, 2011).

The introduction of asymmetry in trade regime between developed and developing countries, to the benefit of the later, have been applied at all levels of trade cooperation between countries, multilateral, regional and bilateral level. On the global level several initiatives were developed that granted developing countries more favourable position in international trade relations, like Differential and More Favourable Treatment defined by GATT[27] or Generalized System of Preferences (GSP) initiated by UN Conference on Trade and Development (UNCTAD)[28]. The developed countries unilaterally applied this GSP regime deciding which trade concession it will grant to developing countries without them needing to reciprocitate. Each developed countries that grants GSP preferences decides also which developed countries could be beneficiary of that concession and under which political condition. European Union (EU) under these GSP preferences offers duty-free access to 176 developing economies, specifically for developing countries that do not have a trade agreement with the EU, to the EU single market on a non-reciprocal basis.[29] The GSP system is today applied by 13 developed economies.[30]

The EU was one of the first developed economies that granted asymmetrical trade concession to developing countries. Apart from GSP as a general asymmetrical trade regime, the EU granted specific asymmetrical trade concessions to subgroups or even individual developing countries. One of the first asymmetrical trade regimes to the benefits of developing countries set by the EU included trade concessions granted to African, Caribbean and Pacific (ACP) group of developing countries, namely former colonies of European metropolas. These concessions were set in 1957 by Yaoundé Convention, which contained symmetrical trade concessions but was later replaced with Lomé Convention, at the accession of the United Kingdom (Dearden and Salama, 2002), that introduced asymmetrical trade regime in favour

[27] GATT, Decision on Differential and More Favorable Treatment, Reciprocity and Fuller Participation of Developing Countries, 1979.
[28] UNCTAD, Resolution of the UNCTAD II Conference, New Delhi, 1968, 21 (ii).
[29] World Trade Organization, Trade Policy Review of the European Communities, Geneva, 2009, p.19.
[30] UNCTAD Website, Internet, http://unctad.org/en/Pages/DITC/GSP/About-GSP.aspx, accessed 10/12/2012.

of ACP countries (Lorand, 2007). With the establishment of WTO this regime for ACP countries needed to be in compliance with new rules so Cotonau Agreement was adopted in 2000. But this agreement has changed these trade concessions from asymmetrical to symmetrical for most of the ACP countries.

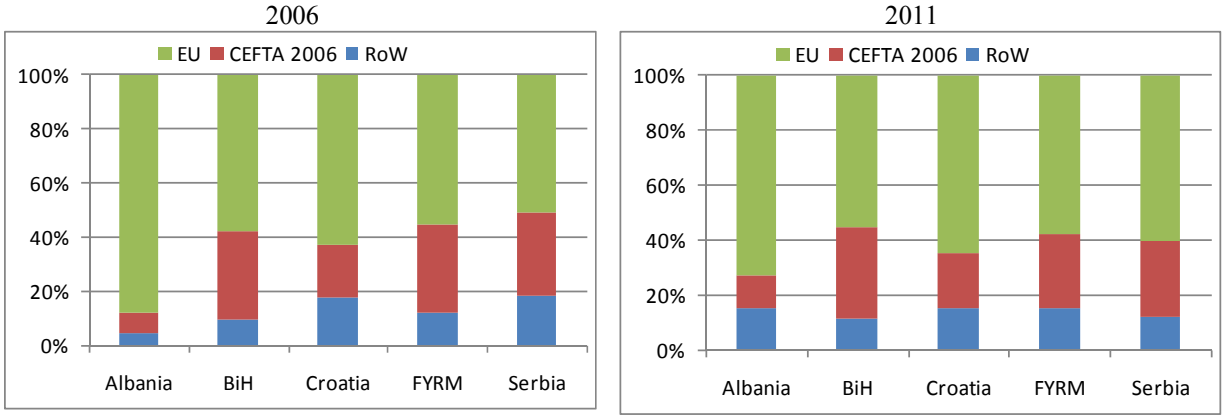
Other group of developed countries, that have been granted asymmetrical trade concession in their favour by the EU, are Least developed countries (LDCs). In 2001 the EU adopted Everything but Arms (EBA) initiative granting LDCs tariff-free and quota free-access to the EU single market for all their export products except arms. As multilateral liberalisation of trade regime subsided the non-reciprotial trade regimes beneficial to less developed countries where also introduced by other regional trade integrations[31]. Today even bilateral trade agreements between countries with significant differences in economic development can be non-reciprotial and include asymmetric trade concession in the favour of less developed signatory.

Developed countries have extended asymmetrical trade concessions to less developed countries since their position in the world economy is far superior. The exporters from less developed economies cannot fully compete to companies from developed economies on the world market. The low competitiveness position of developing countries on the world market was a prime reason for the favourable treatment in trade by developed economies. The focus of our research is specific group of developing countries, the Western Balkan countries, with the main aim to investigate the effects of their level of international competitiveness on the position in international trade. The EU granted them asymmetrical trade concessions as the most important and more developed trade partner. Furthermore, we explore if these asymmetrical trade concessions in favour of Western Balkan economies can compensate for the low level of their international competitiveness and contribute to the boost of their exports.

2 TRADE REGIMES IN THE WESTERN BALKANS

The main trading partner of all Western Balkan economies is the EU. This European trade integration has a dominant share in export and import of almost all economies of our region (above 50%) except in the cases of Montenegro and Kosovo*.

Chart 1: Structure of exports of selected Western Balkan economies by main export markets, 2006 and 2011.



Source: Authors' calculation based on UN Comtrade database.

[31] These include the South Pacific Regional Trade and Economic Co-operation Agreement (SPARTECA) and South Asian Association for Regional Cooperation (SAARC).

The high level of dependence of Western Balkan exports on the EU market is further stimulated by EU trade preferences and the prospect of EU membership for all Western Balkan economies. The trade regime between EU and Western Balkans economies was regulated by unilateral EU trade measures adopted in 2000 - Autonomous Trade Measures (ATM)[32]. The ATMs are asymmetrical trade preferences in favour of the Western Balkans which were not obligated to reciprocate by granting trade preferences to the EU. These measures grant Western Balkans countries tariff free and quota free access to EU single market to almost all export products from this region, except sugar, some types of meat, fish and wine[33]. This asymmetric trade regime was very beneficial for exports of Western Balkan countries to EU single market since these countries are at lower level of competitiveness. Previous researches focused on the Balkans showed that asymmetrical trade preferences granted by the EU unilaterally to Balkan economies play a crucial role in boosting their exports (Montanari 2005).

Table 1. Important dates in the EU-Western Balkans trade regime.

	ATMs	SAA signed	SAA entry into force	CEFTA 2006 entry into force
Albania	2000	12.06.2006	01.04.2009	26.07.2007
Bosnia and Herzegovina	2000	16.06.2008	01.07.2008[1)]	22.11.2007
Croatia	2000	29.10.2001	01.02.2005	22.08.2007
FYR Macedonia	2000	09.04.2001	01.04.2004	26.07.2007
Montenegro	2003	15.10.2007	01.05.2010	26.07.2007
Serbia	2003	29.04.2008	01.02.2010[1)]	24.10.2007
Kosovo* (UNMIK)	2003	-	-	26.07.2007

[1)] *For Serbia and Bosnia and Herzegovina the SAA did not entered into force, but only Interim Agreement on trade and trade related issues which are crucial for trade regime implementation.*

Source: European Commission (http://ec.europa.eu/enlargements) and CEFTA Portal (www.ceftatradeportal.com).

Since Western Balkan countries are set to become EU members this encompasses higher level of trade integration with the EU. The EU has designed a special process of integration of Western Balkan countries with the new type of accession agreements - Stabilisation and Association Agreements (SAA). These agreements are different from the accession agreements of Central and Eastern European countries (Europe agreement) in the part where EU insists more on the fulfilment of certain political conditions. But as Europe agreements the SAA main component is trade agreement which envisages that free trade area is created between individual Western Balkan country and the EU. The SAA Trade Agreement introduces the reciprocity in trade with the EU after the stipulated transitory period. In this way the markets of Western Balkan economies are also opening for the goods with EU origin but slowly since transitory period is usually 6 years. Important stimulant for mutual trade is the introduction of the possibility of the cumulation of origin, regionally and diagonally, with the EU. For those Western Balkan economies which SAA agreements with the EU have not entered into force, the Interim Trade agreement is applied, except for Kosovo*, which still benefits from ATMs up to 2015.[34]

The important precondition for EU membership for countries in the Balkans is also the development of regional co-operation between them, which was not so easy in the past since

[32] EC 2007/2000/EC.

[33] Trade in textile products between the EU and the Western Balkans have been liberalised in 2005, since EU have signed bilateral agreements with non-WTO member Western Balkan countries removing quotas in exchange for tariff liberalisation on the side of Western Balkan countries.

[34] Council Regulation (UE) N° 1336/2011 of 13 December 2011, Official Journal of the ECs, L 347, 30.12.2011, p.1.

the region was the scene of conflict and disintegration. That is the reason that Western Balkan countries signed revised Central European Free Trade Agreement in 2006 (CEFTA 2006). The signatories of this document are Albania, Bosnia and Herzegovina, Croatia, Montenegro, Macedonia, Moldova, Serbia, and the United Nations Mission in Kosovo (UNMIK) on behalf of the customs territory of Kosovo. This agreement liberalises intra-regional trade by removing customs and quotas. The trade concessions are exchanged on a bilateral basis and significantly liberalise intra-regional trade in goods, creating a regional free trade area for goods, both industrial and now agricultural. Additional liberalisation in the area of services and investments is envisaged in the future. After CEFTA 2006 came into force in 2007 intra-regional trade in the West Balkans rose significantly, especially in 2008. This agreement contains reciprocal trade preferences since all signatory economies are at the similar level of economic development. But there are still significant obstacles to the mutual trade of the CEFTA 2006 signatories, like non-tariff barriers in the area of standards and technical regulations. One of the problems is that CEFTA 2006 signatories perceive this trade integration as a transitory integration, and their trade integration interest is primarily focused on EU membership.

But international competitiveness of Western Balkans economies is an important factor in EU integration. The EU Accession criteria (Copenhagen criteria) focused on economy requires existence of a functioning market economy but also "the capacity to cope with competitive pressure and market forces within the Union"[35]. This refers to companies operating in Western Balkans and their ability to do business on Single EU market once the Western Balkan economies become members of the EU. At present, trade regime between EU and the Western Balkans regulated by ATM that included asymmetric trade concessions to the benefit of later was better suited for their exports since this countries have much lower competitiveness that the majority of EU member countries. We can expect that as trade regime between Western Balkan economies and the EU becomes more reciprotial that the export of Western Balkan economies to the EU will stagnate or even fall. Membership in the EU will influence trade regime of Western Balkan economies since they will have to abolish all other trade agreements not in accordance with the EU common external tariff. Also it is expected from countries when become members of EU to stop to benefit from GSP treatment of developed countries and to even grant these privileges to developing countries outside the EU.

3 COMPETITIVENESS IN INTERNATIONAL TRADE

Competitiveness of nations is disputed concept since Michael Porter launched it in 1980s (Porter, 1990). The competitiveness of nations is macroeconomic concept derived from the microeconomic concept of competitiveness that analyses the position of companies on a particular market. On the other hand, the competitiveness of companies is familiar term in economics but national competitiveness is not. One of the most influential critics of the competitiveness of nations was Paul Krugman who saw it as a "dangerous obsession" (Krugman, 1994) and said while companies compete economically, nations (countries) do not. Many economists, reacting on Prof. Krugman arguments, have point out that countries compete between themselves economically, but at the different way that corporations do (i.e. Dunn, 1994). Later Krugman accepted that there is some essence in the term national competitiveness.

[35] EU Website, Internet, http://europa.eu/legislation_summaries/glossary/accession_criteria_copenhague_en.htm.

First definitions of National Competitiveness tied this concept with the ability to export to world market (UNCTAD) and underlined the importance of inflow of foreign direct investments (FDI) especially for small and underdeveloped economies to its national competitiveness. Some views on national competitiveness suggested that good indicator is trade balance but it was hard to understand how the USA is one of the most competitive economies in the world with so huge trade deficit.

One of the definitions that is more comprehensive is by US President's Commission on Industrial Competitiveness from 1985 that defines National Competitiveness as "the degree to which a nation can, under free and fair market conditions, produce goods and services that meet the test of international markets while simultaneously maintaining or expanding the real incomes of its citizens" (President's Commission on Industrial Competitiveness, 1985). Similarly Scott and Lodge are of the opinion that national competitiveness "refers to a country's ability to create, produce, distribute, and/or service products in international trade while earning rising returns on its resources" (Scott and Lodge, 1985).

Competitiveness of nations is a relative concept. How competitive one country is can be determined only if we study the competitiveness of other countries in the world. To determine the level of competitiveness of one country i.e. to measure its competitiveness means that we need a cross-country study. Porter (1990) observes that national competitiveness is measured by two sets of indicators: "(1) the presence of substantial and sustained exports to a wide array of other nations, and/or (2) significant outbound foreign investment based on skills and assets created in the home country".

Some simpler methods of competitiveness measurement include the use of Revealed Comparative Advantage (RCA) Indicators, used for specific sector observations. Also the International Trade Center (ITC) has developed whole set of trade competitiveness measurement tools, mostly focused on the sector and product specific analysis. But the most comprehensive competitive measurement index has been developed on Porter theoretical background by World Economic Forum (WEF). WEF have developed a single index that takes into account more than 300 factors that influence competitiveness of nations on a global stage, known as Global Competitiveness Index (GCI). The similar methodology is developed by Institute for Management Development (IMD) from Lausanne but with far less countries in its sample, mostly developed economies.

3.1 The Global Competitiveness Index

WEF defines "competitiveness as the set of institutions, policies, and factors that determine the level of productivity of a country" (WEF, 2013). Since 1990s this institution has developed the methodology for comparison of international competitiveness of nations. In the beginning, there where two indexes, one that observed macroeconomic competitiveness and the other focused on microeconomic competitiveness. Now WEF uses only one competitiveness index, more focused on macroeconomic factors, but this methodology changed true time.

Since 2005, the WEF has based its competitiveness analysis on the Global Competitiveness Index (GCI), a comprehensive tool that measures the microeconomic and macroeconomic foundations of national competitiveness. This index represents an innovated index on global competitiveness used before by WEF. It takes into account large number of factors influencing global competitiveness of a nation. All factors are grouped by similarity into 12 pillars: Institutions, Infrastructure, Macroeconomic environment, Health and primary

education, Higher education and training, Goods market efficiency, Labour market efficiency, Financial market development, Technological readiness, Market size, Business sophistication and Innovation. The data on indicators that are included in each pillar are taken from two sources: official statistics (objective data sources) and Executive Opinion Survey (subjective data sources).

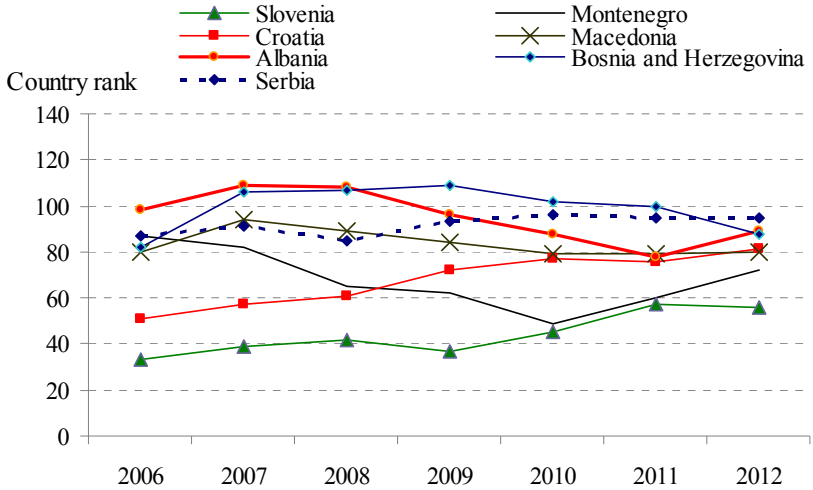
The data from the pillars are use to produce tri subindexes which at the end form the GCI final score for each observed economy. First subindex is the Basic requirements subindex and the data from the pillars 1-4 are used for this subindex. Second subindex is Efficiency enhancer's subindex and for its calculations data from pillars 5-10 are used. Last, third, subindex is Innovation and sophistication factors subindex which takes into account data from pillars 11 and 12. All the economies in the WEF sample are classified into three development groups: factor-driven economies, efficiency-driven economies and innovation-driven economies. The calculation of GCI depends on the development group to which observed economy belongs and different weights are used for each group (WEF, 2013).

All Western Balkan economies are included in the WEF sample starting from 2006. That is prime reason that we are focusing our analysis starting from this year. Also the GCI calculated from 2005 is not comparable to its previous versions.

3.2 Trade competitiveness in the Western Balkans

Global competitiveness analysis of WEF using the GCI shows that Western Balkans countries are ranked from 70 to 100 place on world rank list out of 144 economies observed in 2012 (Figure 1). Generally all Western Balkan economies have low competitiveness ranking in global terms. The most prominent economies in our region by global competitiveness are Slovenia, already EU member, and Montenegro. If we exclude these two economies then all other fall into rank 80-100.

Figure 1. Global WEF Competitiveness Ranks of Western Balkan economies and Slovenia.



Source: Authors' graphical representation of World Economic Forum data from The Global Competitiveness Report, several years.

During the world economic crisis the global competitiveness position of all Western Balkans economies have deteriorated, except for Albania which have improved its position. But after the world economic crises the competitiveness of Western Balkan economies continues to fall, except in Bosnia and Herzegovina which recorded slight improvement in its

competitiveness rank. In 2012 Serbia is the economy with the lowest competitiveness rank comparing to the rank of other Western Balkan economies.

If we compare the competitiveness of Western Balkan economies with the competitiveness of Slovenia, the only former Yugoslav republic member of the EU, we can see that the Slovenian rank above 60 is unreachable for the countries of the region. Even if Slovenia has recorded the large drop in its competitiveness rankings (from 30th to 60th position), it still remains far superior in international competitiveness to Western Balkan economies. The closest to the Slovenian rank in 2012 are Montenegro and Macedonia.

4 INTERNATIONAL COMPETITIVENESS AND THE WESTERN BALKANS EXPORTS

Our intention in this part is to investigate the effects of international competitiveness and type of trade concessions (asymmetrical or symmetrical) on bilateral exports of six Western Balkan countries (Albania, Bosnia and Herzegovina, Croatia, Former Yugoslav Republic Macedonia, Montenegro and Serbia). We observe bilateral trade flows of these countries toward 27 EU countries (EU-27), CEFTA 2006 members and other countries which were their main foreign trade partners in the period 2006-2011.[36] We use data on bilateral exports from Western Balkan countries in the period of six years, thus having in total 1182 panel observations. There are three reasons for choosing 2006 as the first observed year: (1) the methodology of GCI calculation as a measure of international competitiveness is changed in 2005, (2) GCI data for all Western Balkan economies are calculated and reported from 2006, and (3) data for Montenegro as a separate economy exist from 2006. The model, methodology and empirical results are as follows.

4.1 The model, data and variables

Our empirical analysis is based on the gravity model estimation. This model is well known tool for the empirical analysis of international trade. Although the usage of gravity model dates from 1962, when it was introduced to econometric analysis of bilateral trade flows (Tinbergen, 1962), this model has experienced its revival from the 1990s of previous century. Apart from the literature dealing with theoretical foundation of gravity model (e.g. Bergstrand, 1985; Helpman, 1987; Deardorff, 1998; Anderson and van Wincoop, 2003), this model became very popular in predicting bilateral trade flows (e.g. Hamilton and Winters, 1992; Nilsson, 2000; Papazoglou et al. 2006). Moreover, the gravity model is often used to evaluate the effects of regional trade arrangements, economic integrations, currency unions and various trade-related policies effects or exchange rate volatility on bilateral trade flows, (e.g. Frankel and Rose, 2000; Nilsson, 2000; Faruqee, 2004; Papazoglou et al., 2006; Baier and Bergstrand, 2007; Tenreyro, 2007). For all mentioned purposes, different specifications of gravity model are used, from traditional to international trade theory-based specifications. A simple version of the gravity equation explains bilateral trade as a function of economic sizes of countries (measured by their GDP and population), distance between them and other factors (trade preferences, common border and language, free trade agreements, currency union membership; as well as trade impediments (tariff and non-tariff barriers, etc.). This model can be written in its nonlinear form as follows:

[36] EU27: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, Netherlands, Portugal, Spain, Sweden, United Kingdom, Bulgaria, Czech Republic, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovak Republic, Slovenia, CEFTA2006 excluding Moldova and Kosovo* and other important trade partners: China, Russian Federation, Switzerland, Turkey, USA.

$$X_{\mathrm{ij}} = \alpha Y_i^{\beta_1} N_i^{\beta_2} Y_j^{\beta_3} N_j^{\beta_4} D_{ij}^{\beta_5} \exp(\delta A_{ij}) \varepsilon_{ij} \quad (1)$$

where X_{ij} refers to value of exports from country *i* into country *j*; N_i, Y_i, N_j and Y_j are their respective population and GDP of exporters and importers, respectively. Variable D_{ij} denotes the distance between main economic centres of exporter *i* and importer *j*, as a proxy for transport and transaction costs. Set of dummy variables A_{ij} encompasses the effects of common border, language, cultural, historical similarities, preferential trade agreement, whereas α refers to the regression constant and ε_{ij} represents the error term.

Instead of variables N_{i} and N_{j}, an alternative of the model (1) uses ratios of variables: $Y_{\mathrm{i}}/N_{\mathrm{i}}$ and $Y_{\mathrm{j}}/N_{\mathrm{j}}$, respectively (Bergstrand, 1985):

$$X_{\mathrm{ij}} = \alpha Y_i^{\beta_1^*} (Y_i / N_i)^{\beta_2^*} Y_j^{\beta_3^*} (Y_j / N_j)^{\beta_4^*} D_{ij}^{\beta_5^*} \exp(\delta^* A_{ij}) \varepsilon_{ij} . \quad (2)$$

The relationship between regression coefficients of the two specifications is as follows:

$$\beta_1 = \beta_1^* + \beta_2^*, \ \ \beta_2 = \beta_3^* + \beta_4^*, \ \ \beta_2 = -\beta_2^* \text{ and } \beta_4 = -\beta_4^* . \quad (3)$$

GDP and population variables reflect the endowments and tastes of trading partners. In both specifications, the export flows are expected to be directly proportional to the exporter's GDP (as a proxy of supply level) and importer's GDP (as a proxy of the demand level), while inversely proportional to the distance between them. Regarding the effects of population variables, the results in the empirical literature are somehow mixed, meaning that the expected effects could be either positive or negative. The impact of importer's population (N_{j}) as a measure of a market importance should be positive. However, larger domestic market may indicate more resource endowment, self-sufficiency, more diversified production and less dependence on foreign trade, meaning that the effect of exporter population (N_{i}) on its exports could be negative. Using the relations from (3), this implies positive regression coefficient sign of exporter GDP per capita variable and the dominance of capital-intensive products in exports. Conversely, the positive regression coefficient sign of N_{i} variable (equation (1)) and consequently negative sign of exporter GDP per capita variable (equation (2)) could indicate that the labour-intensive products are dominant in exports (Bergstrand, 1985).[37]

Relying on the above mentioned specifications, we formulate the following augmented form of gravity model, using panel data on Western Balkan countries in the period 2006-2011:

$$X_{\mathrm{ijt}} = \alpha Y_{it}^{\beta_1} N_{it}^{\beta_2} Y_{jt}^{\beta_3} N_{jt}^{\beta_4} D_{ij}^{\beta_5} GCI_{it}^{\beta_6} \exp(\varphi Bord_{ij} + \gamma SAA_{it} + \mu_i + \mu_j + \lambda_t) \varepsilon_{ijt} \quad (4)$$

Apart from standard gravity model variables (GDP, population number and distance), this specification also contains variables representing common border effects, SAA effects and international competitiveness effects.[38] Namely, variable $Bord_{ij}$ is a dummy variable which

[37] Besides the two specification, another also commonly used in the empirical researches is based on new trade theory, explaining the exports as a function of countries overall GDP, similarity of countries in terms of their overall GDP and the difference in relative factor endowments (e.g. Helpman, 1987 and Egger, 2002). Similar specifications based on Serbian and other Western Balkan countries are recently estimated in: Bjelić and Dragutinović Mitrović (2012) and Dragutinović Mitrović and Bjelić (2012).

[38] As it is obvious, in constructing our model we did not start with the specification (2), but (1). This is done to avoid possible multicolinearity problem which could occur in (2) due to the existence of variables *GCI* and *GDP*

takes value 1 for countries that share common border and 0 otherwise. The effect of SAA on bilateral exports of Western Balkan countries toward the EU is evaluated by variable SAA_{it} which takes value 1 for the period from SAA entry into force and 0 otherwise: for Macedonia and Croatia in the whole observed period,[39] for Albania from 2009 on, for Montenegro from 2010 on. However, for Bosnia and Herzegovina and Serbia, SAA has not entered into force yet, but Interim Agreement on trade and trade-related issues is applied, which is important for trade regime implementation and for our analysis. Hence, for these two countries, SAA_{it} variable takes value 1 from 2008 and 2010, respectively, as the years of entry into force of Interim Agreement on trade. Finally, GCI_{it} variable (global competitiveness index score) reflects the level of international competitiveness of Western Balkan country i in the year t.

Following Matyas (1997), our specification (4) is in the form of three-way (exporter, importer and time effects) panel data model, thus containing the exporter specific effects (μ_i), the importer specific effects (μ_j) and time effects (λ_t). In this way, we encompass the heterogeneity across countries, due to omitted historical, cultural and other time-invariant variables specific to trade partners, while time effects reflect common shocks or the overall trend towards globalization. The term ε_{ijt} refers to the error term. The expected signs of the most of included regressors have already been explained for specifications (1) and (2) and they are also relevant to the panel data specification (4). Additionally, border, SAA and GCI effects on bilateral exports of Western Balkan countries are expected to be positive.

Data sources for our variables are as follows. Exports data measured in million USD originate from UN Comtrade database. Data on GDP, GDP per capita expressed in million USD and GDP deflator data are taken from the IMF World Economic Outlook database in order to create real GDP variables. Data on geographical distance (in kilometres) between economic centres of two countries are from the website: www.worldatlas.com. Dummy variable *SAA* is created on the basis of the information from European Commission website. GCI data derive from the WEF Global Competitiveness Reports.

4.2 Methodology

The estimation of gravity model has previously been based on cross-sectional data (Hamilton and Winters, 1991; Nilsson, 2000). However, well known drawback of cross-sectional data usage is that it produces biased results as heterogeneity among countries were not controlled for (Cheng and Wall, 2005; Egger, 2002). For that reason, different econometric techniques based on panel data dominate in the most of empirical literature as estimation methods of gravity model (Baldwin, 1994; Egger, 2002; Breusch and Bergstrand, 2007; Bussiere et al., 2008, etc.). One of commonly used panel data specifications is gravity model with fixed bilateral (or exporter and importer) effects and time effects (e.g. Cheng and Wang, 2005; Breusch and Bergstrand, 2007; Bussiere et al., 2008), while among others are specifications based on instrumental variable estimators, such as Hausman-Taylor (HT) panel data model or HT model with serial correlation (Egger, 2002; Serlenga and Shin, 2007; Bjelić and Dragutinović Mitrović, 2012).

In all mentioned papers, commonly used approach to estimate gravity model is to take logarithms of both sides of the model, and estimate its log-log form. However, when trade matrix contains zero values, the problem of this estimation approach stems from the facts that

per capita variables, since *GCI* variable (by its definition) is constructed based on the level of country's GDP per capita.

[39] The year of SAA entry into force for Macedonia is 2004 and for Croatia 2005.

logarithmic transformation will drop out zero trade flows, since the logarithm of zero is not defined. There are several solutions of the zero problem in the literature: (1) dropping the data with zero values (truncating the sample), (2) adding a small value to the zero value (before taking logs), and (3) applying appropriate estimation methods on the multiplicative form of gravity model (without logarithmic transformation). It has been shown that first and second solutions are inappropriate as they lead to sample selection bias when zeros are non-randomly distributed, i.e. when they are not randomly missing data (Santos and Tenreyro, 2006). In other words, trade zeros often indicate real absence of trade between country pairs, or they are a consequence of rounding errors in cases of very small trade values. In that situation, the strategy of zeros dropping out of the sample, lead to a loss of information, thus leading to biased estimates. The same refers to the strategy of replacing zeros by small values (e.g. Westerlund and Wilhelmsson, 2011). Third solution of zero trade problem is to estimate gravity model in its original non-linear form (4), which can be rewritten as follows:

$$X_{\mathrm{ijt}} = \exp(\mu_i + \mu_j + \lambda_t)\lambda_{\mathrm{ijt}}\varepsilon_{ijt} \text{ or:}$$
$$X_{\mathrm{ijt}} = \exp(\mu_i + \mu_j + \lambda_t)\lambda_{\mathrm{ijt}} + u_{ijt}, \quad (5)$$

where conditional expectation is:

$$\begin{aligned}\lambda_{\mathrm{ijt}} &= E(X_{ijt}|Y_{it}, Y_{jt}, N_{it}, N_{jt}, D_{ij}, GCI_{it}, Bord_{ij}, SAA_{it}) \\ &= \exp(\alpha + \varphi Bord + \gamma SAA_{it}) Y_{it}^{\beta_1} N_{it}^{\beta_2} Y_{jt}^{\beta_3} N_{jt}^{\beta_4} D_{ij}^{\beta_5} GCI_{it}^{\beta_6} \\ &= \exp(\alpha + \varphi Bord + \gamma SAA_{it} + \beta_1 \ln Y_{it} + \beta_2 \ln N_{it} + \beta_3 \ln Y_{jt} + \beta_4 \ln N_{jt} + \beta_5 \ln D_{ij} + \beta_6 \ln GCI_{it})\end{aligned}$$

is exponential regression function derived from form (4), ensuring that λ_{ijt} is positive and where u_{ijt} is a mean zero disturbance, while $\varepsilon_{ijt} = 1 + \dfrac{u_{ijt}}{\exp(\mu_i + \mu_j + \lambda_t)\lambda_{\mathrm{ijt}}}$ is disturbance term with conditional expectation $E(\varepsilon_{ijt}|Y_{it}, Y_{jt}, N_{it}, N_{jt}, D_{ij}, GCI_{it}, Bord_{ij}, SAA_{it}, \mu_i, \mu_j, \lambda_t) = 1$.

Most commonly used estimation technique applied directly to the non-linear form of gravity model (4) or (5) is Poisson pseudo (or quasi) maximum likelihood (PPML) estimator (e.g. Burger, 2009; Westerlund and Wilhelmsson, 2011; Tenreyro, 2011).[40] Moreover, it is shown that this method is robust to the presence of heteroskedasticity (as is usual in the bilateral trade data), and performs well when the number of zeros is frequent, particularly at sectoral level of bilateral trade analysis (Santos and Tenreyro, 2011).

In our empirical analysis, we have also faced the problem of zero export values (mainly for smaller Western Balkan economies' exports to distant countries). Hence, we follow the solution of this problem proposed by Santos and Tenreyro (2006) and estimate our gravity model by Poisson pseudo maximum likelihood method.

[40] Although the Poisson model and PPML estimator are commonly used for count data, a number of Monte Carlo simulations confirm that this estimator is consistent regardless the distribution of the data, assuming that zero and non-zero values are produced by the same data generating process (e.g. Santos and Tenreyro, 2011).

4.3 Estimation results

Here we present estimation results of our gravity model (4). As in all mentioned empirical studies, for the sake of checking the robustness of our results, we compare three different alternatives to deal with zero trade values. Hence, we start with gravity model without zero values and estimate its logarithm form with fixed exporter, importer and time effects by ordinary least squares method (FE model, column (1), Table 2). Next, we estimate log-log form of the model after adding small positive value to zero values (zero exports + 0.1; column (2), Table 2).[41] Finally, we used pseudo maximum likelihood (PPML) method to estimate our Poisson regression (results are presented in Table 3).

Table 2. Gravity model with fixed exporters and importers effects – estimation results.

Regressor	FE -without zero values	FE –all values $\ln(X_{ijt}+0.1)$
Y_{it}	0.801 (0.003)	1.012 (0.000)
Y_{it}	1.535 (0.042)	0.598 (0.015)
N_{it}	0.802 (0.000)	0.618 (0.004)
N_{it}	0.431 (0.901)	0.254 (0.310)
D_{ij}	-1.457 (0.000)	-1.201 (0.000)
$Bord_{ij}$	0.751 (0.000)	0.886 (0.000)
SAA_{it}	0.640 (0.047)	0.546 (0.097)
GCI_{it}	1.228 (0.019)	1.390 (0.010)
*GCI*_07	-0.452 (0.461)	-0.419 (0.511)
GCI _08	-0.023 (0.970)	-0.237 (0.711)
GCI _09	0.136 (0.852)	0.054 (0.943)
GCI _10	-0.944 (0.210)	-1.314 (0.081)
GCI _11	-1.845 (0.054)	-1.949 (0.042)
Constant	-19.689 (0.113)	-12.603 (0.000)
Number of observations:	1074	1182
Fixed exporter effects	yes	yes
Fixed importer effects	yes	yes
Time effects	yes	yes
R squared	0.558	0.601
F test	71.45 (0.000)	75.57 (0.000)
Reset test p-value	0.001	0.000

Note: p-value is reported in the parenthesis.
Source: Author

Although the number of zero export values in our sample is rather small (less than 10%), comparison of the results obtained by applied estimators indicates differences in regression coefficient estimates (Tables 2 and 3). Particularly, these differences are obvious regarding the effects of GDP and population variables. Although the signs of exporter's GDP and population parameter estimates are the same and their significance do not differ much, the magnitude of these estimates varies: PPML estimates of these variables are lower (Table 3).

[41] Both alternatives of gravity panel data model are estimated by using fixed effects and then random effects specifications. Tests for individual effects in both specifications (like, F test and Honda test) indicate their significance, while Hausman specification test indicate fixed effects as appropriate. The strategy of adding small positive value to zero trade flows is repeated with different values (we experimented with adding 0.01, 0.05, 0.5 and 1) and confirmed variations among regression parameters estimates.

Table 3. Results of gravity model estimation by PPML.

Regressor	PPML (FE) - all values
Y_{it}	0.551 (0.001)
Y_{it}	0.341 (0.161)
N_{it}	0 .511 (0.019)
N_{it}	0.659 (0.070)
D_{ij}	-0.362 (0.037)
$Bord_{ij}$	0.835 (0.000)
SAA_{it}	0.198 (0.106)
GCI_{it}	0.357 (0.026)
GCI _07	-0.202 (0.001)
GCI _08	-0.145 (0.043)
GCI _09	-0.305 (0.056)
GCI _10	-1.002 (0.003)
GCI _11	-1.387 (0.001)
Number of observations:	1182
Fixed exporter effects	yes
Fixed importer effects	yes
Time effects	yes
Wald test	6932.50 (0.000)
Reset test p-value	0.261

Note: p-value is reported in the parentheses.
Source: Author

According to standard estimation methods of FE gravity model (Table 2), importer's GDP seems to have significantly positive effects, while the importer's population effect is insignificant. Contrary to this, PPML estimation results (Table 3) show that the magnitude of importer's GDP estimate is much lower and insignificant, whereas importer's population has significantly positive impact on bilateral exports of Western Balkan countries. Similar conclusion can be derived when we compare the distance effect. As it is expected, its impact on bilateral exports is negative and significant in all specifications, but its PPML estimate is lower than in other two cases. SAA effect on bilateral exports of Western Balkan countries is positive in all specifications, but smaller and less significant under PPML. The only variable which is not changed much in all specifications refers to the effect of common border. Regarding *GCI* variable, which effect is in the focus of our analysis, its parameter estimate in all three specifications is positive and significant (but lower in PPML case). Apart from GCI variable, we also include interaction terms of GCI and time dummy variables, in order to investigate changes in its exports effects over time.

Presented results (about lower PPML estimates) correspond to some earlier findings in the empirical literature (e.g. Silva and Tenreyro, 2006; Silverstovs and Schumacher, 2009). Furthermore, we perform RESET test to check correct specification of the conditional expectation. Test results indicate that both FE gravity models estimated using logarithmic specification are inappropriate, while the regression estimated using PPML has no evidence of misspecification. Therefore, in the following we make conclusions based on PPML estimation results.

As it is expected, bilateral exports of Western Balkan countries is positively affected by their GDP as a measure of export supply: regression coefficient of exporter's GDP is lower than unity, positive and significant. However, although positive, importer's GDP does not seem to have significant effect on the increase of the Western Balkans' exports. This may be expected since these economies are not important import partners for developed economies, like the EU. Observing exporter's population effects, the sign of coefficient estimate is positive and significant, confirming that labour-intensive products are dominant in the Western Balkans'

exports (follows from relations (3)). The impact of importer's population as a measure of market size is also positive, although significant at 10% significance level. The roles of distance and border are also important in determining bilateral exports of observed countries (regression coefficient estimates significant at 5% and 1% significance level: –0.362 and 0.835, respectively). Moreover, the SAA effect is positive but does not seem to be significant.

Our results show that the level of international competitiveness of Western Balkan economies significantly increases their bilateral exports (regression coefficient estimate 0.357 is significant at 5% significance level). However, looking at its interaction with time effects, it is obvious that international competitiveness impact on bilateral exports of these economies decreases over observed years. This could be linked with the possible changes in trade regime which is becoming more reciprotial in each observed year.

5 CONCLUDING REMARKS

In the 20th century it was clear that trade concession should be connected to the level of economic development of countries. Developed countries started to extend asymmetrical trade concessions to less developed economies since they were unable to compete at international markets. The asymmetric trade concession created non-reciprotial trade regimes at all levels of trade cooperation between countries. EU granted asymmetric trade preferences to the Western Balkans economies as a result of their low international competitiveness. We have researched the relationship between international competitiveness and asymmetry in the EU-Western Balkans trade regime and their effects on bilateral exports of Western Balkan economies. Our results show that international competitiveness has positive effects on the Western Balkans bilateral exports, but these effects are fading out in the observed period. At the first glance it could be explained as a consequence of world economic crisis but the results show that the fading out of the effects resumes even when crisis subsides. This can be explained by the fact that as EU-Western Balkans trade regime becomes more symmetrical each year, the low international competitiveness of Western Balkans even more decreases and its bilateral export effects weakens.

Due to the low competitiveness of Western Balkan economies and gradual introduction of symmetry in their trade regime with the EU we can expect the export of Western Balkan economies to the EU will stagnate or even fall. This raises the question of the effect of further preference erosion on their way to EU membership and the possibility international competitiveness improvement for Western Balkans economies. In these conditions, the another question that arises is will Western Balkan economies can sustain competitive pressures on the Single EU market as they integrate further into the EU.

6 BIBLIOGRAPHY

Anderson, J. E. and E. van Wincoop (2003): **Gravity with Gravitas: A Solution to the Border Puzzle**, ***American Economic Review***, 93 (1): 170–192.

Baier, S. L. and J. H. Bergstrand (2007): **Do free trade agreements actually increase members' international trade**? ***Journal of International Economics***, 71(1): 72–95.

Baldwin, R. E. (1994): **Towards an Integrated Europe**, London: Centre for Economic Policy Research.

Bergstrand, J. H. (1989): **The Generalized gravity equation, monopolistic competition, and the factor-proportions theory in international trade**, ***The Review of Economics and Statistics***, 71(1): 143–153.

Bjelić, P. and R. Dragutinović Mitrović (2012): **The Effects of Competing Trade Regimes on Bilateral Trade Flows: Case of Serbia**, ***Proceedings of Rijeka Faculty of Economics - Journal of Economics and Business***, 30 (2): 267−294.

Bjelić P. (2011): **Međunarodna trgovina**, 3rd edition, Beograd: CID Ekonomski fakultet.

Burger, M. J., F. G. van Oort and G-J.M. Linders (2009): **On the Specification of the Gravity Model of Trade: Zeros, Excess Zeros and Zero-Inflated Estimation**, ***Spatial Economic Analysis***, 4(2): 167–190.

Bussiere, M., J. Fidrmuc and B. Schnatz (2008): **EU enlargement and Trade Integration: Lessons from a Gravity Model,** ***Review of Development Economics***, 12(3): 562–576.

Dearden, S. and C. M. Salama (2002): **The New EU ACP Partnership Agreement**, ***Journal of International Development***, 14: 899–910.

Deardorff, A. (1998): **Determinants of Bilateral Trade: Does Gravity Work in a Neoclassical World**? in: J.A. Frankel (ed.): ***The regionalization of the world economy***. Chicago: University of Chicago Press.

Dragutinović Mitrović, R. and P. Bjelić (2012): **EU enlargement and bilateral trade potentials: The experience of the West Balkan countries**, in: A. Prašćević (ed.): ***International Scientific Conference*: *From Global Crisis to Economic Growth. Which Way to Take***?, Belgrade: Faculty of Economics.

Dunn, M. H. (1994): **Do Nations Compete Economicaly**? ***Intereconomics***, November/ December 1994: 303−308.

Egger, P. (2002): **An econometric view on the estimation of gravity models and calculation of trade potentials**, ***The World Economy,*** 25(2): 297–312.

Faruqee, H. (2004): **Measuring the Trade Effects of EMU**, ***IMF Working Paper***, *WP* 01/154.

Frankel, J. and A. Rose (2000): **Estimating the effect of currency unions on trade and output**, ***NBER Working Paper,*** 7857.

GATT, Decision on Differential and More Favourable Treatment, Reciprocity and Fuller Participation of Developing Countries, 1979.

Helpman, E. (1987**): Imperfect Competition and International Trade: Evidence from Fourteen Industrial Countries**, *Journal of the Japanese and International Economies*, 1(1): 62-81.

Krugman, P. (1994): **Competitiveness - A Dangerous Obsession**, ***Foreign Affairs***, 73(2): 28−44.

Lorand, B., (2007): **The Trade and Development Policy of the European Union**, ***The European Journal of International Law***, 18(4): 715−756.

Matyas, L. (1997): **Proper econometric specification of the gravity model**, ***The World Economy***, 20(2): 363–368.

Montanari, M. (2005): **'EU Trade with the Balkans, Large Room for Growth?'** ***Eastern European Economics,*** 43 (1): 59–81.

Nilsson L. (2000): **Trade integration and the EU economic membership criteria**, ***European Journal of Political Economy***, 16(4): 807–827.

Panagariya, Arvind (2002):.**EU Preferential Trade Policies and Developing Countries**, mimeo.

Papazoglou, C. et al. (2006): **A gravity model forecast of the potential trade effects of EU enlargement: Lessons from 2004 and path dependency in integration**. ***The World Economy***, 29: 1077–1089.

Porter, M. E. (1990): **The Competitive Advantage of Nations**, New York: Free Press.

President's Comission on Industrial Competitiveness (1985): **Global Competition: The New Reality**, the Report of the President Commission on Industrial Competitiveness, Volumes I-II, Washington, D.C.: U.S. Government Printing Office.

Serlenga, L. and Y. Shin (2007): **Gravity models of Intra-EU trade: Application of the CCEP-HT Estimation in heterogeneous panels with unobserved common time-specific factors**, ***Journal of Applied Econometrics***, 22(2): 361–381.

Silva, J. M. C. S. and S. Tenreyro (2006): **The log of gravity**, ***Review of Economics and Statistics***, 88(4): 641–658.

Silva, J. M. C. S. and S. Tenreyro (2011): **Further simulation evidence on the performance of the Poisson pseudo-maximum likelihood estimator**, ***Economic Letters***, 112(2): 220–222.

Silverstovs, B. And D. Schumacher (2009): **Estimating gravity equations: to log or not to log?**, ***Empirical Economics,*** 36: 645–669.

Scoot, B.R. and G.C. Lodge (1985): **US Competitiveness in the World Economy**, Boston: Harvard Business School Press.

Tenreyro, S. (2007): **On the trade impact of nominal exchange rate volatility**, ***Journal of Development Economics***, 82(2): 485–508.

Tinbergen, J. (1962): **Shaping the World Economy**, New York: Twentieth Century Fund.

Wang, Z. and Winters, W. (1992): **The trading potential of Eastern Europe**, ***Journal of Economic Integration***, 7(2): 113–136.

Westerlund, J. and F. Wilhelmsson (2011): **Estimating the gravity model without gravity using panel data**, ***Applied Economics***, 43(6): 641–649.

World Trade Organization (2009): **Trade Policy Review of the European Communities**, Geneva.

Wooldridge, J. M. (2002): **Econometric Analysis of Cross-Section and Panel Data**. Cambridge: The MIT Press.

World Economic Forum (2013): **The Global Competitiveness Report 2012–2013**, **Davos**.

IMPACT OF THE PUBLIC DEBT ON FISCAL SYSTEM IN CONTEXT OF BUDGET BALANCE - BiH AND SURROUNDING COUNTRIES

Amir Karalić
Indirect Taxation Authority of Bosnia and Herzegovina
78000, Bana Lazarevića bb, Banja Luka, BiH
Phone: + 387 61 781 056, + 387 51 335 205,
E-mail:amir1karalic@gmail.com

Key words: *Economic policy, Public debt, Budget balance, Sustainability of public debt*

ABSTRACT

Public debt represents an important determinant in the economic policy of each country. Nowadays indebtedness represents necessity, which may be both incentive of growth and development, also and barrier to growth that is to development. The state is indebted with aim to raise the funds for its needs, and alignment of the budget balance. It is therefore necessary to ensure a sustainable level of the public debt that can be defined as a needed level of public indebtedness, measured as a share of public debt to gross domestic product, which can remain unchanged in the long term. The aim of this paper is to highlight the importance of the sustainability of public debt in the frame of national economy. Sustainability of public debt is defined as the ability of the state to meet its long term financial commitments to creditors, while maintaining a balance between budget revenues and expenditures. If the debt begins to grow faster than the ability of the state in order to settle the obligation by borrowing, becomes unsustainable. Government's ability to repay debt depends on the current market conditions and trends of key economic variables. Therefore, it is important to take into account the level of indebtedness that is sustainability of public debt. Public debt in the context of global relations is extremely important, especially the countries of the European Union that are faced with emerging markets.

1 INTRODUCTION

Public debt is one of the main economic variables in determining each economic policy. Public debt that is state debt represents the total indebtedness of the state, which it was achieved by indebtedness from domestic and foreign creditors. This indebtedness is realized at a certain point, unlike the budget state deficit, which indicates a lack of incomes over expenditures (that is surplus, an excess of incomes over expenditures) in a certain period. From the above mentioned it follows that the deficit that is surplus of current budget, while the public debt is the condition of indebtedness at a time and as such represents the fund. The issue of public debt has always been not only in the economy but also the politics, which is not that bad. The issue of public debt in particular has become the subject of considerations during the 80s of the last century. Therefore the questions such as: Do people want better social welfare protection or a higher degree of private initiative and the ability for efficient and quicker promotion? Do people prefer that the state gets into debt by providing collective goods or favors a model in which private entities invest in assets instead of state by its own indebtedness? Do future generations can meet the current expectations of the political elites who want to invest in it, or is it safer to dispose with existing funds now? This requires clear and specific answers, so in that case, it is necessary to have broader social and scientific debate.

Depending on the political strategy that is implemented, it is often manipulated by the term of public debt. Political options that are committed in reducing of the public spending are commonly using the term "debt per capita", or burden of future generations. Of course, this is an important data for managing the national economy, but also we should take into account and financial assets that are owned by the state (stocks, demands, foreign exchange reserves, etc.) and physical assets that were acquired by indebtedness (infrastructure, building, etc.) By this way the level of indebtedness often increases unrealistically and thus in a way moving away from the topic: what is actually done by one generation to loans, that is, what is left to another generation. Thus, the public debt structure is equally as important as its level. Besides, the purpose of usage, the means of debt should be treated equally as well attitude and that there is no need for indebtedness.

The next fact which is also important is the issue of the tendency growth or reduction of the public debt. This parameter is determined, both by the explicit debt (debt that was contracted), and by the implicit debt which involves obligations that are not in the given circumstances foreseen and legally framed, but would appear in the future (e.g. severance pay, various types of social benefits, etc.).

At wide-range debate, it is necessary to distinguish public debt from the total debt of one state, apart from public sector, including and private sector indebtedness, as well and population. The burden of debt pays off over the regressive tax system that is carried out by the poorer classes of population and should be considered in the right way in order to get the overall picture of country's indebtedness. All of this should be borne in mind when making decisions on indebtedness, or avoiding this method of procurement funds.

The goal of this paper is to determine the impact of public debt on the fiscal sustainability of the system through the budget. Sustainability of the state budget on the one hand, and the fluctuations of government securities at the capital markets on the other hand, are the basis of stable borrowing country. In this sense, this paper needs to contribute to the understanding of these relationships.

The purpose of this paper is to emphasize the importance of measuring indebtedness according to the Maastricht rules. In that sense, they made comparisons of indebtedness in EU and the countries that are in the process of accession to the EU.

The paper structure is done in three segments. The first was found at the literature including the hypothesis of the paper. The first part also including part shows the importance of fiscal stability and its impact on the borrowing of country, and explains about the importance of establishing the boundaries of borrowing. The second part explains analysis of the public debt sustainability. The last part analyzes the indebtedness of the country with a review of potential EU members and the EU itself.

2 LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT – PROBLEMS AND DELIMITATIONS

Within economic theory and practice there are different modalities and school accessions in financing to the public debt. Thus, classical economists justify deficit financing with the public debt only in case of sudden and short-term needs for public consumption. Long-term borrowing is allowed only in case of financing the capital projects. Reffering to the issue of the public debt, economists of modern times are divided into three schools: Keynesian, Ricardian and Neoclassical. Keynesian school starts from the assumption that citizens have limited liquidity, but high propensity to consumption from the income that is available. If a temporary tax cut appears, it will directly reflect in increasing of aggregate demand. The next assumption is under-utilization of capacity and lack of employment which is a good basis for generating growth of national income. In this context, the deficit can stimulate consumption and national income, which will have a positive effect on welfare. The opposite situation would have a negative effect, and this is the case of full employment and a fixed supply of money, where the increased demand for money would cause the increase in interest rates and fall in investment. Keynesian school generally offers two possibilities: that the deficit, and thus the public debt have positive or negative effects, which actually depends on the state of the economy of the country.

Ricardian school begins from the connections among the voluntary transfers of successive generations. It actually means that the deficit is only postponed by the payment of taxes of current generations, leaving it to future generations, so the discount presents equal value of taxes and public expenditures. According to (Barro, 1989), he confirmed these allegations in his debt neutrality theory which explains that the tax payers will accept the future tax increase to repay the current debt. What is important to explain is that the country's debt is sustainable if managed with debt adequately. We can point out that empirical studies have shown that financial consolidation has a positive impact on economic developments and thus to the growth of GDP, only if it is carried out in the direction of reducing costs, especially within the state regarding the sector for salaries and expenses for social security. That is, if the fiscal reform is based on an increase in the tax burden, it will have an adverse effect on the economy of the country in general, and the fiscal balance will become unsustainable in the long term (Aleisna and Peroti, 1999).

It refers to the amount of debt and the ways of using it. Basic indicator of indebtedness is the share of debt to GDP ratio, which provides a basis for further analysis from the standpoint of its effect to the country's economy.

In his paper, (Blanchard, 1990) it is suggested cyclically adjusted budget balance (CAB) as an indicator of fiscal policy to provide an answer to the question: "can the current course of

fiscal policy be sustained with or without debt, or will the government have to increase taxes, decrease spending, have recourse to monetization, or even repudiation". It is shown in a model of budgetary constraints that are researched in this paper.

Most of analytical discussions of fiscal sustainability are based on the initial position, and it is represented by a model of inter-temporal budget constraints that is interest rate and tax rate in time (Chalk and Hemming, 2000).

As stated in their paper (Buiter, 2006) the Maastricht deficit and debt criteria were arbitrary and therefore not necessary nor sufficient for national fiscal-financial sustainability. They would, until the member states had achieved cyclically adjusted budgetary positions far below the Maastricht ceilings as to make it highly unlikely that the ceilings would be breached during a downturn, prevent the normal operation of the automatic fiscal stabilisers. They were asymmetric: public debt and deficits could only be too high, never too low.

The government decides on the method of obtaining funds for their own purposes, and the type and form of these funds. On other words government decides which debt instruments will be used to raise funds which are necessary (Malecky, 2007).

Most important part of public finance is budget deficit which is related to public debt. A budget deficit is when a country's government spends more than it takes in from taxes or other forms of revenue Its measurement specially in nowadays are point out instability same states. However, most governments can run moderate deficits for years. That's because they are usually high likely to repay their creditors. Government leaders retain popular support by providing services. If they want to continue being elected, they want to spend as much as possible while keeping their lenders happy deficit as the state is essential for planning the next budget. Budget deficits are financed by a country's bonds. Treasury bills, and notes. This is the government's way of printing money. Actually, it is creating more credit denominated in that country's currency. However, it has the same effect -- it lowers the value of that country's currency. That's because, as bonds flood the market, the supply outweighs the demand.

However, each year the deficit adds to a country's sovereign debt. As the debt grows, it increases the deficit in two ways. First, the interest on the debt must be paid each year. This increases spending while not providing any benefits. If the interest payments get high enough, it creates a drag on economic growth, as those funds could have been used to stimulate the economy. Regardless of the economic growth, public debt and budget deficit are interrelated. To that extent, it is necessary to align the budgetary policy with actual borrowing facilities of a national economy.

2.1 Fiscal solvency and public debt

Historically speaking states have resorted to public debt from different reasons. In the beginning, these were in major the reasons for the settlement of public expenditures in extraordinary circumstances (economic crisis, wars, natural disaster, etc.). In time, specifically after the Second World War there was an increase in the share of debt to gross domestic product, which was caused by the increase of budget expenditures for capital projects. As this was the period of the Keynesian economic school which emphasize that active state intervention in the market and monetary policy provide the best growth and stability, and indebtedness in this period comes to the fore. On the other hand, the neoclassical school sets relations to supply and demand in the sense that each subject makes a decision on increasing of production however each school supports the long-term macroeconomic

balance. If there is an imbalance in the long run, it leads to various changes and difficulties that can end up with crisis, which is then handled in a number of economic and noneconomic ways.

We should point out that the term of over-indebtedness and debt crisis do not necessarily treat the same issue. Therefore, the state may be over-indebted, but at the same time it does not mean that the debt crisis is occurred. Thereby, in macroeconomic sense it is necessary to analyze: a) the solvency and liquidity of the state, b) the condition of the public sector (the budget structure), c) the condition of the financial sector (especially the development of capital markets), and d) the position and perspective of the corporate sector.

Governments must often lend to fund expenditures in regard to public goods and services that promote the development and growth of national welfare. The fiscal policy decides how much will be a loan that is determined by the target level of debt based on an analysis of maintenance of state debt.

When the government decides how the funds should be collected, the next step is to determine how these funds will be delivered.[42] In other words, the current government should decide which debt instruments will be used to raise the required funds. Similarly, to any private borrower, the current government will seek the best conditions for the realization of loans. Of course, that key role will have changes of economic variables that determine the level of indebtedness, as well and dynamics that is ability to pay off. Movements in financial markets will significantly form the way of the state indebtedness. When the financial markets would have been completed and effective, the debt structure would not be subject to the differences between long and short-term rates, exchange rates, etc. Due to the differences in movements of interest rates on long and short-term loans, in most of the cases are considered that the debts with longer maturities are safer in terms of risk financing. It is important the state as a borrower pays off its obligations in time, in order not to burden subsequent budgets and disrupt the alignment of incomes and expenditures. In this sense, incomes should be stable and abundant.

The emerging economies are needed to reduce its fiscal deficits however just a few of them have taken some significant measures to solve this issue. The basic issue that appears in this context is: how the choice between public spending cuts and tax increase, affects the ability of central banks to maintain the price stability. Similar issues regarding the sustainability of the price appearing in relation to time and magnitude of changes in the state fees, rates charged by the public (state) enterprises, state grants and pension contributions. All these items affect on the reduction of total demand, which has the effect of maintaining the price stability. However, in practice it is extremely difficult to implement the budgetary constraints.

Therefore, one of the approaches to reduction of the budget expenditures is to introduce the restrictions on certain budget expenditures. No such limits are rarely effective and inevitably load for demands on their removal, and eventually result in pressures on domestic demand. In order to reduce budgetary expenditures it would be more realistic to carry it out as realistically as possible, another approach is implementation of reductions in areas where there is sufficient political support. Examples vary from country to country, and include expenditures for insurance of unemployed people, outlays for defense, the salaries of the civil servants or contracting of businesses with private firms for services that were provided by the state. The

[42] Diversities of options that are available to the government vary mainly in different countries taking into consideration their level of development

experience of industrialized countries shows how the implementation of such programs is not simple and may result in additional budget expenditures.

The second basic approach to fiscal adjustment is increasing of taxes and other state incomes. Central Banks are generally less preferred of it, because of its direct impact on inflation. Usually it is claimed that a growth in taxes and regulated prices of public goods and services is only a temporary impact on inflation. Higher prices for public goods and services produced in public owned companies also may reduce the subsidies that the state offer to these companies, and therefore may be considered as a basis for medium-term fiscal adjustment.

However, increasing in taxes as in other regulated prices of public goods and services, that would be sufficient to reduce the large fiscal deficits in many emerging economies, are politically unacceptable.

Indebtedness, on the other hand, also represents an issue for merging market economies since it carries out a range of both subjective and objective reasons. In the paper (Toth and Dafflon, 2006) are emphasized the main reasons for the low level of debt in the countries of Eastern and Central Europe:

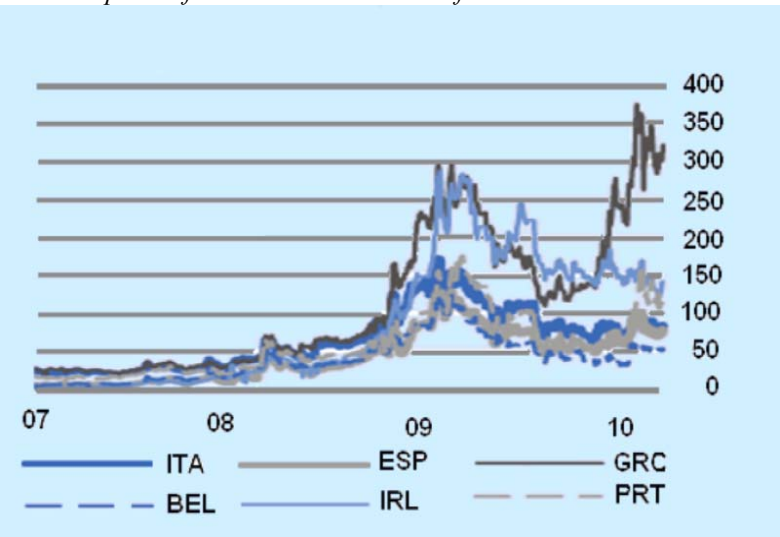
- lack of technical and administrative capacities to manage debt,
- low predictability of flows of current incomes (due to the macro-economic and institutional reasons);
- incomes from privatization, inter-governmental grants as an alternative to debt financing;
- cultural aversion against the indebtedness (the existence of debt is a sign of financial instability, debt is a risky form of financing; the debt takes an unfair burden on future generations);
- rules that are restricted by borrowing and debt;
- the differences in local tax bases and valuable asset, which reduces the chances of local self-governments to indebt itself;
- lack of mature financial market;
- high interest rates caused by inflation;
- minor role of government in investments to public sector.

Fiscal deterioration, that was caused by the global economic crisis, it was affected both in developing and emerging markets. What is of utmost importance nowadays is to define the sustainability of public debt in the context of the deteriorating state of solvency, especially those in the EU. In this sense, the sustainability of public debt is defined as the possibility of servicing (pay off) of debt without a major adjustment of public incomes and/or expenditures and without higher growth ratio of public debt to GDP. Thus, this definition refers to both, the ability and the willingness of state to service debt.

Financial markets have recently begun to assess sovereign risk, especially in those countries with huge fiscal changes. Thus, for example state bond spreads of 10-year maturities for

countries like Greece, Portugal, Spain and Ireland that have significantly increased since 2008, if we compare them with German bond as certain headquarter of the EU (Deutsche Bank Research 2010).This can be seen from the following chart.

Figure 1. Sudden increase in spreads for individual countries of the EMU



Source: DB Research

As we can see, the comparison with German bonds as a benchmark, has exceptional importance for the future projection of budget incomes in the mentioned economies. High levels spreads indicate an increased risk of investing in these state bonds. As we can see Greece and Ireland are leading in this, which will lead to distortion of their financial markets.

2.2 The boundaries of public debt

It is perfectly legitimate the concern, as well as how each country looks at the level of public debt. This issue is related to the growth of public debt, regardless of the reasons for indebtedness. The question is to what indicates the public debt when it becomes unsustainable The growth of the debt share to GDP, particularly if it is stable, but not temporary, represents an indicator of fiscal disorder, which requires an appropriate intervention. Unless, we want to give emphasis to the indebtedness of some country, then the highest attention was focused on two indicators:

1. debt ratio (%) to gross domestic product (GDP),

2. ratio of the debt and export

However, in order to analysis the indebtedness would have been completed we should pay attention to the servicing of the external debt toward export. This indicator points out of the capacity to pay off the debt. When we talk about the limit of indebtedness of some country, we typically focus to the attention on the provisions of the Treaty of Maastricht due to the establishment of the European Union and the Protocol to the Treaty in 1992.[43]By that Agreement for EU member states it was provided upper limit of debt in relation to GDP in the amount of 60%. At the same time, it is necessary to know that a relatively small number of EU countries meet this criterion. However, the EU and especially the European Monetary Union (EMU), the greatest attention have been focused to meeting the criteria under which

[43] Traty on European Union (92/C191/01).

the budget deficit must not exceed 3% of GDP, and what is basically another form of indebtedness. Ratio between debt and export is considered as particularly important indicator of macro-economic analysis since directly indicates the involvement of domestic economy in international economic trends. On the other hand, an indicator of external debt servicing toward export actually explains the possibility of satisfaction the external debt.

The positive rate of change of ratio between the debt and GDP, particularly if it is permanent, but not just temporary, indicates serious fiscal confusions, which should cause an alarming situation. In his paper (Passinet,i 1998) indicates connection between GDP growth rates, the primary surplus that is deficit and public debt. If the level of debt, no matter how high, is stable and, what is more importantly, when decrease in time, this implies a surplus of the primary state budget (e.g. the state budget without interest), is sufficient to fully cover the interest payments and also to pay off at least part of the remaining debt.

The area of sustainability in the case of public debt, can be represented by the ratio between excess (surplus) or shortage (deficit) and public debt for any given rate of growth of GDP. Area of sustainability involves stabilizing of the debt at a certain level. In this context, it is necessary to determine the primary budget balance that is needed to stabilize the public debt side by the market interest rate and nominal GDP growth.

3 ANALYSIS OF THE PUBLIC DEBT SUSTAINABILITY

Impact of public debt on economic growth and financial trends, will declare in favor of its sustainability. The macro-economic policy of the state should be focused on ensuring the sustainability of the level and growth rate of public debt. This should be a basic setting with respect to debt services within the specified cost of indebtedness and existing risk. Sustainability of public debt can be seen as the ability of government for its servicing, measuring the ratio of public debt to gross domestic product and tax incomes. Poor debt structuring in terms of maturity, currency, or interest rate structure, and great and accumulated volume of outstanding liabilities, may be an important factor in causing of the economic crisis in the national economy. The credit state worthiness represents an important determinant of the amount by which the state can be indebted and how it would affect the budgetary policy. Debt denominated in foreign currency, also takes on certain risks and over-reliance on it that can lead to changes in rates and/or monetary pressured if investors begin to refinance government debt involuntarily in foreign currency. As it is highlighted, (by Missale, 2002) the relation between the optimal shares of nominal and foreign currency debt should also be considered.

The paper (Gill and Pinto, 2005) suggest that reliance on borrowing policy in relation to changing tax rates or printing money offer much better solution in cases adequate investment policy of the country. This implies that the rate of return does not exceed the market rate. If this is already the case, it should be funded by taxes. This is to ensure the sustainability of debt.

3.1 Standard formulas for sustainability debt analysis

If public debt is adjusted in terms of maturities that do not lead the economy into insolvency and inflation, will be considered acceptable. In terms of inflation, it is more acceptable short-term debt, whereas long-term indebtedness means borrowing according to higher nominal interest rates and it should be avoided. The inflation may occur in order to write off the public debt as it can be prevented by indexing of debt that protects the nominal value of depreciation.

The ownership structure over the public debt affects the structure of liquidity. Accordingly, the public debt can be owned by domestic or foreign creditors, state agencies, funds, central banks, banks, insurance companies, citizens. For example, the operations of the central bank can affect regulation of the money supply that is in circulation: by the selling of bonds that reduces the amount of money, and by buying it, it increases.

Public debt in the long run, affects the accumulation and consumption of future generations, because the burden of debt payment by the State reduces the possibility of spending of the people/population. The internal public debt requires interest payments to owners of bonds and in this purpose it imposes taxes or other state charges which reduce the tendency for investment/consumption.

Of course, we should mention the economic activity of the state, the Central bank through open market operations will be determined by higher or lower interest rate, which will have repercussions on borrowing capital. The occurrence of the debt can result in occurrence of deficits or changes of some macro-economic magnitudes that will cause state indebtedness. Thus, the deficit budgets require a need for indebtedness would be viewed as static category while certain macro-economic variables consist evident dynamics of state indebtedness.

Debt is considered sustainable unless, it is expressed in relative number, and is not increased with time. In order to meet the requirement of sustainability, it is necessary that:

$$b^* = -d\,(g+\pi) \qquad (1)$$

b*- a sustainable level of budget deficit (the deficit level which enables retaining of the public debt ratio and GDP unchanged),

d- share of debt to GDP,

g- rate of real GDP growth

π- inflation rate.

Given formula, we can prove on the following way. Therefore, the standard framework for sustainability analysis comes from the assumption that the amount of debt changes only for the amount of the budget deficit, so that the change of debt between two periods can be expressed by the following formula:

$$D_{t+1} - D_t = -B_t \qquad (2)$$

This term can be divided by the nominal GDP, so that are used the ratios of debt and deficit to GDP. With the further assumption that the nominal growth rate of GDP is constant, we can get the following term:

$$\frac{D_{t+1}}{Y_{t+1}} \cdot \frac{Y_{t+1}}{Y_t} = \frac{D_t}{Y_t} - \frac{B_t}{Y_t} \qquad (3)$$

$$d_{t+1}(1+g^n) = d_t - b_t$$

Where the small letters indicate ratios to GDP, and g^n is the (constant) growth rate of nominal GDP.The basic condition for debt sustainability in this analytical framework is that the debt does not rise over the time:

$\Delta d = 0 \leftrightarrow dt+1 = dt = d$

With this condition,equation (1) can be written as follows:

$d(1 + g^n) = d - b$, then it follows

$$b = -d\, g^n \qquad (4)$$

If we assume that the growth rate of real GDP (g) and the rate of change of GDP deflator (π) are constant, so that $g^n = (g + \pi)$, this term defines the budget balance that is necessary to accomplish in order to stabilize the share of debt in GDP. Given parameters g and π are defined as the potential rates that can be expected in accordance with relevant financial forecasts.[44] Given parameters affect the dynamics of debt, so that each of them should be considered in the context of current economic policy. Of course, the level of debt as well and budget deficit should be dimensioned so that economic growth tends to its long-term rate. If we add an interest rate to a given formulation, since it is integrated in the deficit itself, we will get:

$$b\ *= d\,(i - g^n)\,, \qquad (5)$$

where is ***i*** the interest rate,

Hence, when the interest rates grow, and thus the overall deficit, it increases the differences between sustainable deficit, and the one that is currently in force that is needed the greater budgetary effort to stabilize the debt ratio to GDP. It is important to emphasize that if the primary budget is not sufficient to stabilize the debt then fiscal adjustment has to be extremely realistic (economic policies of government should be as realistic as possible, especially in making the budget). Just a realistic budget framework brings balance that is needed to service the public debt (Cottarelli, Moghadam 2011).

3.2 Analytical framework for assessing the debt sustainability

The assessment of debt sustainability is an important task of macro-economic policy. Decisions about sustainability of the debt, whether the states can service the public debt without unrealistically large future correction in the incomes and expenditures, support the implementation of fiscal policy, particularly in assisting to determine the needed magnitude of adjustment and appropriate level of debt. As a result, different analytical frameworks are developed for guiding the country towards the sustainability of its public debt. Different analysis are used to determine the indebtedness of the state, however tentatively, the change of public debt can be elaborated in four main parts, as it follows:

a) primary deficit;
b) automatic debt dynamics;
c) other identified flows and
d) residual (unidentified flows).

For the primary deficit (the difference between incomes and primary expenditures – expenditures without the expenditure of interest) we can say that by itself leads to increasing

[44] Given model is based on i calculated and used by: *Blanchard (1990), Buiter (1995), Chalk i Hemming (2000) i Deutsche Bank (2010).*

in debt. At the automatic dynamics of indebtedness, the change of debt to gross domestic product (GDP) may be due to changes that occur outside the fiscal sphere. Thus, the share of public debt to GDP is changing due to changes of real interest rates, real GDP growth rates and depreciation of the currency exchange rate. Other identified flows of creation / reduction of debt include privatization of incomes (which reduce the need for indebtedness) and recognized the implicit or explicit contingent liabilities (which increase the debt). Unless, the actual change of debt cannot be explained by the dynamics of these indentified flows, it appears a residual which in some years may be relatively high. It is all about unidentified debt-creating flows, which can be considered as a statistical error or omission of the debt records and debt creating flows.

Circumstances or more accurately flows that lead to changes of external debt as part of the total public debt can be classified into four categories:

a) current account deficit without interest payments;
b) the net inflow of equity;
c) automatic debt dynamics and
d) other unidentified flows.

All flows are considered as shares in GDP. The current account balance (excluding interest payments) by definition leads to an increase in external debt. The most important flow which leads to deficit/surplus of current account usually is a balance of the international exchange of goods and services that is differences between export of goods and services and imports of goods and service. Under a net inflow of equity capital is considered the ownership of net direct foreign investments and net portfolio equity investments, in case that they are positive, they reduce the need for foreign indebtedness. In transition countries, this can be very important, "leveling" flow of the current account deficit and other debt-creating flows. At the automatic debt dynamics we deal with the contribution of the nominal interest rate changes, price changes and exchanges rate and GDP growth rates with overall changes in the share of external debt to GDP. The growth interest rates lead it to an increase, and GDP growth to reduce the GDP ratio debt. Depreciation of exchange currency rate will increase the share of debt to GDP, and appreciation will have the opposite effect. The interpersonal relation of changes in these three factors will affect the automatic dynamics of debt expressed in relative ratio to GDP. Residual is equal to the difference between the real registered debt changes and identified debt-creating flows. Residual represents unidentified debt-creating flow that is statistical difference between data on total debt and data on basic debt-creating flows. This analysis shows the need of using and appraisal of given macro-economic magnitudes that affect the amount of debt that changes over time. The internal and external debts are, as we can see it, in direct connection with the above mentioned magnitudes. However, in order to obtain a unified picture in creating the public debt, it is necessary to perceive and other aspects of indebtedness. Generally speaking, debt sustainability can be seen as the ability of debtor that with proper structure of budgetary incomes and expenditures of long term fulfills its obligations towards creditors. Thus, debt will become unsustainable if it grows faster that the borrower's ability to be regularly serviced. Of course, that market expectations of key economic variables (interest rate, exchange rate, the rate of economic growth, inflation rate, etc.) will affect the debt sustainability.

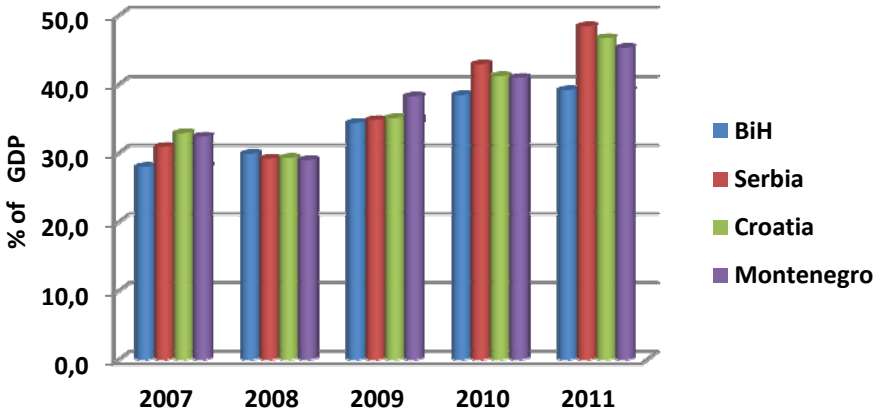
4 ANALYSIS OF THE PUBLIC DEBT SUSTAINABILITY – BiH AND SURROUNDING COUNTRIES

When analyzing the public debt sustainability, the risks of the public debt structure and their management should be taken into consideration, as well as the measures for their reduction. The public debt portfolio (structure) is exposed to numerous risks out of which the following should be highlighted: market risk, currency risk, refinancing risk, liquidity risk, earnings risk and operative risk.

1. Market risk refers to price variations, variations of interest rates or exchange rate and it can increase the costs of debt repayment
2. Currency risk is often the main risk to which the public debt portfolio is exposed. If a country borrows from abroad it may cause the currency market disorder.
3. Refinancing risk emerges when a country has to take out a new loan to pay the existing debt, and it often fails to do so in appropriate circumstances.
4. Liquidity risk emerges when a quantity of liquid assets is suddenly reduced due to unexpected debts due.
5. Credit risk refers to default of obligations on loans by borrowers.

Public debt is an important fiscal instrument in earthen Western Balkans. Comparison of indebtedness was done for Bosnia and its neighbors. Movements in the value of debt in relation to GDP in the countries of potential candidates for EU accession[45] (Western Balkans countries) can be represented by the following chart. It must be remembered that the movements in the value of debt in relation to GDP results from the relation between actual interest rate and growth rate. Favourable relation between the actual growth rate and interest rate contributed to stable ratio of public debt to GDP in pre-crisis period. For the same reason, there was relatively rapid increase of ratio of the public debt to GDP during the decline in economic activities and negative growth rates, accompanied by increase in real interest rates.

Figure 2. Government debt (% of GDP) in BiH, Serbia, Croatia, Montenegro

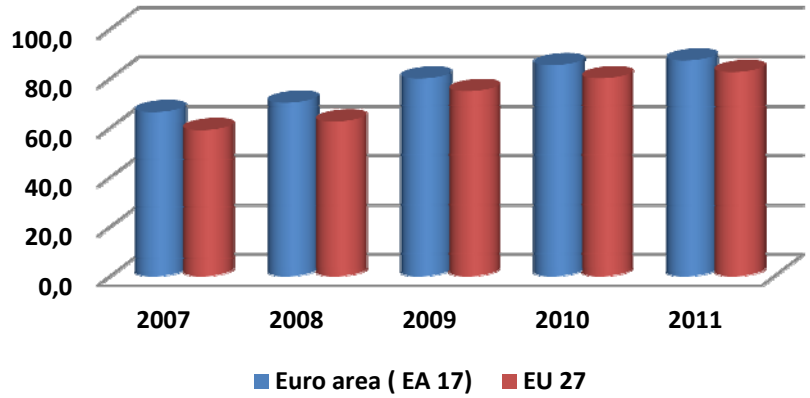


Source: Authors' own work. Authors' calculation based on data from http:// www.cbbh.ba / indexhttp://www.mfin.hr/hr/smjernice-ekonomske-i-fiskalne-politike,; Bulletin of Public Finance June 2011. The Ministry of Finance Belgrade, http://www.cb-mn.org/

Value of public debt in relation to GDP as to the EU and the Euro zone during 2007- 2011 had different values and it can be seen from the following chart.

[45] Croatia will become the 28th member of the EU in July 1. 2013.

Figure 3. Government debt (% of GDP) in the EU and in the EA

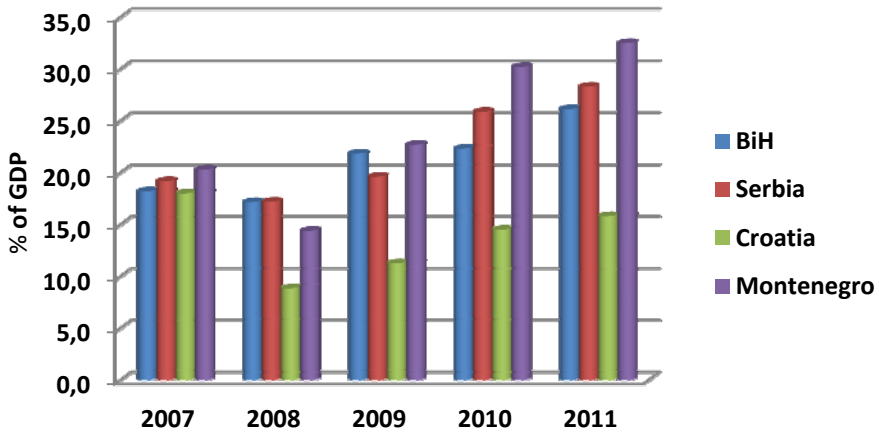


Source:. Authors' own work. Authors' calculation based on data from Eurostat, news release, Euroindicators, Provision of deficit and debt data for 2011 –first notification 62/2012– 23 April 2012.

In EU countries the ratio of government debt to GDP at the end of 2011 was the lowest in Estonia (6,0%). However, in 14 EU states in the same year had the ratio above 60% and the highest level was recorded in Greece (165,3%), Italy (120,1%), Ireland (108.2%), Portugal (107.8%), Belgium (98.0%), France (85.8%), the United Kingdom (85.7%), Germany (81.2%), Hungary (80.6%), Austria (72.2%), Malta (72.0%), Cyprus (71.6%), Spain (68.5%) and the Netherlands (65.2%) as quoted in (Eurostat newsrelease 2012).

Indicators of external indebtedness of BiH over the period of 2007-2011 keep sustainable level. The ratio status of external debt to GDP, with about of 26.14% of land classified in the category of moderately indebted countries, the ratio of the external debt and exports of 69.8%, indicating a moderate level of debt burden by export, and the ratio of external debt servicing to export with 3,4% and further indicates a stabile state of capacity to pay off the debt. The share of external debt to GDP in BiH and its neighbor countries during 2007-2011 followed the trend of the total state debt, which can be seen from the following chart.

Figure 4. Foreign debt (% GDP)



Source: Authors' own work. Authors' calculation based on data fromhttp://www.cbbh.ba/index.php?id=32&lang=bs;http:// http://www.mfin.hr/hr/smjernice-ekonomske-i-fiskalne-politike ,; Bulletin of Public Finance 2012. The Ministry of Finance Belgrade, http://www.cb-mn.org/

Using the equation (1) we could determine the amount of deficit that is necessary to stabilize the debt of Bosnia and Herzegovina, Croatia, Serbia and Montenegro in the period 2007-

2011. So we came to stabilizing the amount of the budget deficit, which should be ranged in expressed values in the observed period in order to indebt the countries on existing basis.

Table 1. Stabilizing the amount of the budget deficit (% GDP)

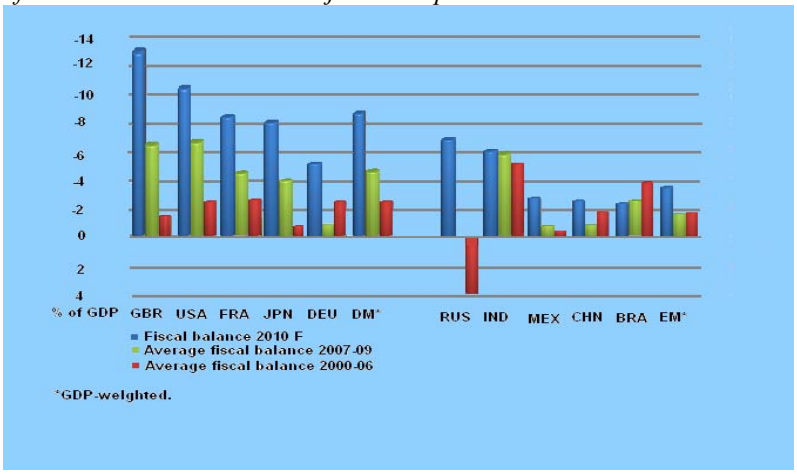
	2007	2008	2009	2010	2011
BiH	-4,63	-5,41	0,86	-0,76	-1,40
Serbia	-8,35	-4,56	3,32	1,14	-0,05
Croatia	-3,28	-3,14	1,70	-0,91	0,02
Monte Negro	-8,06	-4,15	0,98	-1,56	-2,42

Source: Authors' own work. Authors' calculation based on data from: http://www.cbbh.ba/index.php?id=32&lang=bs;, Bulletin of Public Finance 2012. The Ministry of Finance Belgrade, http://www.cb-mn.org/

From the table above, it is clearly stated that BiH has the advantage in terms of meeting Maastricht criterion, since it has the lowest values of budget deficit that is needed to stabilize the public debt. However, besides the extensive analysis, categories that were identified as factors that form the country's indebtedness, should state that a number of other variables contribute to the negative effects of public debt on the budget balance, and consequently the country's tax levy. This is primarily the depth and development of financial markets what implies the liquidity itself. The state securities should fluctuate more intensely at the market and to be a part of a portfolio of all major investors.

The need to develop the capital market in BiH determines the role of the Central Bank which operates as the basis of its currency board, which has negative repercussions on the development of financial markets in the context of market principles. Most economic experts and international financial institutions have alleged for the expansionary monetary and fiscal policies to mitigation the negative effects of the global crisis. Until now, coordinated economic policies have successfully prevented the collapse of the world financial system and global economy.

Figure 5. *Significant fiscal deterioration in the major developed markets*



Source: OECD, IADB, IIF, DB Research

Almost all major developed markets, as well as some emerging markets have launched an anti-cyclical fiscal policy, either through the automatic stabilizers or through discretionary stimulus incentives. As a result to it, the fiscal accounts have been deteriorated significantly since 2007 not only in developed markets, but to some extent in increasing markets. The balance of the fiscal accounts has been particularly agitated by developed markets with accumulated real estate market, as well as in countries with already high burden of

indebtedness before the crisis. All this can be seen in the following chart that illustrates the fiscal deficits in the developed economies as well as in emerging economies.

5 CONCLUSIONS

Public debt, as we have seen, is an essential instrument of state economic policy. Its structure and implementation will determine both the budget and other financial flows in the country. The political actors should ensure sustainable level of public debt which implies the stabilization of the debt in the long run, by respecting the fiscal stability in the sense of moving on to financing the state spending by increased taxes, issuing money or by some combination of these two cases. The amount of debt in BiH as well as surrounding countries is principally favorable in relation to EU countries. However, if the funds of debt in the following period cannot be used for investment spending, it could seriously jeopardize not just the budgetary balance but also the economic situation in BiH. It is therefore necessary to consolidate the public spending in the scope that enables the development of the economy which includes reduction of negative balance of the country payments and increasing opportunities of country for servicing the future indebtedness. For BiH, it is also important the adjustment of budget entities framework with the state budget in order to avoid the disharmony especially when it comes to the cost budget side that produces deficit. Of course, the financial crisis which shakes the EU will have far reaching consequences on financial system of BiH and surrounding countries especially if we take into account the recent reduction of credit rating of BiH.

6 BIBLIOGRAPHY

Alesina, A., & R. Perotti. (1999), **Fiscal expansions and fiscal adjustments in OECD Countries**, Economic Policy 21 (October): 207-48.1995a.

Blanchard, O., (1990), **Suggestions for a new set of fiscal indicators**, *OECD, Working Papers*, No.79, April.

Chalk, N. & Hemming, R., (2000), **Assessing fiscal sustainability in theory and practice**, *IMF Working Papers*, br. 00/81.

Cottarreli,C. & Moghadam, R., (2011), **Modernizing the Framework for Fiscal Policy and Public Debt Sustainability Analysis**, IMF, August, 5. 2011.

Gill, I., Pinto, B., (2005), **Public Debt in Developing Countries: Has the Market- Based Model Worked**? World Bank Research Working Paper 3674 (August) Washington, D.C.

Malecky, M., (2007) , **A Cross- Country Analysis of Public Debt Management Strategies**, Policy Research Working Paper, The World Bank, Banking and Debt Management Department, July 2007.

Toth K. & Dafflon B., (2006): **Managing local public debt in transition countries: an issue of self control**", *(NISPA cee)* may, Ljubljana

Barro J. R., (1989), **The Ricardian Approach to Budget Deficits, The Journal of Economic Perspectives**, Vol. 3, No. 2 (Spring 1989), 37-54

Bulletin of Public Finance., (2011), **The Ministry of Finance Belgrade**, Jun 2011.

Deutsche Bank, Research, 2010, "**Public debt in 2020 - A sustainability analysis for DM and EM economies**", 24. March 2010.

Eurostat, news release, euroindicators, Provision of deficit and debt data for 2011 –first notification 62/2012– 23 April 2012.

Godišnje izvješće Ministarstva financija za 2010. godinu, Republika Hrvatska, Ministarstvo financija.

Information on the state of public indebtedness of Bosnia and Herzegovina on 31.12.,2007., 2008., 2009., 2010. Sarajevo, march 2011.

Pasinetti, L. L., (1998): **The myth (of Folly) of the 3% deficit/GDP Maastricht 'parameter'**, ***Cambridge Journal of Economics***, Vol. 22, No. 1, (pp.103–116).

Traty on European Union (92/C191/01).

Missale, A., (2002): **Public Debt Management**, Oxford University Press, USA, February 21.

Buiter, W., (1995), The '**Sense and Nonsense of Maastricht' revisited: What have we learnt about stabilization in EMU?** European Institute, London School of Economics and Political Science, Revised 5 July 2006, http://www.nber.org/~wbuiter/ [Accessed 20 Decembre 2011]

Chang, R., (1999), **Understanding Recent Crises in Emerging Markets**, *Federal Reserve Bank of Atlanta Economic Review, Second Quarter, pg. 6-16,* http://www.frbatlanta.org/filelegacydocs/ACF91.pdf [Accessed 20 Decembre 2011]

CBBiH (2013) **Glavni ekonomski indikatori,** http://www.cbbh.ba/index.php?id =32&lang=bs; [Accessed 5.1.2013]

MFINHR (2012) **Publikacije**, http://www.mfin.hr/hr/publikacije[Accessed 5.1.2013]

IS HERITAGE INDEX OF ECONOMIC FREEDOM A RELIABLE INDICATOR OF ECONOMIC FREEDOM?

Aleksandar Kešeljević
Faculty of Economics, University of Ljubljana
Kardeljeva ploščad 17
1000 Ljubljana, Slovenia
Phone: + 386 31 707 005
E-mail: saso.keseljevic@ef.uni-lj.si

Rok Spruk
PhD Student in Economics and History
Utrecht School of Economics, Utrecht University
3584 EC Utrecht, Nederland
E-mail: rok.spruk@gmail.com

Key words: *Institutional framework, Economic freedom, Index of economic freedom, Economic freedom*

ABSTRACT

Authors believe that quality of the institutional framework could be also understood through economic freedom. Authors argue that economic policy advisers should use Heritage index of economic freedom with great caution, since it suffer from certain deficiencies and may therefore be an insufficient indicator of economic freedom and future economic prosperity. Heritage index has failed to grasp the subjectivity problem and the importance of different levels of consent regarding the specific economic policy measures within a society. Authors also find a considerable scope for improvement of the Heritage index by showing that not all components of index contribute equally to the level of economic freedom.

1 IN PLACE OF AN INTRODUCTION

The image and the meaning of economic freedom tend to be rather obscured today. In everyday life, economic freedom is less familiar and is paid less heed than civil and political freedom. Towards the end of 1980s, the world underwent significant changes in terms of economic freedom; liberalization, deregulation and privatization became the main guidelines of future development. Since the fall of the Berlin wall in 1989, the idea of freedom has been sweeping the world to eventually adopt the forms of political democracy and free markets. It seems that in the long run, freedom works and people figure that out. I have no doubt that in the future even more people will live in the free world than today.

In the article we find a considerable scope for improvement of the Index of Economic Freedom, created by Heritage Foundation. The aim of the paper is to demonstrate that each index component contributes differently to the level of economic freedom.

Article is structured as follows. The second chapter will introduce the role of institutions in the growth process. The third chapter will provide a detailed definition of economic freedom and a note on importance of freedom. The fourth chapter will provide an explanation why Heritage indexes of economic freedom is not a very good indicator of economic freedom. Section five will provide an explanation of the data variables and model used in our analysis. The results are presented in section six.

2 INSTITUTIONAL ENVIRONMENT AND ECONOMIC FREEDOM

Adam Smith, the 18th century Scottish philosopher and founder of modern economics, devoted the whole of his Inquiry into the Nature and Causes of the Wealth of Nations to a simple question: Why do some countries prosper? For Smith the answer lies in free exchange, entrepreneurship and in the protection of private property. Smith found that growth depends on two types of factors. In the first part of the equation, he focused on the production factors, that are today in the centre of interest of endogenous growth theory, which works in the neoclassical tradition and focuses on production factors. In the other, Smith stressed the importance of a proper institutional setting, i.e. an environment that supports growth.

Exogenous and endogenous usually neglected institutional dimension and suggested that even if policy in a country is unable to create a favorable institutional environment, movement of inputs will provide economic growth; hence, economic growth seems nearly an automatic process (Prokopijevic, 2002). The policy makers have for too long overlooked institutions that are in fact crucial preconditions for economic prosperity. I believe that quality of the institutional framework could be understood through economic freedom and its influence on economic performance because incentives are mainly determined by the institutional framework (Moers, 2002; Berggren, 2003; Powell, 2003). Private initiative in an environment of well protected property rights and a good legal system**,** high quality performance of institutions, clear rules of the game, consensus building capacity of the society regarding the importance of economic freedom can bring in significant differences in economic development between countries.

3 THE CONCEPT AND IMPORTANCE OF ECONOMIC FREEDOM

Economic freedom is different from political and civil freedom. Political freedom means that citizens are free to participate in the political process on equal conditions, that there exists competition between parties and that elections are fair. Civil freedom deals with the questions

of freedom of religion, freedom of assembly and freedom of speech. Political and civil freedoms are usually easily understood, since most people relate them to the freedom of speech and the right to vote. Understanding of economic freedom, however, tends to be more complex and often quite deficient, although this is not to say that economic freedom is not understood.

The cornerstones of economic freedom are freedom of exchange, freedom to compete, personal choice and protection of private property. Economic freedom means the absence of government intervention, constraint on the production, distribution or consumption of goods and services. However, the scholars have yet to agree on a single definition of economic freedom. It appears that there is a considerably wide agreement among them today what economic freedom includes (Hanke, Walters, 1997; Gwartney et al., 1996; Johnson, Holmes, Kirkpatrick, 1998): (1) security of property rights, (2) freedom to engage in voluntary transactions (3) access to sound money, (3) freedom to engage in voluntary transactions outside the borders of a nation, (4) restrictions in the market and freedom to compete, (5) personal choice.

If freedom cannot be measured, we have to concede that it is impossible to define clearly the influence of economic freedom on progress. The index methodology is intricate and complex and the field of analysis is vast. The most comprehensive indexes of economic freedom today are two. Index of Economic Freedom of the World is divided into five areas and twenty-three components, each component is placed on the scale from zero (no freedom) to ten (full freedom). Index of Economic Freedom, created by Heritage Foundation and the Wall Street Journal, is divided into ten economic freedoms, grouped into four broad categories (Appendix 1). Each of the freedoms is scored on a scale of zero (no freedom) to hundred (full freedom). The index methodologies are intricate and complex, the field of analysis is vast and they have different emphases (Kešeljević, 2000). For example, some indexes have weighted components equally (Index of Economic Freedom) and some have not (Economic Freedom of the World).

For economists economic freedom is often understood as a proximate or intermediate goal, while improved welfare stands as the final goal. There are a vast number of authors which all similarly found out that economic freedom does make a positive contribution to well-being. Countries that have higher economic freedom also tend to have higher rates of growth (Easton and Walker, 1997; Scully, 2002; Cole, 2003; Gordillo and Alvarez, 2003; Shaefer, 2003; Gwartney et al., 2005; Justesen, 2008; Azman-Saini et al., 2010) and are more prosperous in regard to well-being measured by GDP per capita (Hanke and Walters, 1997; Farr et al., 1998; Gwartney and Lawson, 1997) than those that have less economic freedom.

It seems that economic freedom does make a positive contribution to wellbeing. However, some authors still argue that level of economic freedom does not have a significant effect on economic growth (e.g. De Haan and Sturm, 2000, 2001; Adkins, Moomaw and Savvides, 2002). Other authors point out that economic freedom needs time to blossom; thus they rather use the variable "change in economic freedom" to point out that the effect of freedom on growth depends not only on the absolute level of freedom, but also on the direction and magnitude of the change (Cole, 2003; Farr *et al.*, 1998). Economic downturn in the 1990s in several transition countries raised the question whether too much economic freedom caused crisis (Kešeljević and Redek, 2006). It means that the relationship between economic freedom and economic performance could sometimes be weaker and less significant than economic theory should predict. These inconsistencies may imply that presented indexes of economic freedom tend to suffer from certain deficiencies. I shall refer more to this in the next chapter.

4 IS HERITAGE INDEX A RELIABLE INDICATOR OF ECONOMIC FREEDOM?

Heritage index of economic freedom tends to suffer from certain deficiencies with regard to its content and improper use and may therefore be insufficient indicator of economic freedom and prosperity. I believe that researches should not use the Heritage index without necessary precaution the following four issues:

a) Subjectivity problem and institutional shortcomings

Some regulations and state interventions remained hidden from the public that lacks sufficient economic knowledge to grasp completely the meaning of economic freedom. In transition countries for example the majority of the population does not understand what a life in a world of freedom should be like, as they are only familiar with the central planning system. However, the problem is much deeper, since the same degree of economic freedom may be understood quite differently even among the people with sufficient economic knowledge. It is a relation between the degree of freedom and the value of this freedom as perceived by an individual. A detail political-economic analysis of economic freedom, through three pairs of concepts, has shown that economic freedom is notably subjective.

Heritage index of economic freedom is mainly based on the idea of freedom as an objective category. Such understanding implies wrongly that economic freedom is a reflection of certain "political" consent in the scientific community and (western) society concerning the object of measurement and dimensions of economic freedom. Heritage index of economic freedom obviously entails rules that are set externally and as such do not allow different interpretations and perception of economic freedom among different individuals, countries and cultures with regard to their distinctiveness (e.g. norms, habits, political system, education). Index regards economic freedom in terms of its relations exclusively to the market as an institution, despite the fact that it would be more sensible to rank countries according to how their citizens perceive economic freedom. I strongly believe that such an understanding of economic freedom greatly depends on the institutional, social and cultural aspects since every individual is restricted by the environment in which he lives. As such, presented index cannot be sufficient indicators of economic freedom and consequently of future economic performance.

b) Problem of non-consistent division

The division that poses itself is whether freedom pertains exclusively to an individual (individual freedom) or whether freedom can relate to a community as well (collective freedom). Economic freedom is notably collective, since the majority has a right to create the form of political-economic system that it deems most appropriate. Presented indexes of economic freedom are mainly based on individual approach (individual freedom), because freedom is strongly connected with the existence of individual, as a free and independent human being. Only the authors of Freedom House index understand that economic freedom can be severely influenced by political process.

Nevertheless, none of the indexes do make a clear distinction between society which has reached a wide consensus in society regarding relatively high level of taxation, and society without it. Index of economic freedom would assign both countries the same level of economic freedom in spite of the fact that society with wide consensus should be ranked higher, since absolute individual freedom cannot be guaranteed due to the right of the

democratically elected majority. Heritage index of economic freedom does not understand economic freedom as a notably collective category, and therefore cannot be sufficient indicator of economic freedom and future economic prosperity.

c) Problem of aggregation

It is difficult to make a blanket statement as to whether or not economic freedom is important for growth, if the result largely depends upon the method of aggregation. Indexes of economic freedom are usually composed of sub-indexes. As with respect to any composite index, when a great number of separate variables are combined, we may wonder what the influence of the components is. Economic freedom does matter for growth; however specific types of economic freedom are more important for growth than others. Because of that some indexes have weighted components equally (Heritage index, Freedom House index) and some have not (Fraser index). Researches should bear in mind that weighing factors (e.g. for Fraser index) have been changed through the years.

Many authors argue that economic freedom is in general beneficial to growth, but not all economic freedoms have equal effect, and some may also have counteracting effects (Ayal, Karras, 1998; Carlsson, Lundstrom, 2002; Derbel et al., 2011). Results of the above studies, based on Economic Freedom of the World index database, reveal that not all economic freedoms have equal effect. Because of these and others findings (Heckelman and Stroup, 2000) authors of the Economic Freedom of the World Index started to weighted components of their index. The weighting has been repeatedly changed through years.

However, authors of the Index of Economic Freedom, still use the same weighing factors for each freedom component in their index. Thus, our primary goal is to disaggregate the specific components of economic freedom and to measure the independent impact on each component of the Heritage index. We will derive an empirically-weighted summary index, rather than relying upon its arbitrary assumption of equivalent effect of each component on the overall economic freedom.

5 DATA AND MODEL SPECIFICATION

In Table 1, we provide the basic descriptive statistics for our sample. In particular, our macro panel consists of 2156 observations for real GDP per capita, the overall level of economic freedom as well as for each component of the economic freedom except for the labour freedom since the component had not been measured before 2005. This effectively reduces the number of observations to 917.

Table 1. Descriptive Statistics

Variable	N	Mean	St. Dev	Min	Max
Real GDP per capita	2156	10,114	14,002	28.42	87,910
FREEDOM	2156	60.675	10.819	21.4	90.5
BUSINESS	2156	60.864	15.029	10	100
TRADE	2156	67.819	15.512	0	95
FISCAL	2156	70.955	14.675	29.8	99.9
GOVERNMENT	2156	65.236	23.798	0	99.3
MONETARY	2156	73.441	15.170	0	95.4
INVESTMENT	2156	54.798	19.439	0	95
FINANCIAL	2156	53.149	19.640	10	90
PROPERTY	2156	51.865	24.023	0	95
CORRUPTION	2156	42.966	23.697	0	100
LABOUR	938	61.249	16.248	20	100

Source: Authors research

Our sample consists of 135 countries pooled between 1996 and 2011 in a strongly-balanced panel. The central aim of our methodology is to capture the endogeneity of the index of economic freedom where all of the constructed each components jointly determine the level of freedom in a given year. We divided the subindexes into four headline categories to disentangle the contribution of each of the components to the level of economic freedom.

There are six components of economic freedom where the lowest score in the panel is zero and these include trade freedom, government spending, monetary freedom, investment freedom, property rights and freedom from corruption whereas non-zero minimum score throughout the period is found present in business freedom, fiscal freedom, financial freedom and labour freedom from the beginning of the sample. Since the level of each of the non-zero sub-indexes in these categories is conditioned on quantitative indicators rather than descriptive assumptions and scale-based ranking, these categories on average enjoy less dispersion which further implies more clustered and less dispersed cross-country distribution of the score in each component. The maximum score has been achieved in the areas of business freedom, freedom from corruption and labour freedom whereas the lowest maximum score was achieved in the financial component of economic freedom. The panel contains considerable variation in each of the categories to estimate the endogenous effect of the economic freedom on the level of income per capita across countries.

6 RESULTS

The specification of the model depends crucially on the assumptions underlying the empirical construction of the model. In our empirical setting, we apply the Instrumental Variable – Two-Stage Least Squares (IV-2SLS) panel data estimation methodology. In this respect, we seek to find relevant and exogenous instrument for the level of economic freedom to correct for the discrepancy embedded in Ordinary Least Squares (OLS) estimation framework. The assumption of instrument relevance, namely statistically significant correlation between the instrumental variable and the explanatory variable can be tested whereas the assumption of instrument exogeneity can only be maintained since we cannot test for non-zero correlation between the instrumental variable and the error term.

In examining the impact of economic freedom on the level of income per capita, we specify the following structural equation:

$$y_{i,t} = \eta + \theta \log Z_{i,t} + \alpha_t + \alpha_c + \varepsilon_{i,t} \quad (1)$$

where $y_{i,t}$ is the log of the level of real GDP per capita of country *i* at time *t*, $Z_{i,t}$ is the overall index of economic freedom of country *i* at time *t*, α_t is the vector of time-fixed effects, α_c is the vector of country-fixed effects, capturing (unobserved) heterogeneity bias, and $\varepsilon_{i,t}$ is the error term for country *i* at time *t* where we assume $\varepsilon_{i,t} \sim \left(0, \sigma^2\right)$ to ensure the error normality and reliable of the post-estimation testing statistics. In the structural relationship, θ measures the effect of the increase in the overall level of freedom on the income per capita.

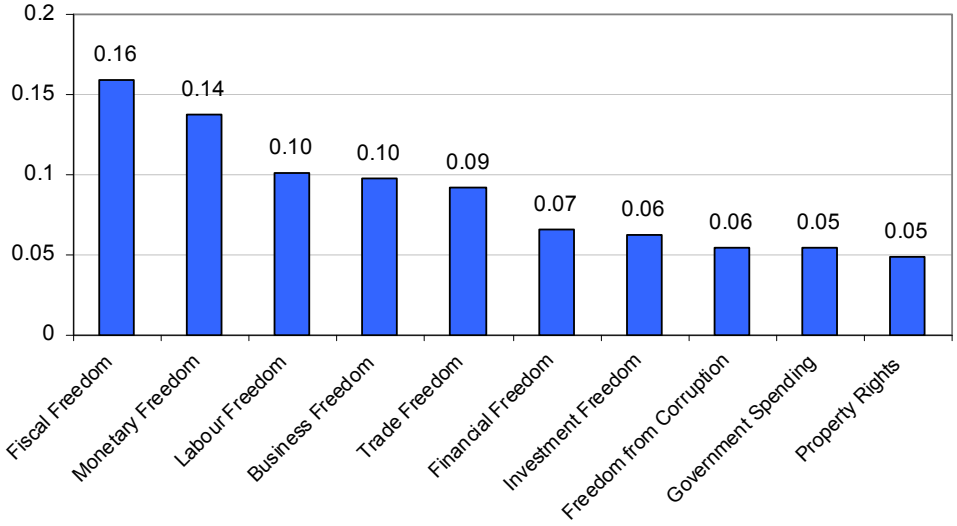
In the next step, we specify the following reduced-form relationship for the overall index of economic freedom, denoted $Z_{i,t}$:

$$\log Z_{i,t} = \mathbf{G}'_{i,t}\phi + \alpha_c + \alpha_t + u_{i,t} \quad (2)$$

where $\mathbf{G}'_{i,t}$ is the set of components of economic freedom in country *i* at time *t* whereas α_t and α_c denote time-fixed effects and country-fixed effects as exogenous variables from the structural relationship. In the reduced-form equation, we employ each component of the overall index as the instrument for the level of economic freedom. Estimating the direct effect of each component on the level of income per capita would therefore yield biased and inconsistent results. The feasibility of IV-2SLS estimation procedure is contingent on the correlation between the components of economic freedom and the overall index. Due to the joint influence of each component in determining the level of economic freedom, we can safely rely on the non-zero and statistically significant correlation between components of economic freedom and the overall index. Essentially, we maintain the assumption of zero correlation between components of economic freedom and the error term. At the outset of the empirical specification, the level of economic freedom, denoted $Z_{i,t}$, violates the exogeneity assumption which enables us to specify the structural relationship and reduced-form equation for the level of freedom in country *i* at time *t* to account for endogeneity bias whilst acknowledging the persistence of unobserved heterogeneity in our macro panel to disentangle the causality between the level of freedom and the level of income per capita across countries.

In Figure 1, we show the reduced-form estimates of our model specification. When the IV-2SLS estimation procedure is utilized the estimated effect of the level of economic freedom is reduced to realistic levels. From the reduced-form equation, it follows immediately that different components affect the overall level of economic freedom differently. This is not assumed by original rating of Heritage index of economic freedom. Consider the FE specification in column (3) of Table 3. The level of fiscal freedom and monetary freedom exert the strongest influence on the overall index of economic freedom, suggesting that changes in the total tax burden, corporate income tax rate and personal income tax rates as well as price stability and the efficiency of banking regulations are among the key factors affecting the overall freedom in country *i* at time *t*.

Figure 1. Reduced-form estimates of model specification



Source: own estimates

Considering the fiscal policy, we observe that improvements in government spending in the share of GDP contribute to the overall index to lesser extent than reductions in total tax burden. Hence, the level of labour freedom, captured by working hours regulation, severance pay, minimum wages and the employment rigidity, importantly determines the overall index of economic freedom since 10% increase in the labour market component would boost the overall index of economic freedom by 1%, respectively. Business freedom, assessing the extent of business regulations and procedures in starting up businesses, is significantly associated with the formation of the overall index of economic freedom. As our estimates suggest, 10% improvement in the business component of economic freedom, would increase the overall index by a 0.9% on average. Nevertheless, a similar magnitude is observed in the effect of trade freedom on the overall index of economic freedom.

In addition, our evidence suggests that »rule-of-law« variables contribute to the overall level of economic freedom to a quite lower extent compared to the fiscal and monetary component of economic freedom. One possibility could be that improvements in the rule of law, namely lower corruption perception and strengthened protection of private property rights, tend to persist for a longer period of time and consequently the effect of these improvements can be observed in longer time frame whereas our sample effectively lasts from 1996 to 2011. A second possibility for surprisingly low influence of »rule-of-law« variables on the level of economic freedom could be the measurement error in assessing the strength of property rights and freedom from corruption. Nevertheless, Heritage Foundation (2012) effectively admits that freedom from corruption component of economic freedom is based on the methodology of Corruption Perception Index (Transparency International, 2011) which suggests that incoherence between the two methodologies could exacerbate the surprisingly low effect of the rule of law on the overall index of economic freedom.

7 CONCLUSION

Heritage index of economic freedom measures the degree to which the policies and institutions of countries are supportive of economic freedom. Index is composed of sub-indexes. Thus, a single measure of economic freedom, based on an aggregation of various components in summary index, is usually used in empirical studies.

In the paper we have shown that not every type of economic freedom measured by Heritage index is equally important. We identified the effect of particular components of Heritage index on the summary index of economic freedom. In our empirical setting, we apply the IV-2SLS panel data estimation methodology in the sample of 135 countries in the period 1996-2011. The level of fiscal freedom and monetary freedom exert the strongest influence on the overall index of economic freedom in our model. The contribution of the monetary and fiscal components is twice as large as the contribution of financial and investment component to the overall index. We believe these findings are more useful than results that rely on aggregate indexes of economic freedom.

8 BIBLIOGRAPHY

Adkins, L., Moomaw, R., A. Savvides (2002): **Institutions, Freedom and Technical efficiency**, ***Southern Economic Journal,*** 69: 92-108.

Ayal, E., G. Karras (1998): **Components of Economic Freedom and Growth,** ***Journal of Developing Areas,*** 32: 327-338.

Azman-Saini, W. N. W., A. Z. Baharumshah, S. H. Law (2010): **Foreign Direct Investment, Economic Freedom and Economic Growth: International Evidence,** ***Economic Modelling,*** 27: 1079–1089.

Berggren, N. (2003): **The Benefits of Economic Freedom: A Survey,** ***The Independent Review,*** 8: 193-211.

Carlsson, F., S. Lundstrom (2002): **Economic freedom and growth:Decomposing the effects",** ***Public choice,*** 112: 335-344.

Cole, H. J. (2003): **The Contributions of Economic Growth to World Economic Growth 1980-1999,** ***Cato Journal,*** 23: 189-198.

De Haan, J., J. E. Sturm (2000): **On the Relationship Between Economic Freedom and Economic Growth,** ***Public choice*****,** 95: 363-380.

De Haan, J., J. E. Sturm (2001): **How Robust is the Relationship Between Economic Freedom and Economic Growth?,** ***Applied Economics***, 33: 839-844.

Derbel, H., Abdelkafi, R., A. Chikr (2008), **The effects of economic freedom components on economic growth: An analysis with a threshold model,** University of Paris West - Nanterre la Défense Working Paper No. 2008-3, University of Paris, Paris.

Easton S., M. Walker (1997): **Income, Growth and Economic Freedom,** ***American Economic Review,*** 87, 2: 328-332.

Economic Research Service (2011): **International Macroeconomic Data Set,** Washington D.C.: United States Department of Agriculture.

Farr, K., Lord, R. A., J. L. Wolfenbarger (1998): **Economic Freedom, Political freedom and Economic well-Being: A Causality Analysis",** ***Cato Journal,*** 18: 247-262.

Gordillo, V. M., A. J. Alvarez (2003): **Economic Growth and Freedom: A Causality Study,** ***Cato Journal***, 23: 199-215.

Gwartney James, Lawson Robert, Block Walter (1996): **Economic Freedom of the World 1975-1995,** Vancouver: Fraser Insitute.

Gwartney, J., Lawson, R., E. Gartzke. (1997): **Economic Freedom of the World – 1997 Annual report,** The Fraser Institute.

Hanke, S. and S. Walters (1997): **Economic Freedom, Prosperity and Equality: A Survey,** 17, 1-29.

Heckelman J., M. Stroup (2000): **Which Economic Freedoms Contribute to Growth, *Kyklos,*** 53: 527-544.

Heritage Foundation (2012): **Index of Economic Freedom,** Washington D.C.

Johnson, T. B., Holmes, R. K., M. Kirkpatrick (1998): **1999 Index of Economic Freedom,** New York : Heritage Foundation.

Justesen, M. K. (2008): **The Effect of Economic Freedom on Growth Revisited: New Evidence on Causality from a Panel of Countries 1970–1999. *European Journal of Political Economy,*** 24: 642–660.

Kešeljević A. (2000): **Economic Freedom**, Ljubljana: Faculty of Economics.

Kešeljević, A., T. Redek (2006): **Institutional reforms, economic freedom and economic performance in transition economies,** in: **From transition to sustainable development: The path to European integration**, Sarajevo, School of Economics and Business.

Moers, L. (2002), **Institutions, Economic Performance and Transition,** Tinbergen Institute Research Series 269.

Powell, B. (2003): **Economic Freedom and Growth: The Case of The Celtic Tiger", *Cato Journal,*** 22: 431-448.

Prokopijevic Miroslav (2002), **Does growth improve economic freedom?,** ICER, Torino. pp. 1-57.

Scully W. G. (2002): **Economic Freedom, Government Policy and the Trade off Between Equity and Economic Growth, *Public choice***, 113: 77-96.

Schaefer, B D. (2003): **Economic freedom: the path to African prosperity, *Heritage Lectures,*** No. 778, January 15.

Transparency International (2011): **Corruption Perception Index**, Berlin: Germany

World Bank (2011): **Doing Business 2012: Doing Business in a More Transparent World,** Washington D.C.: World Bank & International Finance Corporation.

9 APPENDIX 1: COMPONENTS OF ECONOMIC FREEDOM

Variable Abbreviation	Variable Description	Brief Description
FREEDOM	Overall Index of Economic Freedom	Heritage Foundation (2012)
	Rule of Law	
PROPERTY	Property Rights	Assessment of individual's ability to accumulate private property, secured by laws that are fully enforced by the state
CORRUPTION	Freedom from Corruption	The degree of freedom from corruption is assessed on the basis of the score from TI's Corruption Perception Index (2011)
	Limited Government	
GOVERNMENT	Government Spending	The score is based on non-linear quadratic relationship between expenditure score and the level of government spending
FISCAL	Fiscal Freedom	Unweighted average of quantitative tax indices (total tax burden, corporate income tax and individual income tax) using a quadratic cost function
	Regulatory Efficiency	
BUSINESS	Business Freedom	Unweighted average of quantitative measure of the ability to start, operate, and close a business that represents the overall burden of regulation as well as the efficiency of government in the regulatory process based on World Bank's *Doing Business* report
LABOUR	Labour Freedom	Quantitative assessment of labour regulations such as minimum wages, firing and hiring regulations, hours rigidity and severance pay to reflect the regulation of the labour market
MONETARY	Monetary Freedom	Weighted average of the extent of price controls and current and two-period lagged inflation rate to combine the measure of price stability.
	Open Markets	
TRADE	Trade Freedom	Composite measure of the absence of tariff and non-tariff barriers that affect imports and exports of goods and services
INVESTMENT	Investment Freedom	The assessment of the variety of restrictions affectively restraining investment activity
FINANCIAL	Financial Freedom	The assessment of the banking efficiency and independence of the central bank using various measures such as capital and financial market development, government regulation of financial services, openness to foreign competition and government influence on the allocation of credit.

DETERMINANTS OF THE UNOFFICIAL ECONOMY IN CROATIA

Davor Mikulić
Institute of Economics, Zagreb
Trg J. F. Kennedy 7, HR-10000 Zagreb, Croatia
Phone: + 385 1 23 62 200;
E-mail: dmikulic@eizg.hr

Andrea Galić Nagyszombaty
Croatian Bureau of Statistics
Ilica 3, HR-10000 Zagreb, Croatia
Phone: + 385 1 48 06 240;
E-mail: galica@dzs.hr

Key words: *Unofficial economy, Tax evasion, Institutional environment, Croatia*

ABSTRACT

A certain proportion of production, income and employment of each economy are not comprised by the official monitoring systems established for purposes of tax collection and compilation of macroeconomic statistics. The existence of the unofficial economy has a significant influence on the official economy, especially in terms of public finance developments. Direct negative effect is revealed in the decreased ability of the government to collect taxes from economic agents while indirect effect is predominantly concealed in the inability of official statistics to accurately measure economic activity.

The trends in the unofficial economy can be explained by various determinants. Theoretical causes of the shadow economy are burdens on the official economy, quality of public sector services, tax morality and government controls, labour market conditions and other structural factors. According to recent empirical researches the most significant determinants influencing growth of unofficial economy are: increase in tax burden (including social contributions), reduction in quality of public services and weak labour demand in the official sector.

The aim of the paper is to empirically test the impact of various determinants of unofficial economy for Croatian economy in the period 2000-2010. Hypothesis of the paper is that the most significant determinants of unofficial economy in Croatia were tax burden and labour market conditions. Paper uses two sets of results on the estimation of the size of unofficial economy in Croatia: MIMIC approach and the exhaustiveness of national accounts method. In econometric models as variables which could explain the trends in unofficial economy, various indicators of the intensity of regulations, taxes and labour market conditions are used. Type of relation and significance of each of the individual determinant found by empirical research could be used in the formulation of economic policy oriented to the reduction of the unofficial economy in Croatia.

1 INTRODUCTION

In every economy, a certain proportion of economic activities fall 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 the 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. 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[46], 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.

In the economic literature, various terms and definition are used in describing this phenomenon. Apart from unofficial economy, various authors in the use terms such as: hidden economy, informal economy, underground economy, black economy, unreported economy. Generally, most definitions 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 a 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

[46] See SNA 1993, pp. 6.30-6.36.

literature. The results in most cases indicate that the size of the shadow economy varies between countries and usually found larger share of UE in the transition countries in comparison with market economies[47]. Aim of this paper is to identify the most important causes of unofficial economy in Croatia.

The structure of this paper is as follows. After introductory remarks, the first section of the paper brings a short literature review on the determinants of 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 tries to identify the main factors influencing informal economy dynamics. The last section concludes.

2 DETERMINANTS OF UNOFFICIAL ECONOMY

In the economic literature tax burden is usually identified as main factor influencing development of unofficial economy. Economic agents in attempt to increase their income could decide to undeclared some proportion of revenues in order to avoid taxes. Allingham and Sandmo found that tax compliance depends on the expected benefits (which are related to marginal tax rate) and costs derived from deterrence enacted by the government. Activation of economic units in unofficial economy thus depends on the auditing activities of tax authorities, probability of detection and the fines for the tax evasion determined by the government. If individuals expect that income generated in the unofficial sector by tax evasion is higher in comparison to the potential fines they will decide to engage in UE and vice versa. Higher tax rates are thus directly related to the motivation of the entrepreneurs to undeclared a proportion of their income.

Besides taxation and auditing process various authors point to relation of UE to official economy. In the upward phase of an economic cycle, economic units are usually more satisfied with rising income from official activities and concerned with the potential risks of fines related to the tax evasion. On the other hand, in the recession period, falling demand has a direct negative impact not only on the official but also on the unofficial economy and entrepreneurs should choose to engage in unofficial sector in an attempt to retain the income level. the increases in the unofficial economy can be explained by other determinants. In the economic literature, besides tax level and phase of economic cycle various other factors determining relative significance of unofficial economy are identified. Theoretical causes of the shadow economy are following (Frey and Pommerehne, 1984; Feld, 2010, Schneider and Enste, 2000) can be classified as:

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. Empirical evidence on the influence of the tax burden on the shadow economy is provided by Schneider (1994,

[47] 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).

2005), Johnson, Kaufmann and Zoido-Lobatón (1998), Feld (2010). Besides an obvious impact on disposable income of an economic unit in the case of tax evasion, taxes affect labour and leisure preferences.

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. According to some empirical researches there is no unique answer on the causality relation between tax morale and unofficial economy. Some surveys point to the conclusion that societies with lower level usually record higher level of informal economy. On the other hand, an increase in unofficial economy can be factors behind lower quality of public services with negative impact on tax morale. Feld and Frey (2007) argue that tax compliance is driven by a psychological tax contract that entails rights and obligations from taxpayers and government authorities. Taxpayers are more inclined to pay their taxes if they consider a public services as a satisfactory compensation. Torgler and Schneider (2007) found that improving social institutions, by enhancing tax morale, the rule of the law, government effectiveness and quality of regulation, as well as reduction of corruption usually results in reduction of unofficial economy. They pointed to the legal structure and property rights as important determinants of the size of unofficial economy. Some authors found significant impact of various historical and geographic features of the countries and their influence on the institutional and political environment and consequently unofficial 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. 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. 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). Dell'Anno and Solomon (2006) evaluated a structural relationship between unofficial economy and the unemployment rate in the United States. They found a significant positive relationship between the unofficial economy and unemployment and concluded that this relationship could help to explain the connection between changes in the unemployment rate and output growth. A downturn in the economic official activities leads to a loss of jobs and thus drives part of unemployed persons to participate in the unofficial economy and because of that Okun's rule is biased.

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 1 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 1. 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 ESTIMATES OF UNOFFICIAL ECONOMY IN CROATIA

In this chapter estimates of the size of unofficial economy in Croatia based on different methods are pooled together. Aim of this comparison is to determine range of UE in Croatia and to test whether different methods, although based on various assumptions resulting with significantly different estimated size of informal sector, agree on the trend of UE activities. We compare the results from two studies based on MIMIC approach and results of two method based on own calculation (Eurostat and labour market method).

3.1 Estimates based on MIMIC approach

The main idea behind MIMIC approach is to determine the relationship between an unobservable variable (unofficial economy), and a set of indicators related to UE which are available in standard statistical system. In particular, the MIMIC model compares a sample covariance matrix, i.e. the covariance matrix of the observable variables, with the parametric

structure imposed on it by a hypothesized mode (Buehen, Schneider, 2012; Schenider 2012) For this purpose, the unofficial economy is related to the selected indicator variables in a factor analytical model. The relationships between the unobservable variable and the observable explanatory (causal) variables or determinants are specified through a structural model.

MIMIC approach is applied in the study of **Schneider (2012) and Buehen, Schneider (2012).** Determinants used as possible causes of unofficial economy were the following: size of government, share of direct taxation, fiscal freedom, business freedom, unemployment rate, government effectiveness and sub-national government employment. In their model, authors used the following variables as possible indicators of the size of UE: currency in circulation, labour force participation rate and GDP per capita. They found that the variables capturing the burden of taxation (in a wide sense), i.e. the size of government and fiscal freedom, unemployment rate and business freedom have the expected signs and are statistically significant. Indicator variables - the labour force participation rate and GDP per capita are also found to be statistically significant and showing the expected signs.

Results of their estimate are presented in Table 1. As can be seen Croatia recorded above average share of unofficial economy in the GDP. From the set of analysed countries only Bulgaria and Romania recorded higher unofficial economy. Second conclusion is that estimated size of unofficial economy is higher in new member states which is expected result having in mind that NMS are lacking behind old EU countries not only in terms of economic development but also regarding overall institutional environment. In the both subsamples (NMS and OECD-EU countries) one can notice a decreasing trend in unofficial economy in the 2000-2008 period. Impact of recession is slightly different. While unofficial economy in old EU member countries on average increased in 2009, majority of new member states recorded a growth of unofficial economy in 2009 and slight increase in 2010. According to that criterion Croatian economy has been more similar to the group of old EU member countries and has been experienced increase in unofficial economy in 2009.

Klarić (2011) also applied the MIMIC model to the Croatian economy. In his model a standard set of observable variables are used: data on taxes and contributions collected unemployment rate, GDP and monetary indicators. Results are presented in figure 1 which point to the same conclusion on decreasing share of unofficial economy till the year 2008.

Table 2. Estimates of the unofficial economy based on MIMIC approach in studies Buehen, Schneider (2012) and Schenider (2012)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
NMS*	**27.4**	**27.1**	**26.8**	**26.4**	**26.0**	**25.5**	**24.9**	**24.6**	**24.7**	**24.2**	**24.3**
Bulgaria	36.9	36.6	36.1	35.6	34.9	34.1	33.5	33.0	33.7	32.1	31.9
Czech Republic	19.1	18.9	18.8	18.7	18.4	17.8	17.3	16.3	15.2	15.7	15.4
Estonia	25.6	25.3	24.9	24.3	24.0	23.4	22.7	22.5	20.8	24.3	22.5
Hungary	25.1	24.8	24.5	24.4	24.1	24.0	23.7	23.7	23.1	23.1	23.1
Latvia	23.6	23.2	22.9	22.5	22.1	21.5	20.8	20.8	22.6	20.0	21.5
Lithuania	27.1	26.7	26.2	25.4	25.1	24.4	23.8	24.3	26.0	23.6	25.4
Poland	27.6	27.7	27.7	27.5	27.3	26.9	26.4	25.4	24.7	24.6	23.8
Romania	34.4	33.7	33.5	32.8	32.0	31.7	30.7	30.8	31.5	30.0	30.9
OECD-EU*	**18.6**	**18.4**	**18.4**	**18.5**	**18.4**	**18.4**	**18.2**	**18.0**	**18.0**	**18.5**	**18.5**
Austria	9.8	9.7	9.8	9.8	9.8	9.8	9.6	9.7	9.5	9.7	10.6
Belgium	22.2	22.1	22.0	22.0	21.8	21.8	21.4	20.8	20.3	20.5	20.7
Ireland	15.9	15.9	15.9	16.0	15.8	15.6	15.5	15.4	15.9	17.5	16.5
Italy	27.1	26.7	26.8	27.0	27.0	27.1	26.9	26.8	26.7	26.5	26.7
Netherlands	13.1	13.1	13.2	13.3	13.2	13.2	13.2	13.1	12.7	12.9	13.6
Spain	22.7	22.4	22.4	22.4	22.5	22.4	22.4	22.3	22.9	24.5	23.5
Sweden	19.2	19.1	19.0	18.7	18.5	18.6	18.2	18.0	17.7	17.9	18.1
Croatia	**33.4**	**33.2**	**32.6**	**32.1**	**31.7**	**31.3**	**30.8**	**30.4**	**29.6**	**30.1**	**29.8**

**unweighted average*

Source: Buehen, Schneider (2012) and Schenider (2012)

3.2 Estimate of non-exhaustiveness of national accounts in Croatia based on Eurostat approach

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 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 elaborated in Lovrinčević, Mikulić, Galić Nagyszombaty (2011).

3.3 Estimate of unofficial economy by labour market approach

Official data for hidden economy measured by Eurostat methodology for last two years (2010 and 2011) 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[48] 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[49] and gender j[50] 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 (Galić Nagyszombaty, 2012).

[48] 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 visit Croatia on weekly basis will be included in total population of Republic of Croatia.
[49] 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.
[50] j=1 for males and j=2 for females.

A comparison of UE estimates for the set of EU countries and Croatia are presented in the Tables 2 and 3. Firstly one can notice that MIMIC approach as presented by Buehen, Schneider (2012) is on average higher than estimates used in Eurostat non-exhaustiveness (NOE) project aimed on inclusion of UE in official national accounts. As can be seen from Table 3, unweighted average for NOE adjustment in new member states was 11.1% of GDP which is almost double in comparison to old member states labelled as OECD-EU. Buehen and Schneider (2012) also found a significant higher share of unofficial economy in NMS. Their estimate is on average 2.7 times higher than NOE adjustment for NMS while in the subset of old member states the same indicator is 6.4 with significant dispersion among countries. For Croatia this ratio stands at 3.3 which is closer to NMS economies.

Table 3. Comparison of UE estimates based on exhaustiveness of national accounts and MIMIC approach

	Reference period	Adjustment for NOE in national accounts	Buehen, Schneider (2012)	Ratio Buehen, Schneider (2012) NOE
NMS		**11,1**	**29,6**	**2,7**
Bulgaria	2001	10,2	36,6	3,6
Czech Republic	2000	4,6	19,1	4,2
Estonia	2002	9,6	32,0	3,3
Hungary	2000	11,9	25,1	2,1
Latvia	2000	8,3	29,8	3,6
Lithuania	2002	18,9	32,8	1,7
Poland	2002	7,8	27,7	3,6
Romania	2002	17,7	33,5	1,9
OECD-EU		**6,2**	**18,6**	**6,4**
Austria	2001	7,9	9,7	1,2
Belgium	2002	3,0	22,0	7,3
Ireland	1998	4,0	16,1	4,0
Italy	2003	14,8	27,0	1,8
Netherlands	1995	1,0	13,3	13,3
Spain	2000	11,2	22,7	2,0
Sweden	2000	1,3	19,2	14,8
Croatia	**2002**	**10,1**	**33,3**	**3,3**

**unweighted average*
Source: Buehen, Schneider (2012) and Schneider (2012)

Although differences in results are relatively high, one can notice that there are some similarities in ranks of UE with some outliers (Figure). Starting from results from Eurostat exhaustiveness project one could expect slightly higher MIMIC estimate for Austria, Italy, Hungary and Spain.

Next table presents comparison of UE estimates based on four different methods applied for Croatian economy. The lowest share of UE is estimated by labour force method but one has to bear in mind that this estimate relates only to one part of unofficial economy – unregistered labour. A certain proportion of informal activities can be expected in registered units (as is presented in Eurostat approach under heading N6). Registered units are often deliberately underreporting income for tax purposes. Table 4 points to impossibility to get final answer on

the question how big unofficial economy is. Various methods could apply different definition and terminology, use specific assumptions and analytical procedures. If definitions and assumptions differ, it is expected that results will differ as well.

Table 4. Comparison of UE estimate for Croatian economy

	Non-eshaustiveness of national accounts	Buehen, Schneider (2012)	Labour force method	Klarić (2011)
1998	9.8	33.9		8.9
1999	8.7	33.8		8.1
2000	8.5	33.4		6.7
2001	8.3	33.2		6.2
2002	8.2	32.6		5.3
2003	7.4	32.1		5.4
2004	7.3	31.7	4.0	5.3
2005	7.3	31.3	3.7	4.9
2006	6.7	30.8	3.4	4.8
2007	6.1	30.4	3.1	4.7
2008	5.9	29.6	1.7	4.6
2009	6.4	30.1	3.8	4.2
2010	7,1*	29.8	4.2	

**estimate*

Sources: Buehen, Schneider (2012), Klarić (2011), Galić Nagyszombaty (2012)

Although exact size of unofficial economy for Croatia is unknown because of relatively high range of estimated results, one could notice that all methods applied point to the same conclusion that unofficial economy has decreasing (as percentage of GDP) in period 2000-2008. This conclusion is in accordance with recent literature which found negative relationship between official and unofficial economy. In the period of economic expansion an additional income could be realised through official and registered activities and motivation for engagement in UE sector is lower.

According to three out of four methods, in recession period, unofficial economy increased in terms of GDP. According to literature, factor behind these results is an attempt of economic units (households and corporations) to compensate decrease of official income with unofficial activities. In opposition, Klarić (2011) found continuation of decreasing trend of unofficial economy even in 2009 when recession started. He explains it with possibility that the economic crisis and the measures to counteract it left the entire economy shaken up and some time for all the subjects to adapt to the new situation is required. Some of the variables used to model the NOE probably lag in showing the full effects of global economic phenomena such as the crisis. The NOE itself in reality probably lags even further, needing time to respond to the major changes in the values of its causes.

4 DETERMINANTS OF UNOFFICIAL ECONOMY IN CROATIA IN PERIOD 1998-2010

4.1 Data sources

In order to test significance of individual determinants of UE in Croatia, we used econometric models in which unofficial economy is treated as dependant variable while potential causes of UE presented in chapter two were used as explanatory variables.

As indicators of tax burden we used several indicators: total government revenues, tax revenues, social contributions, taxes on income and profits and taxes on goods and services. All variables were specified as percentage of GDP and Ministry of finance data are used. Corruption Perceptions Index, CPI is published on an annual basis by Transparency International organisation for a large number of countries world-wide[51]. Corruption Perceptions Index reflects the perceptions of the prevalence of corruption according to the opinion poll of businessmen and analysts. Higher index values imply a lower level of corruption, on the scale from 0 to 10. In our research due to lack of other reliable data we used CPI index as overall indicator of quality of public services and institutional environment. Official CBS data are used for unemployment (Labour force survey) and GDP growth in analysed period. Potential determinants of UE are presented in Table 5.

Table 5. Potential determinants of unofficial economy, expressed in percentage of GDP

	Total revenues	Tax revenues	Taxes – goods and services	Taxes – inc. and profits	Social contrib	Corruption CPI	GDP growth	Unempl.	GVA in agr.
1998	39.3	25.3	17.5	4.6	12.2	2.6	2.0	11.0	6.9
1999	37.2	23.3	16.0	4.2	12.0	2.7	-1.0	13.5	7.0
2000	35.7	22.4	16.6	3.2	11.5	3.7	3.8	16.1	6.5
2001	34.1	21.1	15.7	2.8	11.4	3.9	3.7	15.8	6.5
2002	36.0	21.6	17.4	2.9	12.1	3.8	4.9	14.8	6.4
2003	35.3	20.9	17.2	2.7	12.0	3.7	5.4	14.2	5.2
2004	35.2	20.1	16.7	2.5	11.9	3.5	4.1	13.7	5.6
2005	34.7	20.0	16.5	2.6	11.7	3.4	4.3	12.7	5.0
2006	34.4	20.1	16.3	2.9	11.6	3.4	4.9	11.2	5.2
2007	35.5	20.2	16.0	3.3	11.6	4.1	5.1	9.0	4.9
2008	34.8	20.3	15.8	3.5	11.8	4.4	2.1	8.4	5.0
2009	34.5	19.4	14.9	3.3	12.1	4.1	-6.9	9.1	5.1
2010	33.7	19.2	15.5	2.3	11.8	4.1	-1.4	11.8	5.0

Sources: Ministry of finance, Republic of Croatia, Croatian statistical office, Transparency international.

Total government revenues comprise tax revenues, social contributions and other non-tax revenues[52]. Both total and tax revenues recorded decline in the 1998-2010 period, primarily as a result of decreasing taxes on goods and services and taxes on income and profits. In the same time share of social contributions were more or less constant. Corruption perception index points to the conclusion that significant improvement occurred in 2000 and again in 2007, while in other years index was more or less similar as in year before. It should be stressed that CPI index according to its methodology is more oriented in measurement of

[51] We used data from the following website http://www.transparency.org/surveys/index.html#cpi.

[52] Other non-tax revenues are not presented due to significant heterogeneity of the group and relatively small total amount.

subjective perception of citizens because reliable hard data on corruption are not available. It comprise overall subjective perception and expectations of households which are in some proportion dependable on the overall economic and social environment.

After recession in 1999 Croatian economy recorded successful period of continuous economic growth. Average GDP growth in period 2000-2010 was 4.2 percent which positively affected labour market and unemployment rate was halved in 2008 compared to 2000. Table also presents share of agriculture in gross value added as indicator of structural change in the Croatian economy. Declining share of agriculture is primarily result of strong growth of service sector, especially in trade, tourism and construction activity.

4.2 Model specification and results

In the paper we tested two sets of estimates which cover the longest period – exhaustiveness of national accounts estimates and MIMIC approach (Buehen and Schneider, 2012). As starting estimates we used results of the exhaustiveness of national accounts approach because that research was more comprehensive and primarily oriented to Croatian economy.

We tried to identify factors which foster unofficial economy by the following baseline equation:

$$UEt = \alpha + \beta 1\ TAXt + \beta 2\ INSTITt + \beta 3\ LABOUR + \beta 4\ CONTROLt + \varepsilon t$$

where t indexes the period from 1998 to 2010, UE denotes the Croatian level of shadow economy as a percentage of official GDP, TAXt intensity of taxation (measured by various indicators), INSTITt is indicator for institutional quality (index of corruption), unemployment rate is used as indicator for LABOUR market conditions and CONTROLt comprise other control variables. Most important control variable is official growth rate of Croatian economy, but regression in some cases also contains share of agriculture in GDP as variable indicating structural changes in Croatian economy.

Estimated coefficients for determinants used in modelling unofficial economy are presented by Table 6 (dependant variable UE estimated by exhaustiveness of national accounts approach and Table 7 (UE estimated by MIMIC approach).

In all nine specifications, a high proportion of variation in unofficial economy can be explained by independent variables. All variables indicating tax burden turned to be significant in explaining unofficial economy variation which is in line with previous studies. Total government revenues substantially decreased in analysed period (in terms of GDP share) and potential benefits of tax evasion was diminishing and we found significant and negative parameter in all specifications (equations 1-5). It is in accordance with empirical researches for other countries - almost all studies found the tax and social security contribution burdens are among the main causes for the existence of the shadow economy[53].

Total government revenues are further divided on tax revenues and social contributions. Equation (6) points to the conclusion that tax revenues are more significant in explaining trends of unofficial economy than social contributions (equation 7). It can be result of limited variation in social contribution level during analysed period, both in terms of statutory rates of contributions and percentage of GDP. On the other hand, tax revenues recorded more

[53] Survey of studies can be found in See Thomas (1992), Lippert and Walker (1997), Giles and Tedds (2002) and Dell'Anno (2003), Schneider (2012).

pronounced decreasing trend and potentially influenced lower UE level. Taxes on income and profits (equation 8) are found to be more significant than taxes on goods and services (equation 9). It can be explained by the theoretical presumption on direct incentive to reduce the labour tax wedge by unofficial activities. The bigger the difference between the total labour cost in the official economy and after-tax earnings motivation for activation in UE is greater.

Corruption perception index is found to be significant in almost all estimated equations and negative relationship is found. As various studies suggest lower level of CPI index is strongly related to other variables indicating institutional framework: quality of institutions and public services, tax morale and overall trust of citizens in government capacities and accountabilities. In the analysed period, trends in corruption perception index point to the conclusion that there has been some improvement in institutional framework in Croatia. Besides lower level of taxation institutional improvements can explain certain part of decrease in unofficial economy. Those results are also in accordance with other studies which found that improving social institutions helps lessen a possible incentive to engage in UE sector (literature review on that matter can be found in Torgler and Schneider, 2007).

We also found significant and positive relation between unemployment rate and unofficial economy. Channels which determine how official output and unemployed rate affect the shadow economy are presented in Dell Anno and Solomon (2006). A downturn in the economic official activities leads to a loss of jobs and thus drives part of unemployed into the shadow activities while in the economic expansion it is much easier to find employment in the official sector.

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. Our model found negative relationships meaning official and unofficial economy are a substitute which is in accordance to Botrić, Marić and Mikulić (2004). They focused on the informal sector and formal sector relationship by panel data analysis and found the decrease of the unofficial economy has positive impact on the rate of growth in the transition economies. Share of agriculture in gross value added is additional control variable found to be significant in some models. Higher growth of non-agricultural activities influenced decreasing share of agriculture in GVA and it is associated with lower share of UE activities.

Table 6. Estimation results for determinants of unofficial economy (Eurostat approach)

	Depended variable: unofficial economy – Eurostat approach															
	1		2		3		4		5		6		7		8		9	
	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Constant	-8.4917	-1.6072	2.0077	0.3733														
Tax burden																		
Total revenues	0.4185	3.6390	0.0628	0.4471	0.2374	9.5854	0.1128	2.8289	0.1333	3.7482								
Tax revenues											0.3613	15.884						
Social security contribution													0.3401	3.0164				
Taxes on income and profits															1.2432	9.5663		
Taxes on goods and services																	0.2497	3.2207
Quality of institutions																		
Corruption perception indeks	-0.6213	-1.8821	-0.7461	-2.4861	-1.0830	-6.1439	-0.6583	-3.7160	-0.7464	-4.7348	-0.7254	-7.8684	-0.7683	-3.8635	-0.3617	-2.7923	-0.7024	-4.1604
Labor market																		
Unemployment rate	0.3016	6.2231	0.0945	1.5678	0.2689	5.6374	0.1076	2.3002	0.1575	3.3658	0.2272	7.3198	0.0922	2.1010	0.4114	10.4126	0.1093	2.3066
Structural factors																		
GDP growth	-0.0944	-2.8973			-0.0872	-2.4919			-0.0537	-2.0648	-0.0843	-3.8768			-0.0552	-1.5472	-0.0743	-2.3850
GVA in Agriculture			0.8577	3.4109			0.8147	3.8320	0.6576	3.3311			0.9135	5.2620			0.8558	4.9120
R2 adjusted	0.9113		0.9259		0.9217		0.9497		0.9508		0.9597		0.9370				0.9607	

Table 7 presents the same models, with difference that MIMIC estimates of unofficial economy are used as dependant variable. By alternative approach we try to test whether our conclusion on determinants of UE are robust or not. On average, share of explained variation are lower when MIMIC results are used and overall econometric properties are worse in comparison with earlier approach. Although GDP growth and corruption perception index turned out not to be significant in explaining UE pattern measured by MIMIC approach (exempt in limited number of specifications), tax burden and labour market condition still can be identified as main causes of unofficial economy. This model also confirmed that tax revenues are more significant than total revenues and social contributions and that tax on income and profits are more significant in comparison to taxes on goods and services.

Estimated level of unofficial economy in Croatia based on MIMIC approach is result of econometric analyses comprising broad group of countries and is more suited to capture comparative position of countries regarding importance of unofficial economy than changes from period to period. It can explain relatively lower level of variation (see table 4) in analysed period which can be reason behind lower predictive power of model presented in table 7.

Table 7. Estimation results for determinants of unofficial economy (MIMIC approach)

	Depended variable: unofficial economy – Mimic approach															
	1		2		3		4		5		6		7		8		9	
	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Constant	6.4975	0.9410	14.1107	2.4544														
Tax burden																		
Total revenues	0.6019	4.0043	0.3249	2.1656	0.7405	24.9718	0.6763	12.0942	0.6817	11.131								
Tax revenues											1.0799	14.627						
Social security contribution													1.8981	7.7987				
Taxes on income and profits															3.6614	8.0569		
Taxes on goods and services																	1.2724	6.1669
Quality of institutions																		
Corruption perception indeks	-0.3075	-0.7129	-0.3582	-1.1165	0.0458	0.2168	0.2591	1.0426	0.2359	0.8666	1.2808	4.2750	-0.1820	-0.4239	2.3926	5.2822	0.4693	1.0446
Labor market																		
Unemployment rate	0.4126	6.5148	0.2700	4.1886	0.4376	7.6621	0.3615	5.5101	0.3747	4.6382	0.3525	3.4950	0.2581	2.7255	0.9103	6.5887	0.1279	1.0137
Structural factors																		
GDP growth	-0.0276	-0.6479			-0.0331	-0.7896			-0.0142	-0.3159	-0.0303	-0.4292			0.0534	0.4287	-0.1184	-1.4280
GVA in Agriculture			0.7149	2.6596			0.4129	1.3842	0.3714	1.0898			1.1822	3.1548			1.3932	3.0047
R2 adjusted	0.9026		0.9456		0.9279		0.9364		0.9058		0.7267		0.8115				0.8210	

Table 8 presents estimated contribution of each determinant to total unofficial economy based on actual data of variables (presented in Table 5) and coefficients estimated by model labelled as model 6 in Table 6. As can be seen, tax revenues is the most significant variable and unofficial economy on average can be fully explained by tax burden component while annual oscillation depends on other variables. Labour market conditions and institutional framework have opposite impact on unofficial economy level, while impact of GDP growth is limited. Relatively low impact of other variables not included in the model (calculated as difference of estimated and actual level of unofficial economy) points to high predictive power of model based only on specified variables.

Table 8. Estimated contributions of determinants to total unofficial economy, according to model 6 (Table 6), expressed in terms of GDP

	Unemployment	Tax revenues	GDP growth	CPI	Other non-included variables	Unofficial economy
1998	2.50	9.14	-0.17	-1.89	0.01	9.60
1999	3.07	8.42	0.09	-1.96	0.19	9.80
2000	3.66	8.09	-0.32	-2.68	-0.25	8.50
2001	3.59	7.62	-0.31	-2.83	0.23	8.30
2002	3.36	7.80	-0.41	-2.76	0.20	8.20
2003	3.23	7.55	-0.45	-2.68	-0.24	7.40
2004	3.11	7.26	-0.35	-2.54	-0.19	7.30
2005	2.89	7.23	-0.36	-2.47	0.02	7.30
2006	2.54	7.26	-0.42	-2.47	-0.22	6.70
2007	2.04	7.30	-0.43	-2.97	0.16	6.10
2008	1.91	7.33	-0.18	-3.19	0.03	5.90
2009	2.07	7.01	0.59	-2.97	-0.29	6.40
2010	2.68	6.94	0.12	-2.97	0.34	7.10
Average contribution (in % UE)	37.16	100.35	-2.63	-34.87	-0.02	100.00
	Annual change of UE explained by determinants included in the model					
	Unemployment	Tax revenues	GDP growth	CPI	Other non-included variables	Unofficial economy
1999	0.57	-0.72	0.25	-0.07	0.17	0.20
2000	0.59	-0.33	-0.40	-0.73	-0.44	-1.30
2001	-0.07	-0.47	0.01	-0.15	0.47	-0.20
2002	-0.23	0.18	-0.10	0.07	-0.02	-0.10
2003	-0.14	-0.25	-0.04	0.07	-0.44	-0.80
2004	-0.11	-0.29	0.10	0.15	0.05	-0.10
2005	-0.23	-0.04	-0.01	0.07	0.20	0.00
2006	-0.34	0.04	-0.06	0.00	-0.24	-0.60
2007	-0.50	0.04	-0.01	-0.51	0.38	-0.60
2008	-0.14	0.04	0.25	-0.22	-0.13	-0.20
2009	0.16	-0.33	0.76	0.22	-0.31	0.50
2010	0.61	-0.07	-0.47	0.00	0.63	0.70

Second part of the table presents impact of changes of individual determinants on annual changes of unofficial economy. Although tax burden explain the most significant part of UE level, due to lower variability of this variable (especially in the period from 2004 to 2008), changes of unofficial economy in that period can be better explained by other variables. The most significant impact on UE reduction was recorded in period 1999-2001 when average share of tax burden in GDP significantly declined. Improvements on labour market have the strongest impact on UE reduction in period from 2005-2008, while in 2009 and 2010 higher unemployment contributed to growth of unofficial economy. Impact of variation of GDP growth was limited except in 2000 when growth contributed to reduction in UE and 2009 when drop in official activities was partially compensated by growth of unofficial sector. Significant improvements in institutional framework according to CPI indicator were recorded in 2000 and 2007 and partially explain reduction of UE in these years.

5 CONCLUSION

The existence of an unofficial economy has a negative impact on the official economy, especially in terms of public finance and labour market developments. The exact size of unofficial economy cannot be exactly specified due to nature of this phenomenon but there are some methods which could give a potential indicator of UE size. We compared estimation results from various earlier studies and concluded that although there are relatively high range of estimated results, one could notice that all methods point to the same conclusion that unofficial economy decreased (as percentage of GDP) in period 2000-2008. According to three out of four methods, in recession period (2009 and 2010), unofficial economy increased again in terms of GDP. This conclusion is in accordance with recent literature which found negative relationship between official and unofficial economy. In the period of economic expansion an additional income could be realised through official and registered activities and motivation for engagement in UE sector is lower.

This paper tried to identify determinants of unofficial economy in Croatia. Tax burden turned to be most significant in explaining unofficial economy variation in Croatia which is in line with majority of previous studies. Additionally, we found that tax revenues are more significant in explaining trends of unofficial economy than social contributions while most significant component was taxes on income and profits.

In the analysed period, trends in corruption perception index point to the conclusion that there has been some improvement in institutional framework in Croatia. Besides lower level of taxation institutional improvements can explain certain part of decrease in unofficial economy. We also found significant and positive relation between unemployment rate and unofficial economy. A downturn in the economic official activities leads to a loss of jobs and thus drives part of unemployed into the shadow activities while in the economic expansion it is much easier to find employment in the official sector.

The most significant impact of lowering tax level on UE reduction was recorded in period 1999-2001. After that period tax burden recorded lower variability and annual changes of unofficial economy can be better explained by movements of other variables. Improvements on labour market have the strongest impact on UE reduction in period from 2005-2008, while in 2009 and 2010 higher unemployment contributed to growth of unofficial economy. Impact of variation of GDP growth was limited except in 2000 when growth contributed to unofficial economy reduction. In 2009 strong reduction of official activities was partially compensated by growth of unofficial sector. Improvements in institutional framework, according to CPI indicator, were recorded in 2000 and 2007 and explain reduction of UE in these years.

6 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): pp. 163 – 171.

Enste D., Schneider, F (2002): **The Shadow Economy: Theoretical Aroaches, 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., Mikulić, D. (2004): **The Correlation Between Formal and Informal Sector in Transition Economies**, in An Enterprise Odyssey: Building Competitive Advantage / Galetić, Lovorka (ur.): Zagreb: Mikrorad.

Buehn, A., Schneider, F. (2012): **Shadow economies around the world: novel insights, accepted knowledge and new estimates**, International Tax Public Finance, (19): pp. 139-171.

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., Schneider, F. (2009): **Corruption and the Shadow Economy: An Empirical Analysis**, Public Choice, (144), 1-2: 215-238.

Dreher, A., Kotsogiannis, C., McCorriston, S. (2007): **Corruption around the World: Evidence from Structural Model**, Journal of Comparative Economics, (35): pp. 443-466.

Dreher, A., Kotsogiannis, C., McCorriston, S. (2009): **How Do Institutions Affect Corruption and the Shadow Economy?**, International Tax and Public Finance, (16), 6: pp. 773-796.

Eilat, Y., Zinnes, C. (2000**): The Shadow Economy in Transition Countries: Consequences for Economic Growth and donor Assistance**, CAERII Discussion Paper, 83.

Feige, E. L. (ed.) (1989): **The Underground Economies**. Tax Evasion and Information Distortion. Cambridge: Cambridge University Press.

Feld, L. P., Larsen, C. (2005): **Black Activities in Germany in 2001 and 2004: A Comparison Based on Survey Data**, Study No. 12, Copenhagen: The Rockwool Foundation Research Unit.

Feld, L. P., Schneider, F., (2010): **Survey on the Shadow Economy and Undeclared Earnings in OECD Countries**, German Economic Review, (11), 2: pp. 109–149.

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, (76), 3: pp. 459-493.

Gershuni, J. (1979): **After industrial society: The emerging self-service economy**. London: Macmillan.

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, Zoido-Lobatón, P. (1998): **Regulatory Discretion and the Unofficial Economy**, American Economic Review, Papers and Proceedings, (88), 2: pp. 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, 1691. Washington: The World Bank.

Klarić, V. (2011): **Estimating the size of non-observed economy in Croatia using the MIMIC approach**, Financial Theory and Practice, (35), 1: pp. 59-90.

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**, Policy Research Paper WPS3623, Washington: World Bank.

Lovrinčević, Ž., Mikulić, D., Galić-Nagyszombaty, A. (2011): **Unofficial Economy in Croatia and the Impact of the Economic Recession on the Unofficial Economy**, in Challenges of Europe: Growth and Competitiveness - Reversing the Trends / Grčić et al. (ur.): Split: University of Split, Faculty of Economics: pp. 479-508.

Lovrinčević, Ž., Marić, Z., Mikulić, D. (2006): **Maastrichtski kriteriji i uključivanje sive ekonomije - slučaj Hrvatske**, Privredna kretanja i ekonomska politika. (16), 106: 28-65.

Nikopour, H., Shah Habibullah., M., Schneider, F. (2010): **The Shadow Economy Kuznets's Curve Panel Data Analysis**, Working paper available at: http://mpra.ub.uni-muenchen.de/12956, Muenchen: University of Muenchen.

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.: pp. 193-212.

Schneider, F., Enste, D. (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): S**hadow Economies around the World: What Do We Really Know?** European Journal of Political Economy, (21): pp. 598-642.

Schneider, F. (2012): **The Financial Flows of Transnational Crime and Tax Fraud in OECD Countries: What Do We (Not) Know?,** WP, November 2012; available at http://www.economics.uni-inz.ac.at/members/Schneider/files/publications/2012/FinancialFlows_TaxFraud.pdf

Smith, P. (1994): A**ssessing the Size of the Underground Economy: The Canadian Statistical Perspectives**, Canadian Economic Observer, (3): pp. 16-33.

Thomas, J.J. (1999): **Quantifying the Black Economy: 'Measurement Without Theory' Yet Again?**, Economic Journal, (109): pp. 381-389.

IS MINIMUM WAGE A GOOD POLICY FOR POOR WORKERS IN CROATIA?

Željko Mrnjavac
University of Split, Faculty of Economics
Cvite Fiskovića 5, 21000 Split, Croatia
Phone: + 385 21 430 672
E-mail: mrnjavac@efst.hr

Sanja Blažević
Juraj Dobrila University of Pula
Department of Economics and Tourism "Dr. Mijo Mirković"
Preradovićeva 1, 52100 Pula, Croatia
Phone: + 385 52 377 032; Fax: + 385 52 377 013
E-mail: sanja.blazevic@unipu.hr

Key words: *Minimum wage, Poor workers, Labour Force Survey, Croatia*

ABSTRACT

Minimum wage is an instrument of the labour market introduced because of the principle of fairness and dignity for workers who are incapable of covering the basic personal and household needs. Today, the minimum wage policy has gone beyond the economic sphere and has become an economic, social and political issue.

In this work, the authors analyze the profile of the minimum wage worker in Croatia and trends in minimum wage coverage, which is brought into connection with the poverty of workers. The characteristics of minimum wage workers and their status on the labour market are the most significant component in the analysis of minimum wage because this is the starting point in the creation of policy according to the needs of its beneficiaries. One of the aims of the minimum wage is convergence towards the total elimination of poverty among the working population and it is, therefore, a priority to obtain information on the share and profile of poor workers.

The analysis pointed out the poor efficiency of the minimum wage policy in the context of decreasing poverty, i.e. increasing the income of poor workers. Therefore, the authors present some alternative instruments which can be seen as complementary to the minimum wage policy. The combination of several instruments enables a more efficient and faster achievement of goals that the minimum wage fails to realize, before all a higher income for poor and low-wage workers. The state needs to be careful in designing the minimum wage policy and take into consideration the final aim which is the maintenance of a dignified wage threshold for the vulnerable groups of workers. It would be wise to create a combination of the minimum wage policy, the welfare policy and the fiscal policy with the aim of achieving goals like the protection of vulnerable groups of workers as well as the unemployed who are fit for work by stimulating employment, i.e. activity on the labour market.

1 MINIMUM WAGE POLICY IN CROATIA

In the Republic of Croatia, the Minimum Wage Act (MWA) came into effect on July 1, 2008 and it set the amount of the minimum wage, the modality of harmonization and the implementation of surveillance. Before the MWA the issue of minimum wage was not regulated by law in Croatia but rather by the 1998 National Collective Agreement on the amount of the lowest wage which determined that this amount could not be lower than the lowest base for the calculation and payment of contributions for pension and disability funds. Up until 2003, this lowest base was determined by the Ministry of Finance after which it was determined by the Statutory Insurance Contributions Act and was equal to the product of the multiplication of the average wage for the period from January to August of the previous year and the coefficient 0.35. In 2008, the MWA established that all workers working in the Republic of Croatia have the right to the minimum wage. The national minimum wage refers to the worker who works full-time, i.e. 40 working hours a week while the workers working less than 40 hours a week, in keeping with the interpretation of the MWA, would have the minimum wage determined in the same ratio to the minimum wage paid for full-time work. Table 1 shows the movement of the relationship of the nominal and real minimum gross wage from 2000 to 2011.

Table 1. Nominal and real gross minimum wage

1 Period (semesters)	2 Nominal minimum gross wage (kn)	3 Chain indexes (2)	4 Real minimum gross wage (kn)	5 Chain indexes (4)
2000:1	1,700	-	1,925.25	-
2000:2	1,700	100	1,925.25	100
2001:1	1,700	100	1,853.87	96.29
2001:2	1,700	100	1,853.87	100
2002:1	1,800	105.88	1,931.22	104.17
2002:2	1,800	100	1,931.22	100
2003:1	1,859	103.28	1,960.97	101.54
2003:2	1,859	100	1,960.97	100
2004:1	1,951	104.95	2,015.50	102.78
2004:2	1,951	100	2,015.50	100
2005:1	2,081	106.66	2,081	103.25
2005:2	2,081	100	2,081	100
2006:1	2,170	104.28	2,102.71	101.04
2006:2	2,170	100	2,102.71	100
2007:1	2,298	105.90	2,163.84	102.91
2007:2	2,298	100	2,163.84	100
2008:1	2,441	106.22	2,167.85	100.19
2008:2	2,747	112.54	2,439.61	112.54
2009:1	2,747	100	2,382.48	97.66
2009:2	2,814	102.44	2,440.59	102.44
2010:1	2,814	100	2,415.45	98.97
2010:2	2,814	100	2,415.45	100
2011:1	2,814	100	2,276.53	94.25
2011:2	2,814	100	2,276.53	100

** Inflation indicator is the annual consumer price index (2005=100) which is distributed by semesters (source: Croatian Bureau of Statistics, Statistical Yearbook)*

Source: Research results.

The highest increase of the (nominal/real) minimum gross wage is visible in the year when the MWA came into effect and it amounted to 12.5%. In the observed 24 semesters, the nominal minimum gross wage changed nine times with an average semiannual increase of 2.17%.

When calculating the amount of the minimum wage, the existing Act uses the average wage indicator and the GDP growth rates in the previous year. The Croatian Bureau of Statistics (CBS), when calculating the amount of the minimum wage, increases that amount by the GDP growth rate, i.e. it uses the following formula:

$$MW_t = \frac{MW_{t-1}}{\phi W_{t-1}} * (1 + \frac{GDP_{t-1}}{100}) * \phi W_{t-1} \quad (1)$$

where MW stands for minimum wage, ϕW for average wage and GDP for the growth rate of the real GDP in the previous year, the index t stands for the current year and the index $t-1$ stands for the previous year. The average wage is unnecessary in this formula so that we can conclude that the CBS corrects the minimum wage solely with the GDP growth rate in the previous year. Therefore, the part of the MWA which stresses the share of the minimum wage in the average wage is unnecessary.

If the part on the establishment of the amount of the minimum wage in the MWA ("the share of the minimum wage in the average gross wage realized in the previous year is increased by the percentage of growth of the real GDP in the previous year") is literally translated into a formula, it states as follows:

$$MW_t = (\frac{MW_{t-1}}{\phi W_{t-1}} + \frac{GDP_{t-1}}{100}) \quad (2)$$

This formula is used to obtain the coefficient with which the average gross wage from the previous year should be multiplied in order to obtain the new amount of the minimum wage. However, the part on the multiplication of the average wage with the obtained coefficient is not mentioned in the Act which should be amended so as to unequivocally state the obtainment of the coefficient.

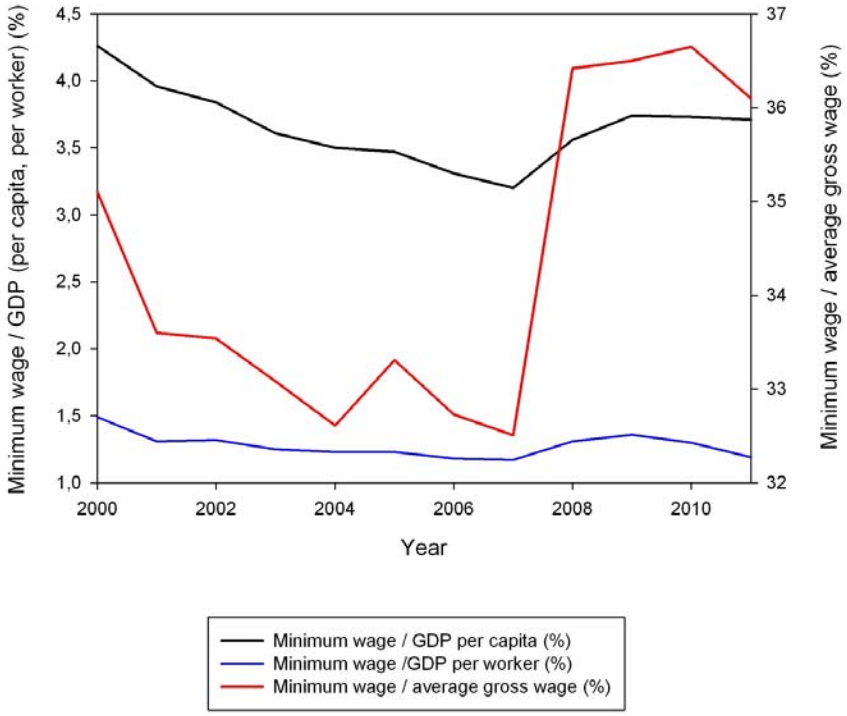
It is the opinion of the authors that the formula described in the MWA should be interpreted in the following way:

$$MW_t = (\frac{MW_{t-1}}{\phi W_{t-1}} + \frac{GDP_{t-1}}{100}) * \phi W_{t-1} \quad (3)$$

An additional vagueness in the Act is the interpretation of the growth rate of the real GDP in the previous year which can have a positive and a negative sign, but in the end the negative growth rate of the real GDP is ignored in the calculation. For example, in 2009 the growth rate of the real GDP was -5.9% which was not taken into consideration when calculating the minimum wage and the same was done in the following periods.

In the last 10 years, the amount of the minimum gross wage has been relatively stable compared to the GDP per capita and the GDP per worker, while the share in the average gross wage indicates greater variations as is shown in the following graphic presentation.

Graph 1. Minimum wage as a share of GDP per capita, GDP per worker and average wage

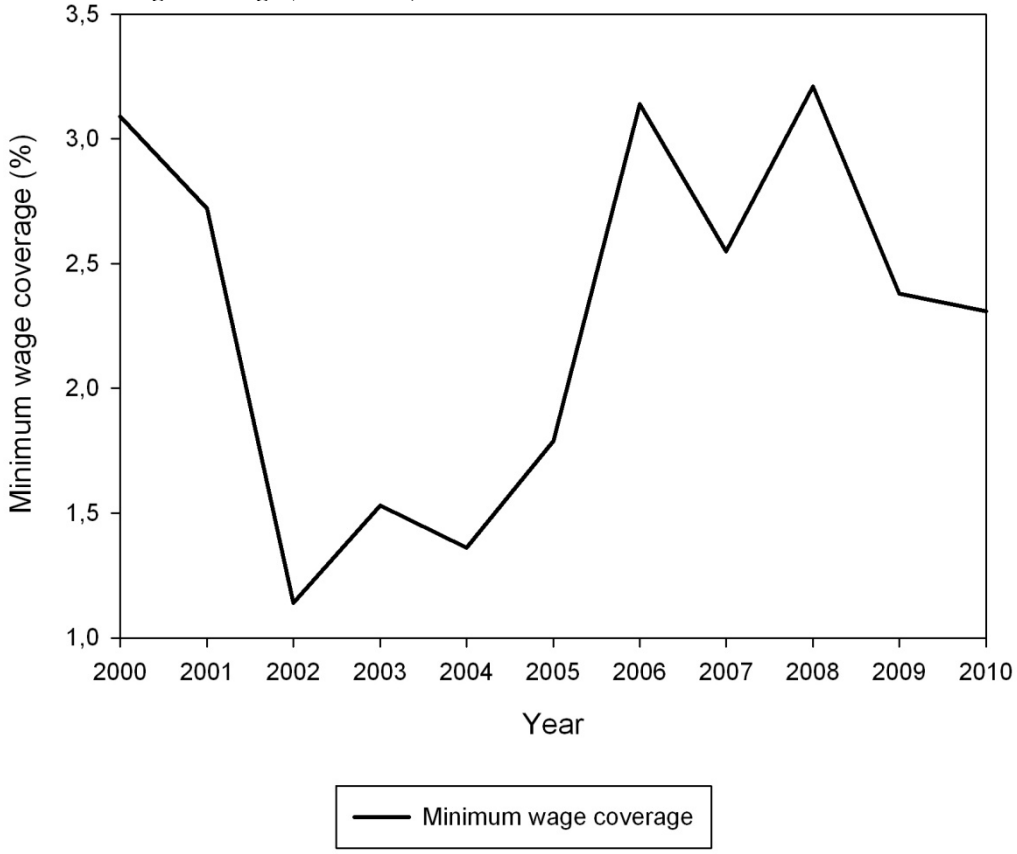


Source: Authors' calculation.

In 2000, the relationship of the minimum wage and the average wage (gross values) was 35.1% with a negative trend up until 2008 when the share was 32.84% after which there was an increase of the share (red line). In 2010, the share of the minimum wage in the average wage was 36.54%. An increase of the share by 9.32% is noticed from the first to the second semester of 2008.

Within the discussion on the amount and impact of the minimum wage, the crucial question is that of the number of workers who receive the minimum wage in a certain country as well as their profile. Before the MWA came into effect, the share of workers receiving the minimum wage, that is the workers covered by the minimum wage, was around 3% while after the MWA it was around 8% (Nestić, Rašić Bakarić, 2010: 10). The crosscheck of the analysis of coverage by minimum wage was performed on the basis of the data collected with the Labour Force Survey (hereinafter: LFS) for the period between 2000 and 2010. The respondents were asked about the usual net monthly wage or the earnings from their main job. The share of respondents who answered this question is relatively stable throughout the observed period and is between 30% and 35% of the total number of respondents. The minimum wage coverage was obtained by calculating the share of workers who receive the amount of the net minimum wage (the amount of the gross minimum wage decreased by 20%) with the deviation of +/- 2% so as to take into consideration the inaccuracies in answering the survey and the rough calculation of the net amount of the minimum wage. This was a limited sample of workers, i.e. workers, craftsmen and employees working a minimum of 30 hours a week.

Graph 2. Minimum wage coverage (2000-2010)



Source: Authors' calculation based on LFS data.

Judging from the conducted analysis and using the LFS data we can see that the minimum wage coverage did not significantly increase after the coming into effect of the MWA and the average coverage from 2008 to 2010 is 2.6%, which should be considered with care considering its methodological awkwardness. After the MWA came into effect, the Government of the Republic of Croatia estimated that 7.6% of workers would be receiving the minimum wage (Nestić, 2010: 89) which, according to the analysis of the LFS, did not happen.

An additional cause for concern is the very high share of uncovered workers on the Croatian labour market, around 15%. The activities which employ workers receiving the minimum wage, listed according to their representation, are the following: manufacturing industry, wholesale and retail trade, agriculture, hunting and forestry, hotels and restaurants and construction industry. Although the position of the manufacturing industry is weakening as far as the number of active enterprises is concerned, the number of workers employed, and the share of the total income in economy, it is still the leading activity. The importance of the wholesale and retail trade activity is growing so the fact that it is also among the activities paying minimum wages is worrying, along with the large number of uncovered workers. Although these are less educated workers, the economic structure is such that the singled out activities make up for more than 90% of the economy resulting in the issue of low wages, unpaid wages and poor workers becoming a serious social problem.

In February 2013 the government of the Republic of Croatia established the new proposal of the MWA according to which the value of the minimum wage would be established in relation to the indicators that are more "socially sensitive". It is the monthly poverty risk threshold for a single member household, the coefficient of the total number of inhabitants

and the total number of households, the coefficient of the total number of inhabitants and the number of active population and the change of the average index of consumer goods prices. However, regardless of the fact that the new Act foresees an increase of the minimum wage by 6.07% in relation to the existing value, it is predicted that there will be lower minimum wages from the legally established national level, which will be established through collective agreements with the maximum difference limited to 25%.

2 MINIMUM WAGE POLICY IN CROATIA IN COMPARISON TO OTHER COUNTRIES

Forms for minimum wage establishing vary in European Union according to the observed country. In January 2013 20 out of 27 countries had minimum wage which is set by national legislation or by national intersectoral agreement. There are differences in the level of the monthly minimum wage by member states ranging from 138,05 euros in Bulgaria up to 1,801.49 euros in Luxembourg (ratio 1:13) where the differences are somewhat less if it is addressed in terms of purchasing power parity (hereinafter: PPS) wherein the ratio of 1:5,6 indicates the difference between 273,86 PPS in Romania and 1,524.21 PPS in Luxembourg. Table 3.4. shows the relationship between the level of the minimum wage among selected countries in terms of purchasing power parity. Table 2. shows the difference between the minimum wage level among selected countries in terms of PPP.

Table 2. Monthly minimum wages - 2nd semester (in Purchasing Power Standard)

	2009:2	2010:2	2011:2	2012:2
Belgium	1,235.33	1,245.85	1,296.17	1.326.54
Bulgaria	239,18	241,64	241,64	300,37
Czech Republic	413,98	420,79	420,79	454,14
Estonia	363,29	371,85	371,85	410,76
Ireland	1,153.93	1,227.38	1,227.38	1,256.69
Greece	908,66	907,36	921,88	715,09
Spain	744,43	761,51	771,25	770,07
France	1,190.56	1,213.03	1,232.19	1,293.59
Latvia	335,40	351,75	390,83	383,92
Lithuania	343,94	355,96	355,96	352,30
Luxembourg	1,392.02	1,431.29	1,458.47	1,456.09
Hungary	402,11	411,00	436,16	517,28
Malta	810,11	846,66	853,12	872,80
Netherland	1,297.28	1,316.55	1,334.40	1,345.18
Poland	506,40	532,98	560,91	613,58
Portugal	588,65	628,66	641,89	649,90
Romania	245,67	242,29	270,56	273,86
Slovenia	688,42	868,28	884,78	889,07
Slovakia	401,26	429,54	442,52	451,90
Great Britain	1,101.67	1,111.97	1,137.56	1,134.44
Croatia	507,81	508,58	508,58	516,16
Turkey	504,76	534,44	588,20	627,74
United States	917,35	1,026.57	1,026.57	1,023.66

Source: Eurostat Statistics, http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database (accessed 24th June 2013).

Variability can be seen in the level of the minimum wage as well as all other economic and social indicators (differences in skills, productivity, living standards and public policies) which confirms the fact that the European Union is an association of highly heterogeneous group of countries. The Republic of Croatia would fall under the category of countries with

the minimum wage around 500 PPS. That group of countries includes Czech Republic and Hungary.

3 RECIPIENTS OF MINIMUM WAGE AND THE POVERTY OF WORKERS IN CROATIA

3.1 Who are minimum wage workers?

The recipients of minimum wage and their status on the labour market are the most important component in the analysis of the minimum wage because it is the starting point in the creation of a policy according to the needs of the beneficiaries. According to the theory of social welfare (Pareto's law) the optimal situation is when a group can be made better off without making any other group worse off. In terms of minimum wage recipients, as one of the tools of social (and economic) justice, the increase of minimum wage is optimal/efficient if it brings benefits to one group of workers while not harming another. Still, there is a large number of researches that do not confirm this principle because it is often thought that there is a wage increase for better paid groups of workers or an increase of employment of workers with higher education, while those who are worse off are low wage workers and those with little education. The question is (Neumark, Wascher, 2008: 290) how the society will determine the welfare function and value the winners or losers in the minimum wage story. If the number of minimum wage recipients in activities that are not so important for the economy is small, the "losers", i.e. the vulnerable groups could achieve greater economic and social benefit with alternative instruments which are more efficient in achieving the goals of the minimum wage policy.

The minimum wage recipients were analyzed on the basis of the LFS data for the period from 2000 to 2010 and were distributed in three groups:

- workers earning +/- 10% of the minimum wage (covered workers)
- workers earning below that level (uncovered workers)
- workers earning + 20% to 30% of minimum wage (low wage workers)

The reasons for such distribution of workers are the methodological limitations of the LFS, i.e. the potential inaccuracies in the answers of workers on questions of the amount of their net wage for the main job. These groups of workers include workers earning the minimum wage (covered workers), workers earning a wage below the level of the minimum wage (uncovered workers) and the low wage workers who can be affected by the increase of the minimum wage and are in the low part of wage distribution. The groups are set in order to notice the differences between them as well as trends within single groups of workers.

Table 3 shows the characteristics for the second semester of 2010 for reasons of actuality of data and the comparison of groups. The statistics for the whole period is singled out in appendix 1.

Table 3. Characteristics of low paid workers (in %) relative to all the workers interviewed in LFS

Characteristic	Uncovered workers	Covered workers	Low wage workers
Share of urban population	14.5	35.8	37
Share of head of households	40.7	25.2	33.9
Share of women	55.5	66.5	52
Share of highly educated	1.3	0.6	0.4
Share of young workers aged 20-24 years	4.1	12.6	12.2
Share of employed (dependent) workers	22	92.6	93.7
Share of craftsmen	2.1	1.9	3.1
Share of farmers	67.7	4.5	1.6
Share of workers employed on contract (indefinite duration)	70.5	74.6	80.7
Share of workers working 40 hours per week	25.9	58.7	62.2
Share of workers working overtime	30	38.4	36.6
Share of workers with extra job	1.8	5.5	5.9
Share of workers registered at the Croatian Employment Service	13.9	1.9	-
Share of workers willing to change their main job	19	18.7	11.8
Share of workers who rate their households' financial situation poor	73.4	74.4	68.6

Source: Research results based on LFS data.

Among the uncovered workers (informal sector) the majorities are agricultural workers, rural population, women who make up for more than 50% and the majority works part-time. Within this group of workers the majority would want to change jobs and see their household finances as poor or very poor. Approximately 14% of uncovered workers are registered at the Croatian Employment Service as unemployed people.

The group of workers earning the minimum wage is made mostly of women, they reside mainly in the rural areas and most of them are employed in enterprises, a small percentage works part-time, a quarter would change their main job and they mostly see their household finances as poor or very poor, as well as the uncovered workers. A more detailed analysis of covered workers in the observed 11-year-period reveals a growth of the share of rural population and a decrease of the share of head of households as well as an increase in the share of women. Throughout the period, the majority of workers in this group, between 60% and 65%, has elementary school, vocational school or school for skilled and highly skilled workers education. Most respondents in this group work in small enterprises with up to 10 employees. Within the working hours category, there is a change in the pattern of overtime in favor of standard working hours, so that, for example in 2000, 56.1% of workers did overtime and 38.5% did 40 hours a week, while in 2010 the situation is reversed. However, regardless of that fact, throughout the period between 10% and 12% of workers would like to work more. A vast majority always or sometimes works on Saturdays and half respondents work shifts. An analysis of covered workers according to activities shows that traditionally a third of the workers is employed in the manufacturing industry while the structure of the rest of the group is changing with time so that there is a growth of workers in construction (21.5% in 2000 and 45.2% in 2010) and a decrease of the share of workers employed in agriculture, hunting and forestry.

As for enterprises paying minimum wage, these are mostly small agricultural enterprises with up to 20 employees (50% of workers belong to this category of enterprises) in which a quarter of workers is temporary employed, mostly up to 6 months and only 34% of workers in 2010 realized all the rights arising from employment while this share was considerably lower in 2004 and amounted to 20%. Most workers always or almost always work on Saturdays and Sundays and half work in the evenings.

The instrument of minimum wage covers a small share of workers compared to the total population of workers and we are speaking here of workers from the vulnerable groups on the labour market. The analysis of characteristics of covered workers and the activities that employ them inspires a discussion on the efficiency and point of the minimum wage considering the wider span of the labour force structure in Croatia at which the context of the minimum wage is lost. Less than 25% of workers in Croatia have an education lower than secondary school[54] with a growing trend, i.e. the workers in Croatia are becoming more educated. Since the minimum wage covers mostly skilled and highly skilled workers, even if there are positive effects of the minimum wage on the economic and social welfare of the workers, they are insignificant in practice considering the small share of skilled and highly skilled workers[55] in the total number of workers (11.49%).

Although the most frequent criterion against raising the minimum wage is the consequential increase of unemployment, according to Eyraud and Saget (2005: 48) this argument is not plausible because the enterprises which are not capable of paying the minimum wage will cease their activity in the long run and the low wages should not be used with the aim of achieving greater competitiveness. Another interesting standpoint on such enterprises is the one by Figart (2004: 2) who says that the entrepreneurs employing low educated workers and paying the minimum wage are either social parasites or morally questionable.

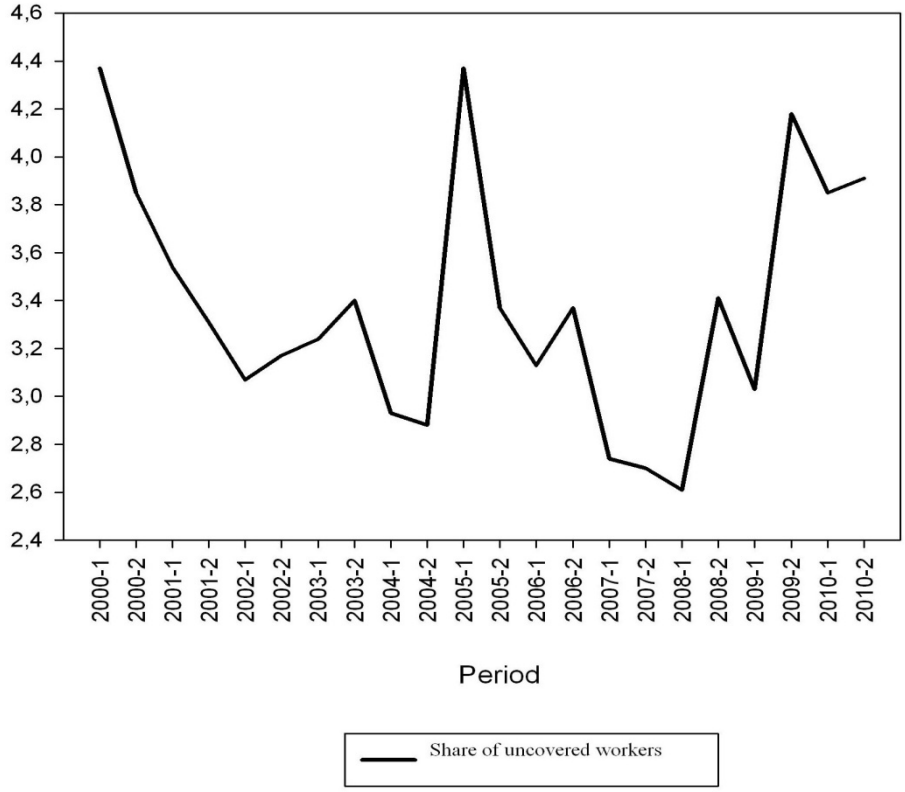
In the analysis of the employers, Sara Lemos (2004: 250) differentiates the informal and the uncovered sector. In the uncovered sector the minimum wages are not paid at all while they are paid in the informal sector but the enterprises do not comply with the other aspects of the work contract like the payment of contributions, paid vacation and similar. The share of covered workers realizing all the rights arising from employment in 2010 was 94.8% while in 2004 that share was 80%, which indicates a decrease of the informal sector in Croatia. The size of the uncovered sector cannot be determined with the analysis of the share of uncovered workers in the total number of workers who have been included in the survey, which is shown with the following graphic presentation.

The size of the uncovered sector did not change in the period from 2000 to 2010, regardless of the fluctuations throughout the period. In 2008 there is an increase of the share of uncovered workers which reached the highest share of 4.37% in the second semester of 2009. The share of low paid and uncovered workers in the total number of workers goes from 3.5% to 8.5% in the observed period. Is the minimum wage alone capable of improving their status on the labour market?

[54] Data on March 31, 2011 point at following situation: 19.79% of workers has high education, 8.36% higher education, 48.37% secondary education, 2.95% low education, 1.88% is a highly skilled worker, 9.61% skilled workers, 2.23% semi skilled workers and 6.81% unskilled workers. (Source: Croatian Bureau of Statistics (2012) Statistical Yearbook)

[55] Secondary school education is excluded. Skilled and highly skilled workers include refers to workers who finished school for craft and industrial occupations, school for skilled manual workers.

Graph 3. Size of uncovered sector(%) in the total number of workers (unrestricted sample)*



** Uncovered sector refers to workers who earn lower wage (lower than 90% of minimum wage) in comparison to minimum wage*
Source: Research results based on LFS data.

The introduction of the MWA and the increase of the value of the minimum wage influenced the increase of the size of the uncovered sector which indicates that the implementation of the minimum wage policy affects the increase of the informal sector implying a degradation of the status on the labour market for affected workers and the need for a more active role of the social policy, that is the social welfare policy because these are workers who are unable to cover the basic living expenses.

According to Eyraud and Saget (2005: 108-109), there is a larger possibility of violation and non observance of law in small, work-intensive enterprises in case of an increase of ratio between the minimum and average wage because it is an attempt to lower the expenses of work, however, it only partially explains the non observance of law. The ignorance of the level of the minimum wage, a lack of control and participation in the negotiation process of social partners as well as the asymmetry of power between the employer and the employees play an important role in that process. It is necessary to strengthen the institutional process of the establishment of the minimum wage, the labour inspection and the organization of activities which are not adequately presented as equal social partners.

3.2 Are minimum wage workers poor?

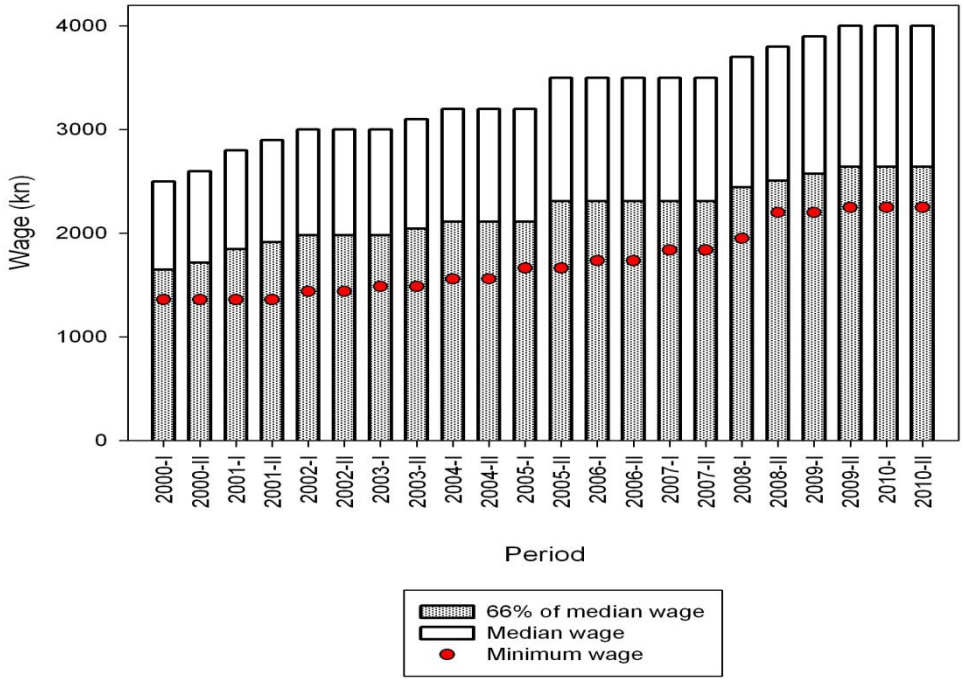
The definition of poor workers differs depending on the source (institution or country) so that poor workers can be defined as low paid workers or persons whose wage is lower than two thirds or 66% of the median wage of workers employed full-time or 60% of the average/median wage (Vaughan Whitehead, 2010: 34-35).

One of the goals of the minimum wage is convergence towards the total elimination of poverty among the working population and it is, therefore, a priority to obtain information on

the share and profile of poor workers. Most studies indicate that not many workers who earn the minimum wage actually live in poor households so that most economists agree in saying that the minimum wage has a weak impact on the lowering of poverty. Also questioned is the purpose of the minimum wage in case it is meant for workers who are not poor and relatively well protected. In that case the future and role of the minimum wage change because its social character is lost and it becomes a point of reference for higher economic goals in the sense of policies (industrial policy, educational policy, wages policy). The minimum wage loses its role of an instrument on the secondary labour market. Most authors noticed that workers earning the minimum wage are equally distributed across all deciles of the family income distribution (Neumark, Wascher, 2008: 146), which means that the benefit arising from the minimum wage increase exists across the whole income distribution, which in the end does not lower the inequality of income.

The graphic presentation 4 shows the movement of the minimum and median wage with a mark of the 66% of value of the median wage as the poverty limit according to the definition of poor workers.

Graph 4. Minimum wage, median wage and 66% of median wage (2000-2010)



Source: Research results based on LFS data.

It is visible that the minimum wage is below the level of 66% of the median wage throughout the whole observed period, this being the possible level for the establishment of poverty of workers. It is therefore clear that the minimum wage cannot be an efficient tool in the struggle against poverty in case this definition of poor workers is accepted. A second possible definition of poor workers, which is statistically determined, is the poverty risk threshold which amounted to 25,200 kn for a single member household in the Republic of Croatia in 2010 (CBS, Statistical Yearbook 2012: 194) that is 2,100 kn per month which remains below the minimum wage. According to this indicator, speaking in terms of the minimum wage, all workers employed full-time in Croatia and earning the minimum wage are at the same time poor workers.

In Croatia in 2004, only 4% of persons with paid employment belonged to poor households as opposed to 34% of unemployed, 25% of retired people, 29% of non active persons (Nestić, 2010: 92-93), which indicates that in Croatia the minimum wage has little effect on the decrease of poverty. Following this hypothesis, we analyze the profile of poor workers and not households because of the methodological limitation of the set of data. The analysis of poor workers in Croatia is based on LFS data. Out of all the employed people included in the research, we singled out those earning up to 66% of the median wage. The table shows singled out results for the first and last semester of the analysis in order to spot the changes through time while the statistics for the whole period is singled out in appendix 2.

Table 4. Characteristics of low paid workers (in %) relative to all the workers interviewed in LFS

Characteristic	2000, 1st semester	2010, 2nd semester
Share in the total number of workers	16.7	9.3
Average number of working hours per week	42.43	42.03
Share of workers working overtime	58	36.7
Share of women	59.6	64.7
Share of highly educated workers	0.7	1
Share of teenagers (15-19 years)	1.7	2.6
Share of young workers (20-24 years)	15.1	11.8
Share of older workers (above 55 years)	4.4	5.5
Average working experience	15	13
Share of workers who earn below the minimum wage	34.8	45.6
Share of covered poor workers	20	27.3
Share of workers working in agriculture	43.1	51.8
Share of workers employed in manufacturing industry	22.5	16.7
Share of workers employed in retail	13	21.8

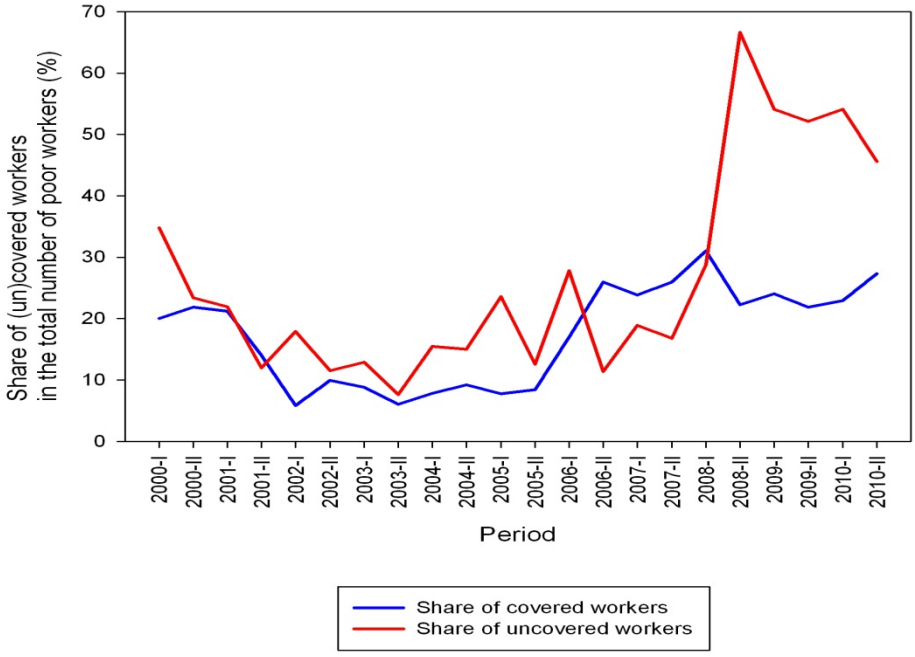
Source: Research results based on LFS data.

Among the poor workers the majority are middle-aged women. The share of poor workers in the total number of the employed in the observed period is almost two times less, 9.3% in the second semester of 2010. The change in the structure of the economy influenced the change in the structure of poor workers employed in single activities so that there is an increase of poor workers employed in agriculture (half of the poor) and the wholesale and retail trade. In time, agriculture registers decreasing growth rates of its share in the GDP structure while the wholesale and retail trade activity continuously holds the share of 11%.

The table shows that in the total number of poor workers half earns a wage below the minimum wage (uncovered workers), which is yet another proof that minimum wage does not fulfill its goal of eradicating poverty and it is evident that the non observance of the MWA in Croatia is an important problem. A descriptive analysis on a pattern of covered and uncovered poor workers[56] reveals the dynamics of (non)payment of the minimum wage in various activities throughout the observed period. In this case, the median wage was calculated through LFS by which the group of poor workers was determined. Graphic presentation 5 shows the share of covered and uncovered workers in the total number of poor workers.

[56] Poor workers (according to the OECD definition) are those workers whose wage is less than two thirds (66%) of the median wage of workers employed full time.

Graph 5. Share of covered and uncovered workers in the total number of poor workers



Note: Covered workers are those who earn minimum wage while the uncovered workers are those who earn below the minimum wage.
Source: Research results.

The share of covered workers in the total number of poor workers has grown in time[57]. Coverage of 20% in 2000 grew to 27.34% in the second semester of 2010. The lowest share of coverage is noticed in 2002 when it amounted to only 6% (18% of workers were uncovered). What can be noticed in the observed period is the increase of uncoverage of poor workers, i.e. from 34.8% in 2000, their share increased to 45.6% in 2010.

The average growth rate of the median wage (2.3%) is lower than the average coverage growth rate (7.19%) and uncoverage (14.10%) of workers with the minimum wage as well as the growth of the minimum wage (2.48%) for the observed period, which means that the cause of the growth of (un)coverage cannot be the substantial increase of the median wage which is an indicator for the determination of the poverty threshold (66% of the median wage), but rather the cause should be looked for in the amount of the minimum wage. The MWA came into effect in the second semester of 2008 when the minimum wage increased by 12.7% while the median wage increased by only 2.7%.

However, in this period there is an enormous increase of uncovered workers and a decrease of the share of covered workers, which means that the increase of the minimum wage influenced a spillover of workers from the covered to the uncovered sector.

[57] Graphical analysis on (un)covered poor workers distributed through main economic activities is shown in appendix 3.

Table 5. (Un)coverage and median wage growth rates (%)

Period (semesters)	Uncoverage (%)	Coverage (%)	Median wage growth rate (%)
2000:2	-32.76	9.30	4
2001:1	-6.41	-2.88	7.69
2001:2	-45.21	-34.06	3.57
2002:1	49.17	-58.43	3.45
2002:2	-35.75	70.96	0
2003:1	12.17	-11.46	0
2003:2	-41.09	-30.99	3.33
2004:1	103.95	28.13	3.23
2004:2	-3.23	17.97	0
2005:1	57.33	-15.56	0
2005:2	-46.61	8.51	9.38
2006:1	120.40	101.90	0
2006:2	-58.95	52.53	0
2007:1	65.79	-8.14	0
2007:2	-11.11	8.94	0
2008:1	71.43	19.46	5.71
2008:2	131.25	-28.19	2.70
2009:1	-18.77	8.04	2.63
2009:2	-3.70	-9.06	2.56
2010:1	3.84	4.89	0
2010:2	-15.71	19.18	0

Source: Research results.

4 INSTRUMENTS ALTERNATIVE TO THE MINIMUM WAGE POLICY

The political support to the minimum wage policy largely depends on the relations of power in society. Sara Lemos (2004: 225) noticed that the social role of the minimum wage policy, i.e. its popularity, is tied to populist governments, strong unions and periods of low inflation, which actually indicates the possibility to advocate and promote the policy on a national level. The predilection for a specific design of the minimum wage indicates the political climate, the economic cycle and the influence of the unions. Klein and Dompe (2007) confirmed that argument in their research. They conducted a survey among economists/signatories of the open letter which advocated the increase of the minimum wage. In the survey the economists addressed two categories of mechanisms generating benefits – the mechanisms of the labour market and wider socio-political mechanisms connected to the personal freedom of the workers. All the respondents acknowledged the important role of the political factors. Peter Dorman (Klein, Dompe, 2007: 155) explained it best with the division in "negative" and "positive" freedom. The negative freedom refers to the expense of the society due to the increase of the minimum wage on unregulated markets where the implementation of laws is questionable while the positive freedom refers to positive benefits for subjects at which the democratic environment plays the most important role.

It is held that the instrument of the minimum wage is the optimal labour market tool for a state, applied because there are no direct expenses considering that they are shifted to the employers. With the minimum wage increase, the employers will allocate larger amounts for the payment of contributions which is a positive aspect for the state. However, although it may seem that the role of the state is irrelevant and that there are no expenses due to the

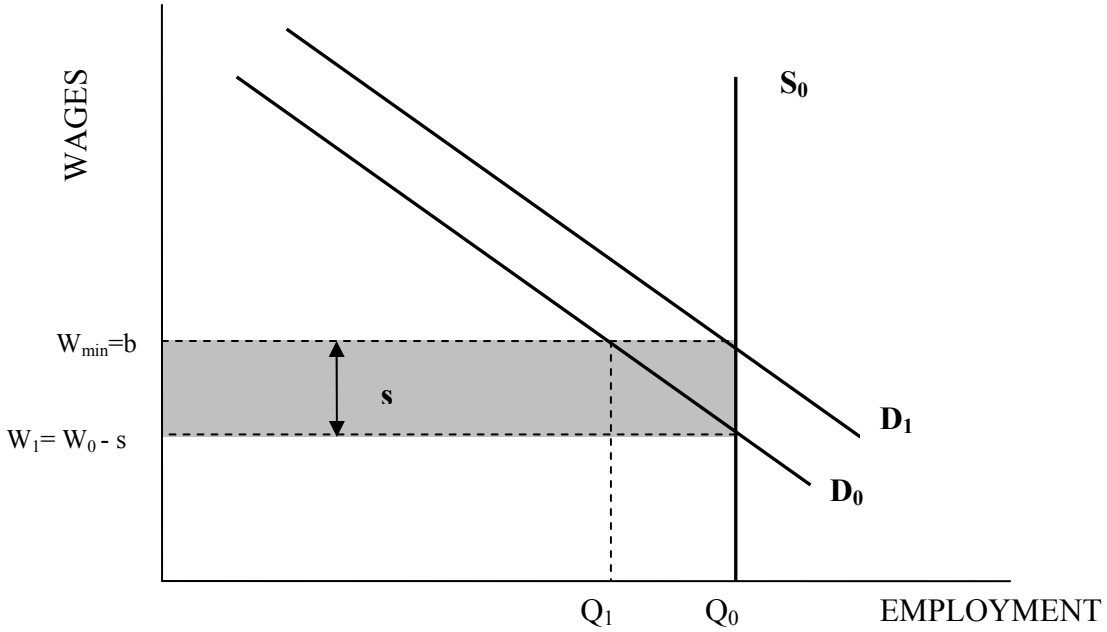
minimum wage increase, there are indirect effects of the minimum wage that can disturb the balance on the labour market in the long run, which can later on contribute (Knabe, Schöb, 2008: 19) to an increase of state expenses though social allocations (welfare assistance measures). The minimum wage increase can result in the layoff of workers which, along with probable difficulties in finding new jobs, might discourage the workers and make them passive subjects under the social protection of the state. Thus the minimum wage does not fulfill the aim of protecting the vulnerable groups on the labour market, on the contrary, it might result in an increase of the number of vulnerable subjects. The state needs to be careful in designing the minimum wage policy, taking into consideration the final goal, i.e. the maintenance of a dignified threshold of wages of the most vulnerable groups of workers. The general wages policy and the social welfare policy are not synonyms to the minimum wage policy. According to Robert W. Wassmer (Klein, Dompe, 2007: 147), a successful public policy demands the keeping of balance between efficiency and equality. If one larger group of workers becomes better off at the expense of a smaller group of workers who are made worse off, the good effects do not eliminate the bad ones. Although Neumark and Wascher (2008: 283) question the hypothesis that the minimum wage is given political support because of the ideological need to help low income families, it should be stressed that the ideological and political background of the minimum wage is stronger than the economical. However, according to Dorman (2010) "the ideological thinking typically means putting on only one set of glasses and disregarding other points of view. Non ideological thinking means being able to live with contradictions." The non ideological consideration of the minimum wage policy has to be stressed, taking into consideration the economic, political and social aspect of this issue as well, in order to be able to contemplate the complex and often contradictory relations and implications of the policy.

When designing the minimum wage policy the first thing is to identify the goals. Although the adversaries of the minimum wage increase often use the argument of negative consequences, there is evidence that the minimum wage has no concrete practical effect (positive or negative) which indicates a limited reach of the minimum wage policy in solving problems on the labour market. When defining the problems that ought to be eliminated with the minimum wage policy, it is essential to clearly set the boundaries within which a single instrument can be effective. According to Godard (2001: 59), the decrease of poverty and inequality should be a secondary goal of the policy, while the primary goal needs to be wage fairness (reflecting in the potential value of work) and the benevolence towards the workers (the workers should be able to participate in the community with dignity). A question arising spontaneously is that of efficiency and enforceability of the minimum wage policy and whether there are alternative instruments that could complete (complementary measures) or even substitute the minimum wage policy. Several instruments, regarding both offer and demand, are mentioned in literature along with the minimum wage as having similar or equal goals, among which are the following:

- state wage subsidies or introduction of tax deductions (*WOTC or Work Opportunity Tax Credit*)
- aid programs for employers
- additional aid programs for workers
- increase of the non-taxable base for single groups of workers
- foundation of a council for the establishment of wages and training per activities
- tax programs for workers (*EITC* or *Earned Income Tax Credit*)

The state wage subsidies are intended for an increase of employment and a direct increase of wages through a decrease of the cost of work for employers. Knabe and Schöb (2008: 33) think that "a minimum wage is an inferior policy to wage subsidies. If the government is willing to spend the same amount of money directly on wage subsidies that it would otherwise have to spend indirectly to finance the cost of minimum wages through higher expenditures on unemployment and welfare benefits, it could achieve more favorable employment and income effects." In some states, like France, both measures are implemented at the same time (graphic presentation 6) but according to Knabe and Schöb it would be more efficient if the government abandoned plans to install minimum wages and focused instead on a policy to subsidize low-paid jobs directly.

Graph 6. Minimum wage and subsidizing wages



Source: Revised according to Knabe, Schöb, 2008: 27.

It is assumed that there is a decreasing demand for work (D_0) and a fixed offer of work (S_0) on the level of full employment (Q_0). The net wage that the employer pays to the worker is marked with W_0 while the minimum wage (W_{min}) is established on the level of the wage necessary for a living and marked with *b* (*subsistence income*). The full employment can be realized through the payment of wage W_1 which is below the level of the minimum wage and the subsistence minimum, while at the level of the minimum wage, there is a higher wage but no full employment, which is dropping from Q_0 to Q_1. The full employment can be realized again with the intervention of the state through subsidies marked with *s*. If there is a legal minimum wage, the state subsidy is paid directly to the employer in order to stimulate the employment effect. The curve of the demand for work moves to D_1 for the amount *s*. The expense of the employer will be at the level of W_1. Therefore, the subsidy of wages neutralizes the negative consequences of the minimum wage on employment.

Tax deductions for employers can be targeted in order to lower the cost of work for employers employing low wage workers and other vulnerable groups of workers, which would result as an additional motivation for employment. An example on the Croatian labour market is the exemption from the payment of contributions to the wage of workers employed for the first time since young workers belong to a vulnerable group of workers and are often in the lower part of wage distribution.

The aid program for employers, according to Godard (2001: 40), refers to assistance in finding and distributing information important for employers, usually those in small enterprises with serious difficulty in adjusting to the changes of the minimum wage policy. The experience and knowledge of other employers can contribute to the preparation and faster adjustment of small and medium enterprises.

Additional aid programs for workers refer to specific measures like (Employment Policies Institute, 2009) food coupons, accommodation vouchers, health insurance for needy adults and children (*Medicaid* is an example in the USA) or Temporary Aid for Needy Families. There are criteria that have to be met for the assignment of food coupons. These are mostly legal (citizenship, legal migrants, possession of a personal ID number and similar) and economic criteria (set income threshold that a household or individual do not surpass). Accommodation vouchers refer to financial help for individuals that do not have the means to pay rent. Medical care programs can also be designed for people with low wages, like Medicaid in the USA which is intended for groups including people with special needs, children, the elderly, pregnant women and poor workers. Temporary aid for families refers to finances given to families so they could reach a level of self-sufficiency and increase their active search for work. These programs exist for the most vulnerable groups of workers in order to offer direct help, which totally excludes the possibility to help the middle class of workers.

Increase of non-taxable basis for some groups of workers, i.e. the increase of the personal tax deduction. On the example of the Croatian labour market it would mean an introduction of a factor for low wage workers. According to Godard (2001: 40), this would increase the income after taxation but it would not be efficient due to the loss of state income and therefore, in the long run, less funding in the context of social policy which probably gives more benefits to poor and low wage workers than the minimum wage itself.

The foundation of a council for the establishment of wages and training per activities, as it was originally organized in the beginning of the concept of the minimum wage, relates to the decentralization of negotiation on the minimum wage and an establishment of independent bodies on the level of activities that would determine the amount of the minimum wage as well as the level of training for single groups of workers. This would result in differences of the amounts of the minimum wage but it would, before all, depend on market criteria (demand for work, changes in the preferences of the consumers, competition) and political criteria (negotiating power of the council compared to the power of the employer). There are countries in the EU that do not have a legal minimum wage but the minimum wage is rather established through the process of collective negotiation on the level of activity or even single professions. Although the idea of the foundation of individual councils for each activity that would periodically establish the amount of the minimum wage is good, there are ample possibilities of manipulation, non-transparency and increase of inequality on the labour market.

Tax programs for workers (*Earned Income Tax Credit* or *EITC*) are instruments most frequently cited in literature as the alternative to minimum wage. It is about an income tax refund for low wage families with or without children. It was primarily introduced to lower the expense of social contribution for the state so as to directly increase the income of vulnerable families. The maximum income a family can have to apply for a tax refund is established by law and it increases considering the family status, i.e. the number of children.

In the USA, EITC is categorized as a state tool in the struggle against poverty and the creation of dignified work but although it indicates a more efficient result compared to the minimum wage, it cannot substitute it completely. It is an instrument focusing on the neediest people on the labour market. Since only a small number of poor people are really permanently employed, the EITC does not eliminate the problem of poverty, nor does the minimum wage. The EITC and the minimum wage should be combined because (Economic Policy Institute, 2008: 12) "the efficiency of the EITC in increasing the income of poor workers above the poverty threshold depends on the regular increase of the minimum wage. The EITC, as well as the poverty line, keep growing throughout the years to keep the pace with growing costs of life, which is not necessarily the case of the minimum wage. However, the EITC alone cannot enable families to stay above the poverty line."

5 CONCLUSION

Although the minimum wage is not the most efficient instrument, it cannot be concluded that it is not efficient at all because there is a question of consequences of a situation in which the minimum wage would not exist. The primary goal of the minimum wage should be the protection of the most vulnerable groups of workers on the labour market by ensuring a fair wage. Although in different countries there are various combinations of the minimum wage policy and other instruments, there is no universal answer on how to best use or combine these policies. The instruments of social and fiscal policy, used as complements or substitutes of the minimum wage policy, can neutralize negative social consequences. The minimum wage policy is a policy of the labour market (employment policy, policy of a general level of wages in economy) while the problem of poverty should be in the domain of other instruments. The wages policy before all realizes economic goals like attracting foreign investments and higher economic growth rates resulting in an indirect achievement of social goals through the increase of income for workers and the strengthening of the concept of dignified work.

In the end we can conclude that it would be wise to create a combination of the minimum wage policy, the policy of social welfare and fiscal policy in order to create complementary goals like the protection of vulnerable groups of workers as well as the unemployed who are fit for work by stimulating employment, i.e. activity on the labour market.

6 BIBLIOGRAPHY

Croatian Bureau of Statistics (various issues), **Statistical Yearbook**, http://www.dzs.hr/default_e.htm [Accessed 2011-2013]

Dorman, P., (September 2010): **Confessions of s Serial Liberty-Reducer**, Real-World Economics Review Blog, http://rwer.wordpress.com/2010/09/11/confessions-of-a-serial-liberty-reducer/#more-2063 [Accessed 2nd December 2011]

Employment Policies Institute (2009): **Indexing The Minimum Wage: A Vise On Entry-Level Wages**, Washington, http://epionline.org/study/r118/ [Accessed 2nd December 2011]

Economic Policy Institute, (2008): **Epi Issue Guide. Minimum Wage**, http:/ /www.ep i.org/page/-/old/issueguides/minwage/epi_minimum_wage_issue_ guide .pdf [Accessed 10th May 2010]

Eyraud, F., Saget, C., (2005): **The Fundamentals of Minimum Wage Fixing**, Geneva: ILO.

Figart, D.M., (2004): **Introduction to Living Wages Around the Globe**. In: Figart, D.M., ed.: ***Living Wage Movements. Global Perspectives***, London: Routledge.

Godard, J., (2001): **Towards a Just and Favourable Minimum Wage: A Matter of Design?**, discussion paper submitted to the Hon. B. Barrett, Minister of Labour, Province of Manitoba. Unable to find the web page, downloaded in pdf format [Accessed 10th May 2009]

Klein, D. B., Dompe, S., (2007): **Reasons for Supporting the Minimum Wage: Asking Signatories of** "**The Raise The Minimum Wage Statement**", ***Economic Journal Watch***, Vol. 4 (1), p. 125-167.

Knabe, A., Schöb, R., (2008): **Minimum Wage Incidence: The Case for Germany**, CESIFO WORKING PAPER NO. 2432, http://www.wiwiss.fu-berlin.de/ institute /finanzen/schoeb/forschung/forschung_dateien/cesifo1_wp2432.pdf [Accessed 2nd December 2010]

Lemos, S., (2004): **Minimum Wage Policy and Employment Effects: Evidence From Brazil**, ***Economia***, 5 (1).

Nestić, D. (2010): **Croatia: Moving Towards a More Active Minimum Wage Policy**. In: Vaughan Whitehead, D., ed.: ***The Minimum Wage Revisited in the Enlarged EU***, Edward Elgar Publishing Limited, International Labour Organization, 2010.

Nestić, D., Rašić Bakarić, I., (2010): **National Report Croatia**, Prepared for the EWERC research project "Minimum wage systems and changing industrial relations in Europe" VS/2009/0159 for the European Commission, DG Employment, Social Affairs and Equal Opportunities, Institute of Economics, Zagreb.

Neumark, D., Wascher, W. L., (2008): **Minimum Wages**, United States: The MIT Press. United States.

Vaughan Whitehead, D., (2010): **Minimum Wage Revival in The Enlarged EU: Explanatory Factors And Developments**, in Vaughan Whitehead, D., ed.: ***The Minimum Wage Revisited in the Enlarged EU***, Edward Elgar Publishing Limited, International Labour Organization, p. 1-56.

7 APPENDICES

APPENDIX 1
CHARACTERISTICS OF LOW PAID WORKERS

Characteristics of uncovered workers (2000-2010, semesters)

Characteristic	00:1	00:2	01:1	01:2	02:1	02:2	03:1	03:2	04:1	04:2	05:1	05:2	06:1	06:2	07:1	07:2	08:1	08:2	09:1	09:2	10:1
Share of urban workers	21.2	27.7	20.4	15.6	15.3	17.9	16.9	10.8	10.3	10.3	14.1	10.5	16.2	19.1	14.9	15.2	14.4	15.2	13.7	17.1	13.6
Share of head of households	41.0	46.0	43.4	47.4	47.4	46.3	44.4	46.4	46.0	47.4	43.5	42.3	44.1	45.6	43.4	45.3	46.8	43.4	46.9	43.1	36.6
Share of women	53.6	52.5	53.1	48.8	48.6	51.2	52.4	51.5	55.2	56.9	55.3	58.2	52	53.4	56.6	55.5	57	60.3	58.7	57.2	57
Share of highly educated workers	-	0.4	-	-	-	0.2	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-	1
Share of young workers (20-24 years)	6.4	7.1	8.8	6.4	5.3	6.5	4.6	9.7	3.5	3.09	4.8	5.01	4.53	3.1	4.2	5.5	4.5	4.7	4.8	5.8	5.4
Share of dependent workers	28.8	25.8	24.7	17.2	14	11.9	14.7	8.7	12.3	10.53	16.32	8.98	10.92	10.4	16.9	15.4	15.7	28.7	21.5	27.4	26.1
Share of craftsmen	2.0	2.1	3.5	1.3	0.9	1.1	1.6	0.3	0.4	1.6	1.8	0.9	1.1	0.9	1.6	1.8	1.7	1.3	1.5	2.4	1.8
Share of farmers	45.3	41.4	45.4	53.6	54.9	56.9	63.3	70.0	77.3	77.6	72.9	80.1	71.6	70.1	67.4	67.3	68.6	58.9	65.2	58.9	64.5
Share of workers working on contracts (indefinite duration)	77.6	78.5	77.2	70.3	76.2	68.2	69.7	77.2	67.7	64.8	62.4	60.0	69.6	63.16	67.7	66.3	74.7	71.3	74.4	73.9	76.0
Share of workers working 40 hours per week	24.3	19.9	23.5	23.1	23.9	21.0	20.9	16.6	28.7	21.4	22.0	22.28	19.4	22.1	22.1	19.1	23.1	29.7	22.3	30.4	31.3
Share of workers working overtime	42.4	37.5	40.6	30.3	29.3	28.1	31.9	23.9	20.8	21.8	28.4	17.3	22.3	16.7	27.1	27.9	26.1	27.6	24.0	25.4	24.5
Share of workers with an extra job	2.7	2.4	1.9	1.7	1.2	1.1	2.9	6.7	1.5	1.2	2.5	3.1	2.6	2.2	2.3	2.0	2.3	2.1	1.5	2.1	2.6
Share of workers registered at Croatian Employment	9.5	11.6	10.6	11.8	14.4	16.0	17.1	3.6	12.8	10.7	11.3	14.2	13.2	14.3	17	16.6	13.3	9.7	11.1	10.5	10.0

Service																				
Share of workers willing to change their main job	24.4	26.3	21.6	23.1	23.8	26.5	25.6	36.4	21.2	24.2	24.5	21.2	22.1	18.3	24.7	22.9	18.9	16.0	18.3	19.6	17.0
Share of workers who rate their household situation poor	83.4	81.3	81.6	77.9	74.9	76.0	75.5	73.9	76.7	77.8	75.15	74.29	79.57	73.49	75.4	74.3	76.5	78.2	75.5	72.0	70.9

Characteristics of covered workers (2000-2010, semesters)

Characteristic	00:1	00:2	01:1	01:2	02:1	02:2	03:1	03:2	04:1	04:2	05:1	05:2	06:1	06:2	07:1	07:2	08:1	08:2	09:1	09:2	10:1
Share of urban workers	41.7	39.0	39.4	34.3	35.7	32.0	37.4	31.8	29.8	25.1	37.1	33.9	40.8	35.7	34.5	33.9	29.2	30.6	29.4	31.1	32.1
Share of head of households	32.4	31.9	32.1	37.3	32.0	32.0	34.3	34.9	30.1	31.8	25.5	24.5	19.5	20.7	23.5	23.5	35.6	28.0	28.7	24.7	26.4
Share of women	57.0	56.6	56.3	51.5	54.4	51.5	55.2	56.2	52.4	58.2	62.6	63.3	66.4	68.7	60.8	61.1	60.0	56.1	59.7	65.2	66.4
Share of highly educated workers	1.5	1.6	1.6	2.8	1.8	2.6	2.4	1.7	1.0	1.3	0.7	1.2	0.7	1.3	1.5	0.9	1.5	1.3	1.7	1.2	0.7
Share of young workers (20-24 years)	15.6	12.9	12.8	11.2	12.6	14.9	10.2	14.5	11.4	11.7	14.29	13.6	15.89	12.33	12.1	11.5	12.4	13.2	11.9	13.7	11.4
Share of dependent workers	80.7	80.7	80.0	74.1	74.7	71.8	71.5	68.5	71.6	71.8	92.8	86.1	87.0	80.2	79.5	79.8	76.6	80.4	76.3	92.7	92.9
Share of craftsmen	5.2	4.2	4.5	3.3	2.9	4.9	3.1	1.7	1.7	2.9	1.4	5.7	2.9	0.9	3.2	3.5	3.6	3.3	4.3	2.1	2.1
Share of farmers	5.4	6.1	9.6	13.6	15.1	14.2	18.3	22.3	20.5	19.6	3.1	4.9	6.1	7.9	12.2	10.8	12.8	10.9	15.3	3.4	2.9
Share of workers working on contracts (indefinite duration)	87.1	84.6	80.8	77.5	82.0	78.9	77.4	78.8	77.0	71.7	78.02	77.3	73.9	80.0	73.7	72.3	69.8	77.7	75.6	74.0	76.2
Share of workers working 40 hours per week	38.5	32.7	37	47.1	43.8	40.7	45.5	40.8	47.6	44.4	56.1	55.9	53.4	54.6	48.2	47.2	49.6	53.1	52.5	61.0	57.9
Share of workers working overtime	56.1	62.8	58.1	44.8	46.9	50.0	44.0	49.3	40.4	44.7	40.8	38.8	41.5	38.3	43.7	44.7	39.8	39.2	39.6	36.3	40.7
Share of workers with an extra job	5.6	2.8	5.6	4.5	5.5	1.2	3.1	6.2	4.5	3.9	4.1	6.9	3.6	5.3	2.2	1.8	2.9	3.3	4.1	5.5	4.3
Share of workers	3.1	5.5	3.3	5.8	5.2	6.1	5.2	6.2	5.5	3.5	0.3	0.4	3.2	3.5	3.0	2.8	4.2	3.5	3.6	1.5	-

registered at Croatian Employment Service																				
Share of workers willing to change their main job	25.9	24.6	23.6	27.3	29.7	29.9	28.8	33.2	28.4	26.4	25.5	21.4	23.5	26.9	19.3	20.0	18.2	14.5	18.1	18.9	16.4
Share of workers who rate their household situation poor	84.5	84.2	84.0	67.9	75.6	79.1	85.5	82.4	67.4	75.0	74.67	75.8	77.78	76.6	65.0	66.9	67.3	70.2	64.0	69.1	75.6

Characteristics of low paid workers (20-30% above the minimum wage((2000-2010, semesters)

Characteristic	00:1	00:2	01:1	01:2	02:1*	02:2	03:1	03:2	04:1	04:2	05:1	05:2	06:1	06:2	07:1	07:2	08:1	08:2	09:1	09:2	10:1
Share of urban workers	42.6	47.3	50.0	41.5	-	39.6	40.4	39.3	37.6	36.0	32.5	35.2	34.0	28.8	44.1	42.3	35.3	42.8	32.1	34.0	34.6
Share of head of households	38.2	29.6	27.3	32.6	-	29.7	29.4	29.6	28.7	29.1	28.5	27.9	24.6	28.8	24.5	22.5	29.8	30.5	31.2	29.5	30.8
Share of women	46.3	51.5	52.3	50.4	-	46.3	58.5	58.7	51.4	51.2	51.8	54.3	57.1	57.7	59.8	61.3	51.7	56.4	53.2	54.4	58.5
Share of highly educated workers	1.5	1.8	0.8	0.7	-	0.7	0.7	0.8	1.5	1.1	2.2	1.7	1.6	1.2	1.0	0.9	0.9	0.4	0.8	1.8	-
Share of young workers (20-24 years)	15.6	14.5	14.4	11.7	-	20.1	16.9	18.0	17.1	16.09	13.05	12.5	14.66	16.67	8.8	11.7	14.7	11.9	13.9	13.0	9.2
Share of dependent workers	96.3	88.2	90.8	88.2	-	87.6	90.1	86.6	79.0	80.9	75.22	71.88	92.15	93.0	96.0	96.4	88.4	93.8	95.4	94.4	96.2
Share of craftsmen	1.5	7.7	5.3	3.7	-	4.9	4.4	4.0	6.4	4.5	5.8	5.9	1.6	1.9	2.0	0.9	4.3	3.3	1.3	1.8	1.5
Share of farmers	0.7	0.6	-	1.5	-	3.9	3.7	5.3	11.2	11.1	14.4	17.1	2.6	3.8	-	0.9	5.3	2.1	2.5	2.8	-
Share of workers working on contracts (indefinite duration)	91.6	86.8	87.5	83.3	-	81.2	83.9	81.1	80.0	78.3	77.94	73.13	74.4	82.8	84.7	83.2	82.2	83.8	88.1	81.0	79.8
Share of workers working 40 hours per week	46.3	42.6	44.7	60.0	-	51.6	52.2	51.4	48.0	51.4	50.0	50.12	51.6	60.3	66.7	64.0	56.6	56.0	59.5	60.7	56.2
Share of workers working overtime	52.2	55.0	53.0	36.3	-	45.9	45.2	44.1	45.9	43.5	42.9	41.3	45.7	39.1	31.4	34.2	39.4	43.6	40.1	38.6	42.3

Share of workers with an extra job	7.4	6.5	4.5	7.4	-	3.9	3.7	4.0	4.6	3.6	4.4	4.9	3.7	7.7	4.9	7.2	3.4	3.3	3.4	4.9	3.8
Share of workers registered at Croatian Employment Service	-	1.2	0.8	1.5	-	2.8	0.7	2.0	2.5	1.1	2.7	4.6	2.6	2.6	-	-	2.1	0.4	0.4	-	-
Share of workers willing to change their main job	25.0	23.7	19.7	26.7	-	21.6	24.3	19.4	23.5	18.6	17.9	24.4	21.5	17.9	15.7	17.1	11.5	7.8	8.9	8.8	8.5
Share of workers who rate their household situation poor	71.2	76.0	83.3	88.7	-	69.0	68.8	74.3	73.2	74.3	62.02	67.54	72.34	75.56	68.0	60.0	62.3	63.5	60.8	64.3	72.5

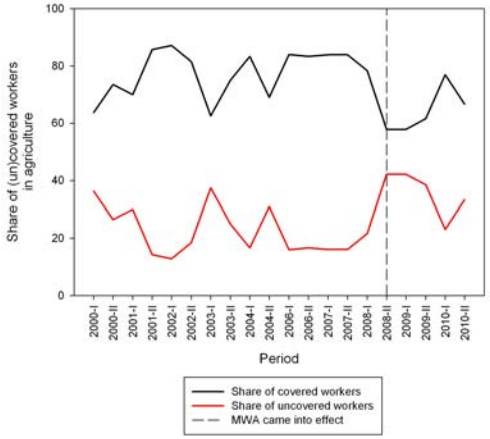
*Descriptive analysis was not conducted due to the small number of workers. However, it can be assumed that the values are stable in relation to the previous and next semester.

APPENDIX 2
ANALYSIS ON POOR WORKERS

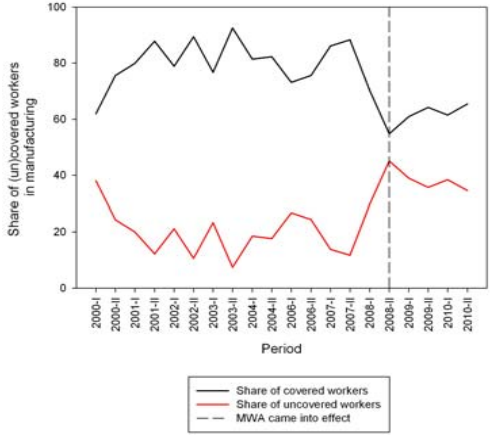
Characteristic	00:2	01:1	01:2	02:1	02:2	03:1	03:2	04:1	04:2	05:1	05:2	06:1	06:2	07:1	07:2	08:1	08:2	09:1	09:2	10:1
Share in total number of workers	14.9	14.55	16.49	15.07	13.99	12.11	10.82	15.6	16.43	14.8	13.71	12.36	10.97	10.62	9.91	12.43	11.56	10.6	9.73	9.07
Average number of working hours per week	42.64	42.54	41.98	42.06	42.31	42.18	42.39	41.8	41.98	42.06	41.92	41.76	41.77	41.98	42.04	41.54	41.49	41.72	41.67	42.03
Share of workers working overtime	65.6	57	41.1	43.5	48.2	44.3	48.1	43.6	44.1	42.7	38.9	44.6	38.9	44.7	46	39.4	38.7	38.9	35	38.1
Share of women	59.3	61.1	57.5	56.5	55.9	60.2	61.3	58.7	57.4	60.4	64	64.5	61.7	63.9	65.4	64.8	64.7	65.8	66.6	65.1
Share of highly educated workers	1.1	0.9	1.2	0.6	1.3	1.4	1.7	1	0.7	1	1.1	0.4	0.2	1.5	0.9	0.8	0.6	0.9	1	0.9
Share of teenager (15-19 years)	3	1.3	-	2	2.8	0.9	3.1	1.3	2.2	2.3	4.9	3.5	3.6	3.4	1.9	2.5	3.3	2.5	3	1.8
Share of young workers (20-24 years)	14.8	14.5	-	15.4	15.9	13.6	17.5	18.3	16.5	16.2	14.6	14.8	15.9	12.6	12.6	15	15.2	13.4	12.9	11.9
Share of older workers (above 55 years of age)	4.2	3.2	-	3.5	3	4.3	3.7	3.1	4.6	3.9	4.6	3.5	3.9	3.4	2.8	3.6	5	6.9	7.4	5.5
Average working experience	15	14	14	13	13	14	12	11	12	12	12	12	11	12	13	13	13	12	12	13
Share of workers who earn below minimum wage	23.4	21.9	12	17.9	11.5	12.9	7.6	15.5	15	23.6	12.6	27.77	11.4	18.9	16.8	28.8	66.6	54.1	52.1	54.1
Share of covered poor workers	21.86	21.23	14	5.82	9.95	8.81	6.08	7.79	9.19	7.76	8.42	17	25.93	23.82	25.95	31	22.26	24.05	21.87	22.94

APPENDIX 3
ANALYSIS OF (UN)COVERED POOR WORKERS ACCORDING TO PRODUCT ACTIVITIES

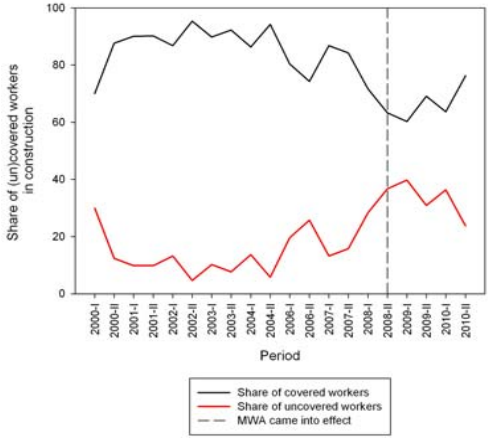
AGRICULTURE



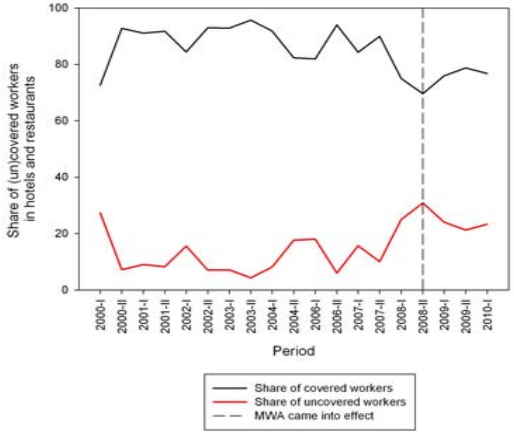
MANUFACTURING



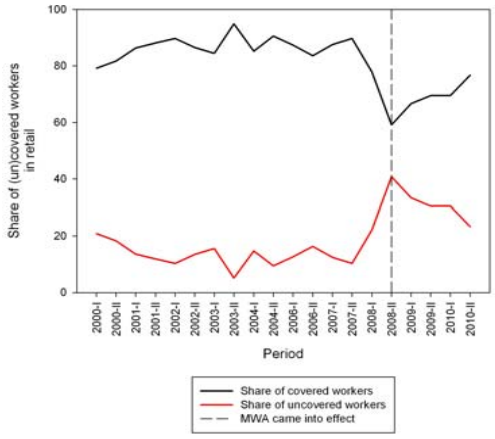
CONSTRUCTION



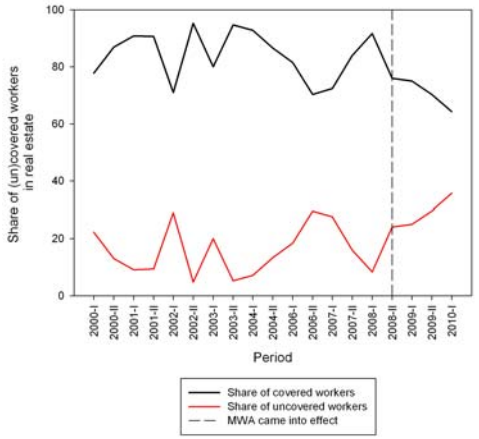
HOTELS AND RESTAURANTS



WHOLESALE AND RETAIL



REAL ESTATE



FISCAL INSTABILITY IN SLOVENIA DURING THE ECONOMIC CRISIS

Stanka Setnikar Cankar
Faculty of Administration, University of Ljubljana
Gosarjeva 5, 1000 Ljubljana, Slovenia
Phone: + 386 15 805 585; Fax: + 386 15 805 521
E-mail: stanka.setnikar-cankar@fu.uni-lj.si

Veronika Petkovšek
Faculty of Administration, University of Ljubljana
Gosarjeva 5, 1000 Ljubljana, Slovenia
Phone: + 386 15 805 476; Fax: + 386 15 805 521
E-mail: veronika.petkovsek@fu.uni-lj.si

Key words: *Economic crisis, Fiscal instability, Austerity measures, Public finance deficit, Economic growth*

ABSTRACT

The changed macroeconomic conditions brought about by the global financial and economic crisis are posing an increasing challenge to economic policymakers to achieve the objectives of the planned consolidation. The fiscal situation in Slovenia, as in other EU Member States, remains tight; the current priority is therefore to ensure the sustainability of public finances and to create conditions for stable economic growth.

Slovenia faces the challenge of reducing the public finance deficit below 3% of GDP in 2013. If it does so, it will fulfil its commitment to bring its excessive deficit under control and re-establish opportunities for financing on international markets. Long-term sustainability of public finances and stable economic growth will be ensured by economic policy measures, structural measures and institutional adjustments. If the economy is to function successfully, appropriate management frameworks are required in which the government plays a key role. Long-term economic success can be achieved with high-quality government institutions.

The objective of this paper is to show the current state of public finances and to outline the features of the austerity measures being conducted in Slovenia. The need to balance public finances in order to ensure a stable and sustainable macroeconomic environment and meet the requirements of the EU, has led to amendments to legislation in Slovenia that are radically affecting the size and structure of public expenditure. On the other hand, Slovenia is also adopting measures to promote economic activity.

1 CURRENT FISCAL AND ECONOMIC SITUATION IN SLOVENIA

The global financial and economic crisis is placing strong constraints on the Slovenian economy and the economies of most of the other EU Member States. A system of economic governance in the context of the so-called 'European semester' has been in place since 2011 aimed at strengthening fiscal discipline and introducing broader economic supervision and control. Under this scheme, Member States are obliged to follow the public finance situation more closely and to take the necessary steps to remedy the situation (Government of the Republic of Slovenia, 2012a).

Unfortunately, negative attitudes towards the state and public administration have informed the opinions and actions of the present and previous governments, with the figures showing a comparable proportion of civil servants in Slovenia and in the developed countries of the EU. The proportion of public employees in health and social care is approximately one-third lower than in other EU countries (Svetlik, 2012). Vague assessments of public administration and the public sector as generators of the crisis overlook the fact that people increasingly depend on the extent and quality of childcare services, education, healthcare and welfare, and that the crisis is having an increasing impact on public sector employees' efficiency and productivity. The possibility of reducing the number of public sector employees by 20% was introduced, without a proper analysis having been made. For example, reducing the number of ministries on the basis of an unofficial analysis, while it might be politically desirable, certainly does not guarantee that the savings made will outweigh the harm done. It is quite clear that the crisis in Slovenia was caused to a much greater extent by the extreme indebtedness of the private sector in the 2004–2008 period than by government borrowing between 2009 and 2011 (Tajnikar, 2012).

1.1 Economic growth and the public finance deficit and public debt

The sharp deterioration in the fiscal position is inhibiting economic recovery. Borrowing costs are increasing, while limited access to state financial resources is further eroding private sector borrowing conditions; this is affecting competitiveness and reducing the potential for further economic development (Government of the Republic of Slovenia, 2012a).

Slovenia saw a sharp fall in GDP of 7.8% in 2009, modest growth of 1.2% in 2010 and of 0.6% in 2011 and a fall of 2.3% in 2012 (Statistical Office of the Republic of Slovenia, 2012a). Following a significant decline in economic activity in 2009, the recovery in Slovenia was slower than the EMU and EU average. The European Commission predicted a fall in GDP for the entire Euro area in 2012 as a result of poor business and consumer confidence and of uncertainty in the financial markets. Measures to consolidate public finances are a further reason for the slowdown in economic activity. These measures will have a short-term negative impact on economic activity; on the other hand, they are essential if funding is to be restored to allow economic recovery in the years to come (Government of the Republic of Slovenia, 2012a).

Table 1. Real GDP growth rate 2007–2012 (% of GDP)

	2007	2008	2009	2010	2011	2012
Slovenia	7.0	3.4	-7.8	1.2	0.6	-2.3
EMU	3.0	0.4	-4.4	2.0	1.4	-0.6
EU-27	3.2	0.3	-4.3	2.1	1.5	-0.3

Source: Eurostat, 2013.

In 2009 and 2010 the general government deficit in the Euro area and the EU exceeded 6%. In 2011 the situation improved markedly, with the deficit in the Euro area falling to 4.5% of GDP (EU average of 4.1%). In 2012 most EU countries still formally had an excessive deficit. In 2011, 17 countries exceeded the maximum permissible limit of 3% of GDP; according to the European Commission, there should be 12 countries exceeding this limit in 2012. For most countries, including Slovenia, the European Commission has imposed a deadline of 2012 and 2013 for reducing the deficit below the limit (Institute of Macroeconomic Analysis and Development, 2012a).

Table 2. Public finance deficit (in the table as PFD) and public debt (in the table as PD) in the selected EU countries, 2007–2012 (% of GDP)

	2007		2008		2009		2010		2011		2012*	
	PFD	**PD**	**PFD**	**PD**	**PFD**	**PD**	**PFD**	**PD**	**PFD**	**PD**	**PFD**	**PD**
Slovenia	0.0	23.1	-1.9	21.9	-6.0	35.0	-5.7	38.6	-6.4	46.9	-4.3	54.7
Netherlands	0.2	45.3	0.5	58.5	-5.6	60.8	-5.1	62.9	-4.7	65.2	-4.4	70.1
France	-2.7	64.2	-3.3	68.2	-7.5	79.2	-7.1	82.3	-5.2	86.0	-4.5	90.5
Italy	-1.6	103.1	-2.7	105.7	-5.4	116.4	-4.5	119.2	-3.9	120.7	-2.0	123.5
EMU	-0.7	66.3	-2.1	70.1	-6.4	79.9	-6.2	85.6	-4.1	88.0	-3.2	91.8
EU-27	-0.9	59.0	-2.4	62.5	-6.9	74.8	-6.5	80.2	-4.5	83.0	-3.6	86.2

**European Commission estimation*

Source: Institute of Macroeconomic Analysis and Development, 2012a.

The public finance deficit increased sharply to 6.0% of GDP in Slovenia in 2009. There was no significant shift in 2010, but in 2011 the state of public finances worsened still further, with the deficit reaching 6.4% of GDP (Statistical Office of the Republic of Slovenia, 2012b). Up to 2010, Slovenia had a lower public finance deficit compared to the eurozone and EU-27 averages; in 2011, with a deficit of -6.4% of GDP, it recorded a higher deficit compared to those averages, and its deficit continued to be slightly higher than those averages in 2012. Compared to some selected EU member states, in 2009, Slovenian public finance deficit was lower than in France (-7.5% of GDP) but higher in Italy (-5.4% of GDP) and the Netherlands (-5.6% of GDP). In 2010 and 2011 the deficit fell in all the selected countries, except in Slovenia in 2011. The European Commission saw positive results in 2012 towards a reduction in the public finance deficit in all selected member states. Due to past excessive deficits that exceeded the permitted upper limit of 3% of GDP, the European Commission launched an excessive deficit procedure for Slovenia at the end of 2009, with the country being obliged to reduce the deficit below 3% of GDP by 2013 (Government of the Republic of Slovenia, 2012a).

On the other hand, Slovenia is still recording a significantly lower public debt (as a % of GDP) compared to the eurozone and EU-27 averages. In 2011 Slovenia's debt reached 46.9% of GDP and, in the third quarter of 2012, was 48.2% of GDP, which is still below the upper limit of 60% of GDP permitted under the Stability and Growth Pact. But in the 2009–2011 period, public debt in Slovenia increased relative to the eurozone and EU-27 averages. According to the selected EU member states, the public debt in these countries is increasing,

and did so throughout the whole period 2007-2011. The estimate for 2012 does not show any improvement, with public debt being predicted to increase even further in all these countries. Slovenia has much lower public debt than France, Italy and the Netherlands, which have all exceeded the permissible limit since 2009 (Institute of Macroeconomic Analysis and Development, 2012a).

2 AUSTERITY MEASURES IN SLOVENIA

Radical structural interventions and structural reforms are needed if public finances are to be sustainable. These solutions must include a rationalisation of the public sector, with structural measures to increase efficiency, and restructuring that focuses on strengthening the role of development expenditure in order to promote competitiveness and ensure long-term sustainability. In most EU countries, measures to consolidate public finances are aimed at reducing government expenditure; these mainly include changes to the way the public sector is organised, and to social security and pension transfers. Most countries have begun to streamline the public sector and to freeze or reduce employment in that sector, with several countries also reducing public sector pay. At the same time, countries are also applying measures on the revenue side, mainly by raising and introducing new taxes. Slovenia has also adopted the same or very similar measures as most other EU countries, both on the expenditure and the revenue side (Institute of Macroeconomic Analysis and Development, 2012a).

2.1 General overview of austerity measures in Slovenia

In November 2008 the Slovenian government set up a crisis team of key ministers tasked with actively tackling the financial and economic crisis. Its fundamental task was to initially develop measures to mitigate the impact of the crisis on the Slovenian economy, and then to focus on an exit strategy from the crisis and on post-crisis economic recovery. The first set of measures was adopted in December 2008, followed by a set of measures in February 2009. Public sector measures consisted mainly of the reconstruction of public infrastructure and the construction of broadband for public institutions. Austerity measures in the public sector covered wage costs, organisational and staff-related measures, and measures to reduce the costs of material and technology for the functioning of state and public administration bodies (Government Office for Development and European Affairs, 2012).

In March 2012 Slovenia adopted a package of proposed austerity measures to balance the public finances. These were measures relating to internal savings in the public sector, as well as various programmes and policies. The proposed internal savings measures included organisational measures to streamline costs, along with other rationalisation measures. The proposed public sector measures included adjustments to the functioning of the public sector and adjustments in civil servants' salaries. The proposed measures relating to programmes and policies covered investment, subsidies and programmes, labour market policy and social security policy. Through organisational measures, the government sought to optimise public spending. The measures included the abolition of certain government bodies and the transfer and redistribution of tasks to existing government bodies. Through rationalisation, the government aimed to merge and transform a number of public institutions, as well as reduce budget funding (Government of the Republic of Slovenia, 2012a).

One of the main segments of the public sector austerity measures is the rationalisation of costs; therefore, the Slovenian government began to consolidate the expenditure side of the budget in 2012, which partly addressed the costs of the public sector. The government

identified those items which would reduce expenditure. The measures would reduce transport costs, phase out some types of education, and reduce the price-technical standards for medical devices. In addition, agricultural policy would be rationalised and transfers to municipalities and income for investment reduced. These measures prevent or reduce the costs of operations that involve public expenditure. With these measures the government aims to tighten the criteria for the allocation of company vehicles, prevent the establishment of new organisational units, transfer and merge public sector functions, cut allowances to members of parliament and reduce the size of consular offices, among other things. In addition, adjustments to the public sector could also be included in public sector rationalisation, as the public sector failed to adjust to the requirements of society in the past. Due to the inflexibility of the system, the government prepared a set of adjustments to allow for the best possible performance. These adjustments involved, for example, changes to standards and norms in education, a reduction in the number of committees, and a reduction in the number of public contracts (Balancing of Public Finances Act, 2012).

2.2 Cost-saving measures in Slovenia

The need to balance public finances in order to ensure stable and sustainable macroeconomic environment and to meet the requirements of the European Union has led to changes in the legislation affecting the first radical reduction in the size and structure of public spending; these are requirements which many other EU Member States have already met. In May 2012, at the proposal of the Slovenian government, the National Assembly adopted the Balancing of Public Finances Act (hereinafter: the Act), which aims to achieve the following objectives: ensure sustainable public finances, provide a legal framework for the effective management of public finances, ensure macroeconomic stability, provide for the sustainable and stable development of the national economy, and establish rules for greater fiscal discipline. The Act follows the principles of prudent use of resources and the achievement of maximum impact in the implementation of certain tasks using minimum resources. One general solution introduced by the Act is a reduction in public expenditure, with measures to reduce expenditure covering all areas (Balancing of Public Finances Act, 2012).

The following sections will describe the measures taken in relation to civil servants, welfare, pensioners, the labour market, taxes and the promotion of economic growth.

2.2.1 Cost-saving measures in relation to civil servants

Under the relevant legislation, the government has made much larger cuts to the salaries and other benefits of civil servants. The basic salaries of civil servants were progressively reduced by 8% and the protected salary was abolished. Performance-related pay for increased workload in 2012 and 2013 shall not exceed 20% of the basic salary. The Act also restricts promotion to a higher pay grade and more senior job title (Balancing of Public Finances Act, 2012).

The Act determined the payment of the salary bonus for 2012 and a reduction in the bonus in 2013; it also set a reduction in the travel expenses (only those who live more than two kilometres from their place of work are entitled to a reimbursement of travel expenses). The Act also reduces expenses for meals, long-service awards, social assistance, severance pay and mileage, etc. It also reduces daily subsistence allowances and limits the duration of service contracts. A maximum number of days of annual leave is also determined (Balancing of Public Finances Act, 2012).

The accepted measures relating to salaries and other benefits in the public sector will contribute to the long-term sustainability of public finances. If the 3% deficit limit was to be achieved, an intervention in wages and other employee benefits in the public sector could not be avoided, as the total wage bill in the public sector amounts to EUR 4.1 billion. The total wage bill in the public sector has also increased during the period of implementation of the intervention measures, demonstrating that this intervention was necessary. In addition to measures affecting the salaries of civil servants, the government has also had to take measures to change conditions and reduce a number of work-related and other benefits in order to bring down the budget deficit and establish greater sustainability of public finances. This should also help to achieve the objective of standardising work-related and other receipts from employment, which have so far been arranged differently for different entities (Government of the Republic of Slovenia, 2012a).

2.2.2 Cost-saving measures in the fields of welfare, pensioners and the labour market

Wages and social transfers represent over half of all state expenditure. The increase in unemployment, lower wages and a lack of liquidity, as well as the current method of adjusting pensions, have given rise to additional transfers from the state budget to the pension fund. The Act sets out to reduce the period of receipt of unemployment benefit for recipients who are over 50 years old and those who are over 55 years old and who have an insurance period of 25 years. The percentage of the baseline from which the benefit amount is determined is to be reduced to 70% of the baseline in the first two months and 60% of the baseline in the third month, with the maximum amount of benefit also being reduced. The Act also abolishes sick leave for benefit recipients. Pension and disability insurance measures provide for the harmonisation of pensions and other pension and disability insurance benefits in such a way that, by the end of 2014, pensions and other benefits will no longer be indexed and pension supplements will be temporarily reduced (Government of the Republic of Slovenia, 2012a).

In addition to the austerity measures of unemployment, consideration also needs to be given to employment policy measures related to the needs of the economy. Measures will focus on the development of the concept of 'flexicurity', which will give companies the opportunity to adapt to market conditions more effectively. There are various measures and incentives which are designed to promote the formation and development of jobs that are adapted to the needs of the elderly, are harmless to health and contribute to sustainable development. The focus will therefore be on the implementation of measures to support a healthy lifestyle and enhance health and safety at work with a view to encouraging longer periods of employment. All types of employment should be promoted, with a particular emphasis on a change from more flexible employment to permanent employment. Attention will also be given to renewed active employment policy measures, with the aim of reducing the fragmentation of programmes and strengthening the concept of corporate social responsibility. In this context, the government is seeking to rationalise procedures for the inclusion of unemployed persons and to monitor the effectiveness of individual programmes, as well as programmes to help the long-term unemployed (Government of the Republic of Slovenia, 2012b; Government of the Republic of Slovenia, 2012c).

2.2.3 Measures in the field of taxes and the promotion of economic growth

There are tax relief measures for companies to promote economic activity and growth. Tax relief will be focused chiefly on measures to promote the formation of new businesses and jobs, investments in funds, and investment in knowledge and development (Government of the Republic of Slovenia, 2012c; Government of the Republic of Slovenia, 2012d).

In addition to the austerity measures adopted in various fields, solutions designed to increase state revenues from taxes which have no direct negative impact on the competitiveness of the Slovenian economy must also be enforced. The Act introduces an anti-crisis tax on real estate of higher value, to be paid by companies and individuals in Slovenia who own real estate worth over one million euros. Tax will be valid till the end of 2014. The Act also introduces a tax on profits generated by a change in land use (imposed upon the sale of land), an additional tax on vessels and an additional tax on motor vehicles. The Act also introduces an additional fourth income tax class for 2013 and 2014 and raises the rate of taxation on all income from capital from 20 to 25% (Government of the Republic of Slovenia, 2012e).

3 THE ROLE OF PUBLIC ADMINISTRATION IN PROMOTING ECONOMIC ACTIVITY

Economic performance requires the appropriate management frameworks. The government plays a series of significant roles, as legislator, owner and entrepreneur, customer, promoter, facilitator and revenue manager, and requires an international representative. Public administration therefore plays an important role in providing frameworks and conditions for the functioning of the economy. Long-term economic success can be achieved with high-quality government institutions. The competitiveness of a country depends largely on the competitiveness of its economy, and companies are able to compete only if their business environment enables development and growth (Petkovšek, 2012).

Public administration must build such an institutional framework to ensure that tasks are performed efficiently. The institutions provide a legal and administrative framework within which individuals, businesses and governments generate income and wealth in the economy. The quality of institutions has a significant impact on competitiveness and economic growth through its effect on investment decisions and the organisation of production. The role of public institutions is, in this respect, given the greatest weight (Petkovšek, 2012). At a time of economic crisis, in particular, and in order to aid recovery, government institutions play a crucial role, as the appropriate institutional environment will lead to a better business environment, which is vital for the operation of businesses, for domestic and foreign investments, and for the creation of economic activity.

The institutional competitiveness of Slovenia has fallen in recent years. The fall in Slovenia's institutional competitiveness in the post-crisis period is largely due to the delay in institutional changes to adapt to global challenges, a lack of enforcement of adopted regulations, and deterioration in social relations and values. For example, the WEF economic survey results show a strong dissatisfaction with the functioning of institutions, particularly government and the central bank, and also with the poor implementation of government decisions and an increase in bureaucracy and corruption. Political uncertainty and low confidence in institutions have had a major effect on the results of a number of key structural reforms rejected in popular referendums. People are acknowledging the urgency of measures to consolidate public finances; at the same time, they do not believe the government is able to take appropriate and fair measures (Institute of Macroeconomic Analysis and Development, 2012b).

The measures that have been adopted in relation to employment, salaries and other benefits in the public sector will contribute to the long-term sustainability of public finances. If the 3% deficit limit is to be achieved, an intervention in employment, salaries and other employee benefits in the public sector cannot be avoided. But, also the fact that public sector also generates GDP and has a significant impact on aggregate demand, must be taken into

consideration. Most of the measures adopted to restore public finances have had a negative impact on changes in the volume of demand. The austerity measures adopted have resulted in a decrease in government spending, which has affected demand in the market of goods and services. The cuts have reduced state demand which has had a negative impact on economic activity in the private and public sectors and this has led to a major fall in GDP.

Data for Slovenia for 2012 show a decline in total domestic consumption, a reduction in average wages, particularly in the field of education and healthcare, a decline in government revenues, shrinking industrial production, a growth in living costs, and a fall in loans to domestic enterprises and households. Several promising shifts in demand were seen in January 2013. Even more worrying is the fact that unemployment is growing. When government adopts radical austerity measures or increase the competitiveness of the economy, more and more people remain jobless. Labour demand depends primarily on economic activity and an employment system. Unemployment is primarily structural. This cannot be reduced by means of lower wages, lower prices of goods and services, and greater labour market flexibility (Bole, Mencinger, Štiblar & Volčjak, 2013). The measures adopted to restore public finances are defined as a necessary first step – one which needs to be followed by measures to create jobs and employment opportunities for the unemployed and first-time jobseekers.

4 CONCLUSION

Slovenia has responded to the global financial and economic crisis with measures on the expenditure and revenue sides. The goal of the measures is to consolidate public finances and ensure sustainable economic growth.

Slovenia's deficit still exceeds the 3% of GDP allowed by the Stability and Growth Pact. Measures to consolidate public finances aim to reduce expenditure, mainly by rationalising the public sector, placing restrictions on recruitment, and making interventions in wages and social transfers. Short-term austerity measures are a necessary step to reduce the deficit below 3% of GDP. At the same time, it should be pointed out that the measures in this regard do not provide for a sustained reduction in the government deficit, as they can, in certain segments, lead to a deterioration in the quality of public services in the medium term.

Radical structural interventions are needed if public finances are to be sustainable. These solutions need to include a further rationalisation of the public sector, with structural measures to increase efficiency and restructuring that focuses on strengthening the promotion of competition and ensures the long-term sustainability of social security systems. The challenge remains to create a sustainable solution in terms of employment in the public sector which, with a combination of more flexible employment and wage policies, allows for a more stimulating environment for employees and employee efficiency (Institute of Macroeconomic Analysis and Development, 2012a). Active employment policy measures and measures to promote economic growth could, together with measures to balance public finances, lead the country out of the fiscal and economic crisis. Measures to encourage enterprise and attract investment are also vital for the promotion of economic activity.

The crucial question relates to the efficiency and productivity which affect the relationship between the investments and the generated GDP. This added value is a measure of competitiveness, which is increasingly dependent on services and the public sector. Since the indebtedness of the private sector (resulting in the difficult situation faced by the financial

sector) is a major problem in Slovenia, the abolition of imbalances in the state budget will be a political project with a limited positive impact on the economy.

5 BIBLIOGRAPHY

Balancing of Public Finances Act (Zakon za uravnoteženje javnih financ), (2012): ***Official Gazette of the Republic of Slovenia***, No. 40/2012. http://www.vlada.si/filead min/dokumenti/si/projekti/2012/varcevalni_ukrepi/ZUJF_precisceno.pdf.

Eurostat, (2013): ***Real GDP growth rate***. http://epp.eurostat.ec.europa.eu/tgm/ table. do?tab=table&init=1&plugin=1&language=en&pcode=tec00115.

Government of the Republic of Slovenia, (2012a): ***Draft Balancing of Public Finances Act (Predlog zakona za uravnoteženje javnih financ)***. Ljubljana: Government of the Republic of Slovenia.

Government of the Republic of Slovenia, (2012b): ***Labour Market and Employment (Trg dela in zaposlovanje)***. http://www.vlada.si/si/teme_in_projekti/socialni_sporazum/ trg_dela_in_zaposlovanje/.

Government of the Republic of Slovenia, (2012c): ***The Base for Social Agreement 2012–2017 (Izhodišča za socialni sporazum 2012–2017)***. Ljubljana: Government of the Republic of Slovenia.

Government of the Republic of Slovenia, (2012d): ***Sustainable Economic Development (Trajnostno naravnan gospodarski razvoj)***. http://www.vlada.si/si/teme_in_projekti/ socialni_sporazum/trajnostno_naravnan_gospodarski_razvoj/.

Government of the Republic of Slovenia, (2012e): ***The Increase of Revenues to the State Budget (Povečanje prihodkov v državni proračun)***. http://www.vlada.si/si/teme_in_ projekti/varcevanje/davki/.

Government Office for Development and European Affairs, (2012): ***The Measures of the Government of the Republic of Slovenia in Response to the Financial and Economic crisis (Ukrepi Vlade Republike Slovenije proti finančni in gospodarski krizi)***. http://www.svrez.gov.si/si/teme_in_projekti/izhod_iz_krize/aktivno_proti_ financni_in_gospodarski_krizi/ukrepi_vlade_republike_slovenije_proti_financni_in_ gospodarski_krizi/.

Institute of Macroeconomic Analysis and Development, (2012a): Economic ***Issues. Fiscal Developments and Fiscal Policy (Ekonomski izzivi 2012. Fiskalna gibanja in politika)***. Ljubljana: Institute of Macroeconomic Analysis and Development.

Institute of Macroeconomic Analysis and Development , (2012b): ***Development Report 2012 (Poročilo o razvoju 2012)***. Ljubljana: Institute of Macroeconomic Analysis and Development.

Petkovšek, V., (2012): ***Primerjalna analiza vpliva javne uprave na konkurenčnost gopodarstev Slovenije, Avstrije in Italije s poudarkom na čezmejnem sodelovanju***. Master's thesis. Ljubljana: Faculty of Economics.

Statistical Office of the Republic of Slovenia, (2012a): ***Gross domestic product, annual data***. http://www.stat.si/eng/tema_ekonomsko_nacionalni_bdp1.asp.

Statistical Office of the Republic of Slovenia, (2012b): ***General government account and EDP***. http://www.stat.si/eng/tema_ekonomsko_nacionalni_racunidrzave.asp.

Svetlik, I. (2012): ***Država kot skopuška mačeha in nepotrebno breme***, Delo, July 7, 2012, pp. 8–9.

Tajnikar, M., (2012): ***Nas s politikami varčevanja gospa Merklova vleče za nos?*** Delo, July 7, 2012, pp. 12–13.

MODELING ECONOMIC CONSEQUENCES OF CLIMATE CHANGE IMPACTS ON GROUND TRANSPORTATION IN ATLANTIC CANADA

Yuri Yevdokimov
University of New Brunswick, Department of Economics
7 MacAulay Lane, Fredericton, NB, Canada E3B 5A3
Phone: + 1 506 447 32 21; Fax: +1 506 453 45 14
E-mail: yuri@unb.ca

Key words: *Transportation, climate change impacts, general equilibrium model, econometric estimation, computer simulation*

ABSTRACT

Transportation is one of the most important sectors of Atlantic Canada's economy. In a sense it is a backbone of the regional economy since it provides means for moving people and freight throughout the region and eventually stimulates regional economic growth and development through national and international trade. However, according to numerous studies, the region is vulnerable to climate change impacts which among other things will affect transportation infrastructure and operations.

In this study, climate change impacts are analyzed with respect to the New Brunswick/Nova Scotia Transport Corridor (NB/NS TC) located in Atlantic Canada – the main trade gateway in the region that connects seaports with the North American continent. First, major climate change impacts in the area are identified. Second, the best economic model to evaluate consequences of the climate change impacts is chosen. Third, using the existing literature and studies that describe future climate changes in the region, various scenarios of future challenges for the NB/NS TC are specified. Finally, economic consequences of the regional climate change impacts on the NB/NS TC are evaluated. The above specified consequences are imposed on a dynamic economic model and their cumulative impacts are traced over time.

1 ANALYSIS OF THE CLIMATE CHANGE STUDIES IN THE AREA

The predominant concern amongst researchers regarding climate change impacts in the area of the New Brunswick/Nova Scotia Transport Corridor (NB/NS TC) appears to be the effects and consequences of rising water levels due to sea level rise, flooding, and storm surges. In 2011, T.Webster, McGuigan, and C.Webster, performed high water mapping using GPS technology across Prince Edward Island (PEI). The areas that the study identified as "at risk" included the areas associated with the NB/NS TC.

Richards and Daigle (2011) investigated sea level rise (SLR) in Nova Scotia and PEI municipalities of Atlantic Canada. As is duly noted in the report, Atlantic Canada has witnessed extreme cases of coastal flooding, including the increased frequency of these events over the last decade. Using historical climate data to link past and future periods, parameters were established from the Canadian Hydrographic Service (CHS) at key tide prediction sites. Furthermore, estimates of global sea-level rise were extracted from Rahmstorf (2007) to compliment local trends in Halifax and Charlottetown. The trends indicate that in these municipalities, sea levels are rising and will continue to follow the global trend.

Greenberg et al. (2012) predicted global warming to result in a rise in sea level that will lead to increased risk of flooding in the Bay of Fundy. They indicate that two other factors will affect high water: existing trends in mean sea level and changing tides. It is demonstrated that the Bay of Fundy and the Gulf of Maine located in Atlantic Canada share a relationship in their effect on one another. After analyzing long-term sea level records, independent of global warming related to climate change, sea level and tidal range have been increasing in this system. After performing a numerical model investigation, it is apparent that recent changes in sea level are giving rise to increasing tides. The combined effects of modern SLR, global warming induced SLR, and the expanded tidal range they induce, are deemed to produce a significant increase in the high water level. The study concludes with expectations of a dramatic increase in the risk of flooding at elevated high water levels in this region during the twenty-first century.

The Tantramar region associated with the NB/NS TC is particularly vulnerable to climate change impacts (Lieske and Bornemann, 2011). SLR caused by climate change, and combined with increasing storm frequency and intensity, is projected to affect the low-lying area of the Tantramar dykelands. Lieske and Bornemann expect increased water depth will damage the assets within the flood zone. According to current estimates for a 1:10 year flood cycle, such floods will affect 1,049 parcels of land and 156 buildings. In addition, flooding of major and secondary highways will be rendered impassable, the sewage lagoon will be flooded, and agricultural lands will be submerged.

Another case study was performed on the Tantramar region by Wilson et al. (2012), which forecasted the economic damage from storm surge flooding. According to this study, it is expected over the next 100 years that the total present value of expected annual damages will be $59.3 million if future predictions of the climate occur as forecasted. Conversely, in the absence of future climate change, the present value of costs would be $48.6 million. Thus an expected 22% increase in damages from future climate change-induced SLR results.

Daigle (2012) focuses on SLR and flooding estimates on the coasts of New Brunswick in his report. He remarks that the coasts of Atlantic Canada have significant sensitivity to SLR and associated storm impacts. According to the study, areas that contain the highest sensitivity include the NB/NS TC.

To supplement Daigle's findings, the report produced by Turkken, El-Jabi, and Caissie (2011) discusses floods under different climate change scenarios in New Brunswick. They found the increase in high flows for low return floods was generally greater than higher return floods. The increase in low return floods was found to be approximately 30% and approximately 15% for higher return floods, depending on the scenario and time interval. Low flows exhibited increases of approximately 10% for low return droughts and approximately 20% for higher return droughts.

Changes in precipitation and temperature were also taken into account in our review of the latest available literature on climate change in Atlantic Canada. For example, various climate change scenarios were investigated in Nova Scotia and PEI by Richards and Daigle (2011).

They state that the consensus is that warmer climates are predicted to experience an increase in precipitation intensity, due to the relationship between saturated water vapour pressure and temperature. Regarding precipitation in the area of the NB/NS TC, Turkkan, El-Jabi and Caissie project the mean annual precipitation to increase by 9-12% in the future, compared to current conditions (2011).

Richards and Daigle use scatter-plots to make observations of the temperature in Nova Scotia and PEI (2011) in Atlantic Canada. All their models indicate an increase in future temperature as the magnitude of the temperature increase increases with progression of time.

The model they constructed implies a warmer and wetter future climate in the region. To corroborate these findings, Turkkan, El-Jabi, and Caissie predict for the period 2010-2100, average temperatures are projected to increase between 4.7°C and 4.8°C for the sites in New Brunswick (2011).

2 METHODOLOGY

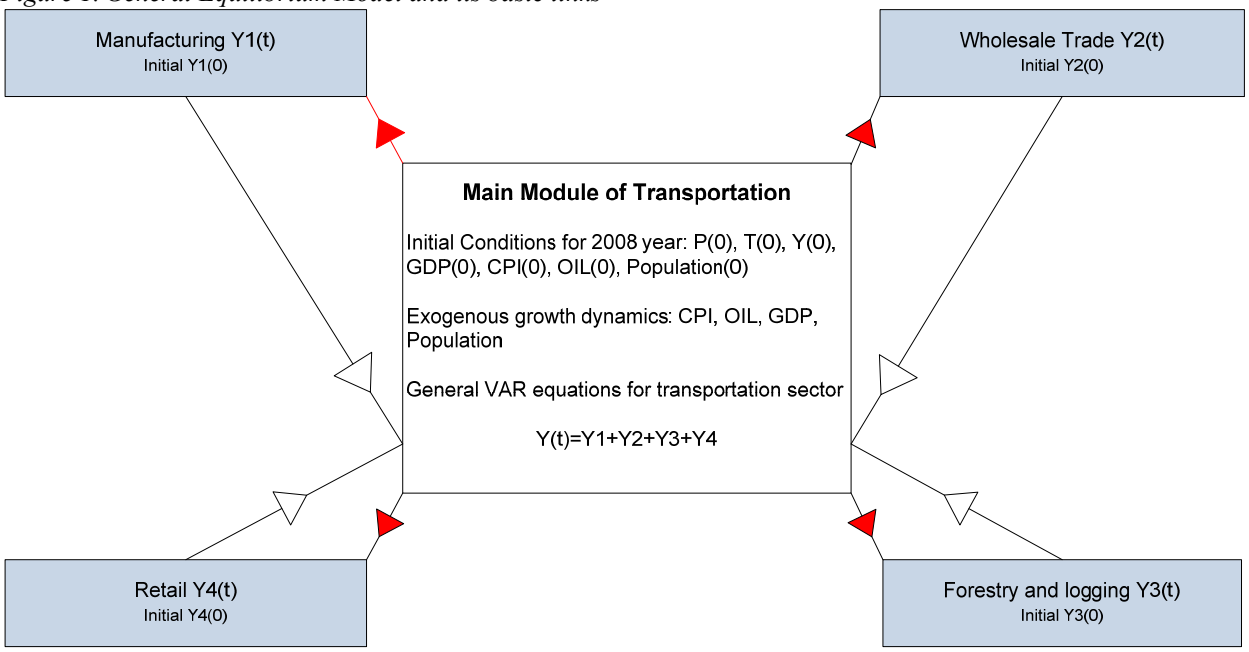
2.1 Choice of appropriate model

Based on our analysis of economic models used for estimation of the climate change impacts, General Equilibrium Model (GEM) appears to be the best in our case. Since climate change impacts have their own dynamics compared to traditional one-time exogenous shocks, GEM was constructed as a dynamic model with dynamic shocks to deal with the climate change issues.

There are some examples of application of GEM to climate change impacts in the literature such as the Dynamic Integrated Climate and Economy (DICE) model or Regional Integrated Climate and Economy (RICE) model.

The basic logic behind our model is presented below:

Figure 1. General Equilibrium Model and its basic links



Source: Author

Inputs of the model are: Initial values of transportation price P(0), volume of transportation T(0), sum of overall value added by four regional sectors Y(0), oil price OIL(0), overall price level CPI(0), provincial Gross Domestic Product GDP(0) and population, Population(0) were given by their actual values in 2008. Dynamics of CPI, OIL, GDP and Population was given exogenously as explained later.

Computer realization of the model was done in C programming language. Our C-program includes recursive algorithm that starts with Main Module of Transportation. This Module captures dynamics in the form of Vector Autoregression (VAR) equations, exogenous variables dynamics and climate shocks imposed on VAR. The Module then sends values of transportation price and volume of transportation to other four Modules associated with four regional sectors: Manufacturing, Wholesale Trade, Forestry and Logging, Retail – the largest consumers of transportation in the area. Each of these four sectors is described by its own demand for transportation equation estimated separately. As a result of these four modules, the value added by each sector is calculated and returned to the Main Module. This procedure is then repeated over various time periods.Time paths of the volume of transportation and price of transportation for years 2013-2100 are fundamental outcomes of our dynamic GEM.

2.2 Econometric estimation of the GEM elements

Vector Autoregression or VAR is a statistical model used to capture linear interdependencies among multiple time series. These interdependent time series are treated as endogenous variables. VAR also allows a set of exogenous variables. In our VAR model, volume of transportation TRAFFIC_VOLUME and price of transportation CPI_TRANS in logarithms are our two interdependent time series. In fact, in our case VAR specification of the model is a reduced form of the demand-supply for transportation system. Therefore, the following exogenous variables were included into VAR: overall price level CPI; value added by four sectors chosen before 4SEC_VALUE, oil price OIL_PRICE and population POPULATION. All variables are in logarithms.

Then we estimated our VAR using data obtained for New Brunswick and Nova Scotia provinces and NB/NS TC within 1991-2011 years. VAR estimation was done in EVIEWS 7. The following results were obtained:

LOG_CPI_TRANS = 0.729721832396*LOG_CPI_TRANS(-1) +
0.0864749971496*LOG_TRAFFIC_VOLUME(-1) - 1.24262038745 +
0.0013539231051*LOG_CPI + 0.141154179292*LOG_4SECT_VALUE(-1) +
0.0354046243147*LOG_OIL_PRICE - 0.0153339709068*LOG_POPULATION
LOG_TRAFFIC_VOLUME = - 0.010684593886*LOG_CPI_TRANS(-1) +
0.317155070662*LOG_TRAFFIC_VOLUME(-1) + 8.10684897922 +
0.717366768962*LOG_CPI - 0.0687902457276*LOG_4SECT_VALUE(-1) -
0.101681264474*LOG_OIL_PRICE + 0.00858059027492*LOG_POPULATION
Dynamics of the model was captured rather well with R^2-adjusted around 98%. All variables are significant at 95 % significance level. In addition, demand for transportation functions by four regional sectors – largest consumers of transportation defined above - were estimated using Seemingly Unrelated Regression (SUR) model. SUR model was chosen because it allows error terms to be correlated amongst equations. Below the results of the estimation are presented:

$$\ln(rtrade_t) = -1.9819 + 0.1185\ln(rtrade_{t-1}) - 0.3053\ln(cpi\_trans_t) + 0.1565\ln(cpi_t)$$
$$+1.5813\ln(GDP_t) - 0.4982\ln(pop_t)$$
$$\ln(foresty_t) = 41.4908 + 0.3338\ln(foresty_{t-1}) - 0.3826\ln(cpi\_trans_t) + 0.1458\ln(cpi_t)$$
$$-0.9378\ln(GDP_t) - 2.0236\ln(pop_t)$$
$$\ln(wsale_t) = -1.1252 + 0.5606\ln(wsale_{t-1}) - 0.4317\ln(cpi\_trans_t) + 0.4602\ln(cpi_t)$$
$$+0.2536\ln(GDP_t) + 0.1080\ln(pop_t)$$
$$\ln(mfac_t) = 8.8910 + 0.3504\ln(mfac_{t-1}) - 0.8504\ln(cpi\_trans_t) + 0.8464\ln(cpi_t)$$
$$-0.4931\ln(GDP_t) + 0.0817\ln(pop_t)$$

where *rtrade, forestry, wsale* and *mfac* are the values added by retail trade, forestry, wholesale trade and manufacturing respectively, *cpi_trans* is the price of transportation, *cpi* is the overall price level, *GDP* is gross domestic product in New Brunswick and Nova Scotia, *pop* is population in these provinces. Again all variables are significant at 95% significance level.

3 RESULTS OF COMPUTER SIMULATION

Simulated time paths of the volume of transportation with climate change impacts for years 2013-2100 are compared to the time path of the volume of transportation in the area without climate change impacts. The difference between the time paths provides information for the evaluation of the loss of value added due to climate change impacts in the area.

Three different scenarios were analyzed:

Base case scenario: Basic assumptions associated with this scenario are
Inflation = 2%
Economic growth = 2.5%
Population growth = 0.5%
Oil price growth = 3%
These assumptions give rise to the exogenous variables dynamics.

This scenario is based on the existing macroeconomic situation and expectations of future developments in the Canadian economy. Based on our dynamic general equilibrium model (GEM) time paths for the price and volume of transportation in the NB/NS TC have been generated according to the existing situation.

High oil price scenario: This scenario is associated with the following assumptions
Inflation = 2%
Economic growth = 2.5%
Population growth = 0.5%
Oil price growth = 5%

Economic slowdown scenario: This scenario is associated with the following assumptions:
Inflation = 2%
Economic growth = 1.0%
Population growth = 0.5%
Oil price growth = 5%

This scenario models a slowdown in the economy from 2.5% economic growth to just 1%. As a result, the price of transportation decreases which increases demand for transportation and consequently volume of transportation over time. Lower price generates higher economic activity in the transportation sector, which eventually increases loss of value added due to climate change impacts compared to scenario 1

First of all, cumulative nature of climate change impacts was evaluated. It was detected that there is a 52% increase in the loss of value added that occurs in the first 11 years from the time of the first shock compared to static evaluation of the shock. After that dynamic system stabilizes at new steady state.

Based on our simulations, it is possible to make the following conclusions:

- Climate change impacts that affect NB/NS TC via increased flooding, frequency of extreme weather events and worsening of general weather conditions cause loss in value added by transportation by approximately $1.078 million per year in today's dollars with standard deviation of approximately $0.2 million. It means that maximum loss can be as high as $1.278 million and as low as $0.878 million per year

- Dynamic properties of our model suggest that it is necessary to invest in mitigation measures in the first 11 years with minimum of $11.858 million and maximum of $20.235 million. Minimum is associated with favorable economic scenario of economic growth of 2.5% and higher, moderate oil price increase of 3% per year and approximately 1.5% loss in volume of transportation due to climate change impacts. Maximum is associated with lower that 2.5% economic growth, an increase in oil prices by more than 5% per year and higher than 1.5% loss in volume of transportation due to climate change impacts.

- If other consequences of the climate change impacts such as loss of asset value, loss of travel time and an increase in number of accidents in the area are taken into account, the overall annual loss can reach $11.881 million per year in today's dollars.

4 BIBLIOGRAPHY

Daigle, R., (2012), **Sea-Level Rise and Flooding Estimates for New Brunswick Coastal Sections,** A report for the Atlantic Climate Adaption Solutions Association

Enders, W., (2010): **Applied econometric time series**, Third edition, John Wiley & Sons

Greenburg, D. A., Blanchard, W., Smith, B., Barrow, E., (2012): **Climate Change, Mean Sea Level and High Tides in the Bay of Fundy,** ***Atmosphere-Ocean*****,** 50(3), 261-276

Lieske, D. J., Bornemann, J., (2011), **Coastal Dykelands in the Tantramar Area: Impacts of Climate Change on Dyke Erosion and Flood Risk,** A report for the Atlantic Climate Adaption Solutions Association

Rahmstorf, S., (2007): **A Semi-Empirical Approach to Projecting Future Sea Level Rise,** ***Science***, 315-368

Richards, W., Daigle, R., (2011), **Scenarios and Guidance for Adaption to Climate Change and Sea-Level Rise – NS and PEI Municipalities**, A report for the Atlantic Climate Adaption Solutions Association

Turkkan, N., El-Jabi, N., and Caissie, D., (2011): **Floods and Droughts Under Different Climate Change Scenarios in New Brunswick.** ***Canadian Technical Report of Fisheries and Aquatic Sciences***, 2928(12), 55

Webster, T., McGuigan, K., MacDonald, C., (2011), **Lidar Processing and Flood Risk Mapping for Coastal Areas in the District of Lunenburg, Town and District Yarmouth, Amherst, Count Cumberland, Wolfville and Windsor,** A report for the Atlantic Climate Adaption Solutions Association

Wilson, J., Trenholm, R., Bornemann, J., Lieske, D., (2012), **Forecasting Economic Damages from Storm Surge Flooding: A Case Study in the Tantramar Region of New Brunswick**, A report for the Atlantic Climate Adaption Solutions Association

II

CITIES AND REGIONS

QUALITY, CHEATING AND WORD-OF-MOUTH

Slađana Pavlinović
University of Split, Faculty of Economics
Cvite Fiskovića 5, 21000 Split, Croatia
Phone: + 385 21 430 729; Fax: + 385 21 430 701
E-mail: sladjana.pavlinovic@efst.hr

Key words: *Word-of-mouth, Replicator dynamics, Quality, Cheating*

ABSTRACT

We apply evolutionary game theory with the replicator dynamics to study the interrelation between the consumer communication on the one hand, and the producer quality choice and its disclosure to the consumers on the other. There is an information asymmetry because the consumers usually do not observe the exact quality before the purchase, but they know the expected quality. Heterogeneous producers do not interact directly, but they affect the payoffs of each other through the market price. We find an interior evolutionary unstable fraction of the high-quality producers, which divides the basins of attraction of two exterior evolutionary stable states, one with high-quality producers only, and the other with low-quality producers only. Larger consumer communication increases the fraction of the initial states which converge to the high-quality equilibrium. An increase in the fraction of the dishonest producers has the opposite effect. A population where both honest and dishonest producers co-exist is evolutionary stable, while homogeneous populations with exclusively honest or dishonest producers are unstable. The reason is that an increase in the fraction of dishonest producers decreases 'the reputation', and consequently the price, of the high-quality good, which decreases the payoff of the dishonest producer. However, consumer communication and the increase in the low quality may decrease, while an increase in the high quality and in the share of the high-quality producers increases the evolutionary stable fraction of the dishonest producers.

1 INTRODUCTION

The scope of this paper is the interrelation between the consumer communication and the trade of experience goods. Those are goods which quality is known by the producers, but not by the consumers prior to their purchase (for example, services, innovations and imported goods). The trade of such goods might be limited due to the lemons' problem (firstly modelled by Aklerlof (1970)) where the price does not act as a perfect revealer of quality due to information asymmetry, and thus, due to the absence of perfect competition.

The growing importance of the consumer communication for the trade of experience goods is apparent in the empirical literature. Dranove and Zhe Jin (2010:938) suggest that, together with brand development and personal experience, word-of-mouth is the most common quality assurance mechanism. The fraction of services exchanged in the GDP increases over the last years, and they are becoming the subject to international trade. For instance, Crino (2010:595) claims that recently the service off-shoring has become a phenomenon. We might speculate that this is an argument for different processes. It is debatable if this trend is a result of growing long-distance social networks (e.g. Internet communities). In any case, findings of Rauch and Trindade (2002) and Rauch and Casella (2003) are in line with such an interpretation. In the first paper the authors find empirically that the Chinese network increases more the long-distance trade for the differentiated than for the homogeneous products[58]. In the second paper the authors assume that the ties through international information-sharing networks help the producers to solve their matching problems, and they find theoretically that if the share of the tied producers is insufficiently large, the two trading countries become relatively insulated in terms of the factor price correlations.

Furthermore, there is some evidence that the consumer communication motivates tourists to visit a new destination; encourages new patient to visit a dentist; and it promotes the trade of fresh food. Already Krbec, D. (2000), Grgona (2002:742), and more recently Persurić *et al* (2010:10) have emphasised word-of-mouth as the main source of information based on which the tourists choose the Croatian destinations.

Burica (2010) reports that an interviewed dentist tried several marketing tools to attract foreign patients and he concluded that the best tool was a personal recommendation[59]. Briz et al(2007:158) find that in Turkish fresh-food market the new varieties are mostly communicated between the growers by word-of-mouth, and that the most of the exporters use friends and contacts as an information source about some new market. Ottman et al (2006:34) mention the example of a laundry company who successfully promoted their environmental friendly product by credible messages dispatched through consumers' Internet networks. The mentioned examples show that word-of-mouth affects the trade of the unobservable goods.

Furthermore, change in the consumer communication affects the motivation of the producers to misrepresent their quality. For example, when the restaurants in Split were asked about quality of the fish they serve, several owners commented that the times when fresh eyes were put into old fish, or when the octopus arm was put into the shrimp's tail have passed (Galić, 2010). In other words, Split's restaurants could once run their business profitably by cheating uninformed tourists, and still some do that. Instead, nowadays the reputation is built through

[58] Differentiated products posses a reference price, while homogeneous do not. The reference price is a price that is quoted without mentioning brand name or other producer identification (Rauch and Trindade (2002:117)).

[59] When a patient has experienced a good treatment, competency and a well-equipped ordination, then it is very likely that he is going to visit us again, and that he is going to recommend us to others...'

Internet, so that many tourists have a precise idea about the restaurant quality before arriving to a destination.

We apply evolutionary game theory with the replicator dynamics to answer which the effect of the consumer communication, in terms of the consumer groups size, on the producer quality and honesty is. Berentsen et al (2007) use evolutionary game theory to model cheating behaviour where strategy choice is influenced exclusively by the agent's neighbourhood. They find two absorbing states; one where all agents cheat and another where all agents play fair. Conversely, we find an interior evolutionary stable state where cheating and honesty coexist. Both papers apply evolutionary game theory to cheating. While Berentsen et al (2007) include the segregation in the model, our model is driven by 'the reputation' of the high-quality producers, which depends on the fraction of the low-quality producers who misreport their type. When referring to cheating, our model drives a result similar to those obtained from the evolutionary models with the hawk-dove games (as in Bowles (2004:79)). Lozano et al (2010) also use the evolutionary game theory to model the co-evolution of traders with different quality and certifying practices when there is the information asymmetry. The consumers can only imperfectly distinguish between different types of the producers. Similarly like us, they suppose that the fraction of different types affects the market price. However, the authors do not provide explicit mechanisms by which these fractions affect the price. We dedicate a particular attention precisely to this issue.

We comment on the motivation for some basic assumptions used in our model. Our starting premise is that the consumer communication is limited. Even if the communication is nowadays cheap due to Internet, there is a problem of information overload and reliability, so that in the end, we can assume that a limited number of consumers exploit a given piece of information. We could imagine sharing the information about a restaurant with 'friends' on Facebook. In a research on word-of-mouth and microblogging in Jansen et al(2009) it is found that 20 percent of microblogs mention some brand, and 20 percent of those contain some expression of brand sentiments. It can be debatable which is a reach of information from a microblog. However, we suppose that the information flow is limited to a community. The producer has to take into account this constraint, and to enable the information to reach the consumers who are uninformed. Producer usually does not know which consumer is informed and which not, so that the owner has to find a way to make uninformed consumers come to the restaurant. We argue that this problem is resolved simply through a formation of the reservation price, which should be sufficiently low to attract an uninformed consumer. An additional assumption is that all the economic agents have a common general view about the economy structure, which could be obtained from the media or the general statistics for example.

The information flow is enabled when two consumers interact. Thus, the information flow might be interpreted as an integral part of the broader socialisation process. I.e. the exchange of information is accompanied by sharing the common values, trust and support. Although, all of the issues are important and together can give interesting insights, we focus only on the information flow, for the sake of tractability. In order to come up with a feasible answer we had to introduce an additional aspect. Apart from the quality choice (high or low), the producer also chooses a behavioural trait (honest or dishonest)[60]. The importance of a particular aspect varies depending on the application, so we explore several variants of the model.

[60] Already Nelson (1976) discussed the issue of the honesty in economics.

We suppose that the experimenters do not know the actual product quality prior to its purchase, but that they know the fractions of different producers, based on which the market price of the high-quality good is formed. Thus, in terms of Cabral (2005:3), this model is about reputation of the producers who choose the high-quality price.

We capture the product reputation by the reservation price of the high-qualityagoodwhichisequaltotheexpectedqualityoftheproducerwhocharges the reservation price. Our results are in line with Tirole (1996) who finds that low-corruption (i.e. high-quality) state only occurs if the information about quality is good. In our model the likelihood of high-quality evolutionary stable state increases with the consumer communication. Simmilarly, Winfree and McCluskey (2005) build a dynamic framework with an endogenous individual choice of quality which affects the collective reputation. In a model without a firm traceability, the individual incentive to produce high-quality decreases with the number of the firms in the market, due to the weaker correlation between individual choice and individual payoff. In our model the number of producers does not matter because the producers are myopic, in sense that they do not consider the effect of their choice on the price in the next period.

The contributions of this paper are the following: (1) We develop a novel framework (not a direct mechanism, but a price formation which "creates a game" between low and high-quality producers), (2) we find that the fraction of the high-quality producers and the consumer communication are positively related in the equilibrium, (3) co-existence of the honest and the dishonest producers is an evolutionary stable equilibrium. First we present a general framework, followed by the findings from the several model variants.

2 MODEL

Players

There are two populations, consumers and producers, who exchange the products. The product quality θ is a random variable $\theta \in \{l, h\}$, determined by nature and assigned to the producer. h denotes high quality and l denotes low quality, h>l. All the product units of some producer are of the same quality. The production cost of a low quality good is normalised to zero, while the production cost of the high quality good is c> 0. We suppose that a producer supply is infinite. The consumers belong to the groups of the same size N. An *experimenter* is a randomly drawn consumer in the group who tests the product. Only if the experimentert's expectation about the quality is above or equal to the price, them he tests (buys) the product. After testing, the experimenter tells about the quality to the other consumers in his group. The information about the product is exclusively shared within the group. If the product quality is higher than the price, then the whole group buys the product from this producer. Otherwise, only one consumer in the group buys the product from this producer.

There are three types of the producers: high-quality (h) with the fraction α, low quality who mimics high-quality producer (m) with the fraction $(1 - \alpha)\ \gamma$ and low-quality producer who reveals the true quality (l) with the fraction $(1 - \alpha)\ (1 - \gamma)$. Thus, γ is a fraction of the produces within the low-quality sub-population who mimic the high-quality.

Matching Process

A producer and an experimenter are matched randomly. If the product is good, then the whole group buys the product. Otherwise, only the experimenter buys it. (We assume that the

producers set the price lower or equal to the experimenter's expectation).

(1) The matching is random for the experimenters. (2) Non-experimenters avoid the low-quality producer for whom they have the information. This should decrease the fraction of the low-quality producers in the next draws, and thus, have a positive effect on the reservation price in the next draws. We assume that the populations are sufficiently large so that we can neglect this effect on the reservation price (at least in the short run). (3) The non-experimenters buy with certainty from the high-quality producer if they identified him. (4) All the consumers (experimenters and non-experimenters) who have not identified the high-quality producers participate in the next draws.

Price

A producer chooses the price taking into consideration his behavioural trait and the profit maximisation. Once the producer sets the price it remains fixed which can be justified by two reasons: (1) For some technical reasons it is not possible to change the price often; (2) The producer cannot identify if the consumer is the experimenter or not. This is an issue because one could argue that the low-quality producer who mimics high-quality producer can simply decrease the price when selling to the non-experimenter (the informed consumer). Alternatively, instead of assuming fixed price, we could assume that the non-experimenters punish this producer by not trading with him even if he subsequently sets the price below the quality.

If the consumer does not know the actual quality, he decides based on the quality expectation. $\bar{p}$ (reservation price) is the maximum price at which the product is sold:

$$\bar{p} = \mu h + (1 - \mu)\, l$$

Where $l \leq \bar{p} \leq h$. We implicitly introduce unit demand and money-metric utility function which are the standard assumptions in this class of models. μ is an updated probability that the producer is of the high quality, after observing price $\bar{p}$:

$$\mu = \frac{\alpha}{\alpha + (1-\alpha)\gamma} \tag{1}$$

The experimenter refuses to pay more than his expected quality. We assume that once the price is set, it is the same for all the consumers in a group. We can assume that only one producer is matched with the consumer group and that he has a market power, so that he extracts the whole expected consumer surplus in a one-shot interaction. By the expected consumer surplus we mean the expected quality if the unobserved quality is not revealed by price, or the exact quality otherwise.

Expected Payoffs

As we have already mentioned, producing the low quality is costless, producing the high quality requires costs c. We define a producer expected payoff as a sum of the payoffs which producer obtains from a whole group divided by the group size N. In other words, we normalised the producer payoffs by the consumer group size N. The high quality producer sells to the experimenter and the non-experimenter of a consumer group and obtains N times the payoff $\bar{p} - c$. Thus, the expected payoff of the high-quality producer is a difference

between the reservation price and the production costs:

$$\pi_H = \bar{p} - c$$

The low-quality producer who mimics the high-quality one (m) sells the product only to one consumer in a group so that his expected surplus is:

$$\pi_M = \frac{\bar{p}}{N}$$

The only exception is when $\alpha = 0$. In that case μ is zero and reservation price $\bar{p}$ is l. Thus, even the high-quality producer sets the price equal to the low quality. If the consumers buy from any low-quality producer, they gain a nonnegative profit. Therefore, the whole consumer group buys the product. Thus, the profits of mimicking and revealing low-quality producers are equal in this case, $\pi_M = \pi_L = l$.

Low-quality producer who reveals his quality sets the price equal to the quality and he sells to all the consumers in the group. Therefore, his payoff is simply equal to the low quality:

$$\pi_L = l$$

The price which consumers are ready to pay for the high-quality good is determined by the expected share of the low-quality types who mix with the high-quality types γ. The effect of the price on the producer payoffs determines the evolution of the producer types which is studied in the following sections.

3 EVOLUTION OF THE HIGH-QUALITY PRODUCERS

Suppose that the fraction of the honest producers γ is given. We study the adoption of the high-quality among the producers. The low-quality producer who mimics the high-quality producer by setting the high price is a kind of dishonest behaviour. It could reflect an individual propensity to disclose the truth if this brings the material costs. We suppose that the honesty is a cultural trait and in the short-run unaffected by the material conditions. The dishonest producers mimic the high-quality producers even when their payoffs are lower than the payoffs of the honest producers. This is justified if we assume that the agents are bounded rational, so that they only consider the benefit from the single transaction, without accounting for the consequences on the future. The informed consumers refuse to trade with the low-quality producer who sets the high price. Thus, the dishonest producers lose some of the trade opportunities.

We develop the replicator dynamics of the high-quality type. A short overview of evolutionary game theory and replicator dynamics is provided in Appendix 6.1..

$$\dot{\alpha} = \alpha (\pi_H - \bar{\pi})$$

Where

$$\bar{\pi} = \alpha \pi_H + (1 - \alpha) \gamma \pi_M + (1 - \alpha)(1 - \gamma) \pi_L$$

It follows that[61]:

$$\dot{\alpha} = \alpha\,(1-\alpha)[\,\pi_H - \gamma\,\pi_M - (1-\gamma)\,\pi_L]$$

As we have already discussed in the previous section, we presume that the agents are bounded rational, in a sense that they only periodically update their behavioural traits and eventually adopt a strategy that brings a higher payoff. If the producer is of the low-quality, he is going to mimic a high-quality producer by setting a reservation price, even if setting price equal to l would be profitable.

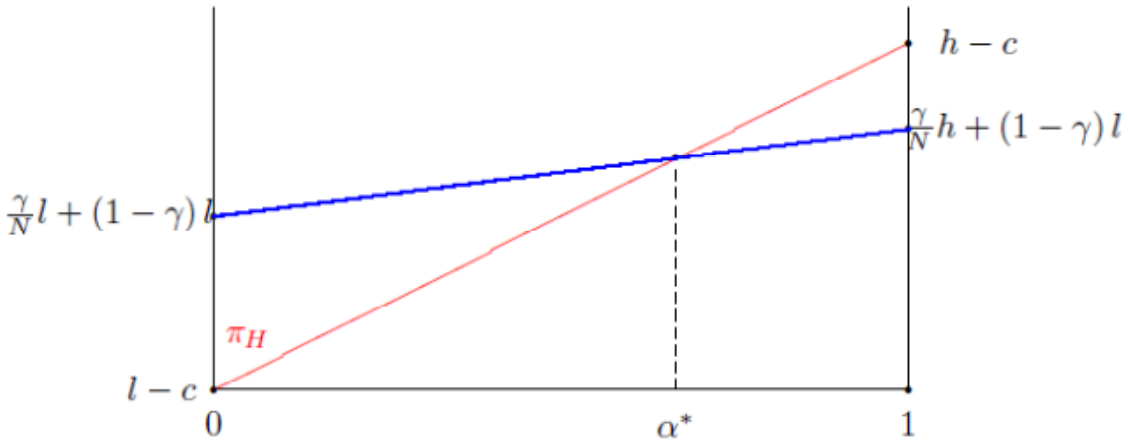
It is apparent from the replicator dynamics equation that there exist several stationary states: $\alpha = 0$ and $\alpha = 1$, and there may exist an interior stationary state $0 < \alpha^* < 1$. The interior stationary state satisfies the condition:

$$\pi_H = \gamma\,\pi_M + (1-\gamma)\,\pi_L$$

Thus, the interior stationary state is:

$$\alpha^* = \frac{\gamma[\gamma l(N-1)] - cN}{(N-1)l\gamma^2 + [h-(c+l)N]\gamma + (c+l-h)N}$$

Figure 1. The interior stationary fraction of the high-quality producers α^*



Source: Author

This condition is presented in Figure 1.

The horizontal coordinate is a fraction of the high-quality producers α which can range from 0 to 1. The vertical coordinate represents the payoffs: π_H and $\gamma\,\pi_M + (1-\gamma)\,\pi_L$ (An average low-quality producer payoff). The thin line, which initiates at (0,l − c), is the expected payoff of the high-quality producer, π_H . The less inclined and thick line is the average low-quality producer payoff $\gamma\,\pi_M + (1-\gamma)\,\pi_L$. Both payoffs increase with the fraction of the high-quality producers. This increase is a result of the increased reservation price, owing to the improved

[61] If γ is fixed, we can divide the producers in two subpopulations: γ and 1 − γ and look at the dynamics of each population. The total dynamics would be a sum of the dynamics in the subpopulations. $\dot{\alpha} = \gamma\,\dot{\alpha}\gamma + (1-\gamma)\,\dot{\alpha}1{-}\gamma$; $\dot{\alpha}\gamma = \alpha\,(1-\alpha)(\,\pi_H - \pi_M\,)$; $\dot{\alpha}\,(1{-}\gamma) = \alpha\,(1-\alpha)(\,\pi_H - \pi_L)$.

experimenters expectations about the quality when α increases. However, an increase in α affects more the payoff of the high-quality producer because he extracts the benefits from trade with the whole consumer group, and not only from the experimenter. Therefore, the interior stationary point exists if $\frac{\gamma}{N}$ l +(1−γ) l>l − c and $\frac{\gamma}{N}$ h +(1−γ) l<h − c. Thus, we obtain the following condition:

$$l\gamma\frac{N-1}{N} < c < h\gamma\frac{N-1}{N}$$

The interior equilibrium exists if l is sufficiently small and if h is sufficientlylarge relative to c. The reason is that the change in price, which is caused by the change in α, has much stronger effect on the profit of the high-quality producer because he trades with the whole consumer group. If the consumer group size N is small relatively to the other parameters, the interior equilibrium may not exist. This is because in that case the average low-quality profit is always larger than the profit of the high-quality producer. On the other hand, the interior equilibrium may not exist as well due to very large N because in that case the profit of the high-quality producer is always larger than the average low-quality producer profit.

We check for the stability and we find that exterior stable states are stable, while the interior is unstable, as it is written in Proposition 1 and demonstrated in Appendix.

Proposition 1. *Evolutionary stable states are* α =0 *and* α =1.

An unstable interior stationary state α^* divides two basins of attraction, one where α =0 is the attractor, and another where α =1 is the attractor. If the initial fraction of the high-quality producers is above α^*, then it is going to evolve to α =1, and otherwise to α =0. Larger basin of attraction means that larger set of initial states leads to some evolutionary stable state. We are interested in factors which extend the basin of attraction of α =1, and thus, we study the effect of N and γ on α^*. In line with our prior expectation, an increase in the consumer group size N enlarges the basin of attraction of the high quality, which follows from Proposition 2, which proof is in Appendix.

Proposition 2. *If consumer group size* N *increases, the interior equilibrium fraction of the high-quality producers* α^* *decreases.*

An increase in the consumer group size N decreases the interior stationary fraction of high-quality producers α^* because the average profit of the low-quality producer decreases while the profit of the high-quality producer remains unchanged. The effect of N works through the payoff of the low-quality producer who mimics the high-quality producer. Therefore, this effect is stronger, larger is γ. The effect of N should be stronger at higher l and h, and larger c. The effect is the strongest if c is very large. This could mean that social networks stimulate socially inefficient production.

We find that consumer communication stimulates the evolution toward high quality evolutionary stable state. This result is in line with Pavlinovic(2011:11) where the concept of separating equilibrium is applied to demonstrate that the consumer communication partly of completely resolves the adverse selection problem (known as Aklerlof's(1970) 'lemons').

On the other hand, an increase in the fraction of the low-quality producers who mimic high-quality producers enlarges the basin of attraction of α =0 (Proposition 3 proved in Appendix).

Proposition 3. *The interior stationary point* α^* *increases with the fraction of low-quality producers who mimic high-quality producers* γ.

At a given reservation price $\bar{p}$, changein γ causes the change in $\bar{p}$, and change in $\bar{p}$ is reflected more in the profit of the high-quality producer than in the profit of the low-quality producer who mimics the high-quality producer. The profit of the low-quality producer who sets low price is unaffected by the change in γ. A decrease in the reservation price at given α means that larger α is needed so that the profit of the high-quality producer reaches the expected profits of the low-quality producers.

4 EVOLUTION OF HONESTY WHEN FRACTION OF HIGH-QUALITY PRODUCERS AND THE GROUP SIZE N ARE GIVEN

Suppose that technology represented by α changes very slowly, meanwhile the behavioural trait γ is updated more. Thus, we treat α as exogenous. Thus, we explore the evolution of γ when α and N are fixed. The sub-population of the high-quality producers is composed of two types: honest and dishonest producers. Both types have the same payoff functions, so this distinction is irrelevant for the high-quality producer. On the contrary, the profit of the low-quality producer is affected by its own behavioural trait. Thus, we study the evolutionofthedishonestproducerswithinthelow-qualitysub-population[62], and we denote its fraction by γ. The average payoff of the low-quality subpopulation is:

$$\bar{\pi} = \gamma\, \pi_M + (1 - \gamma)\, \pi_L$$

The replicator dynamics is:

$$\dot{\gamma} = \gamma\, (\pi_M - \bar{\pi})$$

It is zero at: $\gamma^* = 0$, $\gamma^* = 1$, and there may exist an interior stationary point $0 < \gamma^* < 1$, such that

$$\pi_M = \bar{\pi}:$$

$$\pi_M = \bar{\pi}$$

$$\pi_M = \gamma\, \pi_M + (1 - \gamma)\, \pi_L$$

$$(1 - \gamma)\, \pi_M = (1 - \gamma)\, \pi_L$$

$$\mu\, (h - l)\frac{1}{N} + \frac{l}{N} = 1$$

[62] Suppose γ_α is the fraction of the dishonest producers in the high-quality sub-population. $\gamma_{(1-\alpha)}$ is the fraction of the dishonest producers in the low-quality sub-population. $\gamma = \alpha\gamma_\alpha + (1 - \alpha)\, \gamma_{(1-\alpha)}$. $\dot{\gamma} = \alpha\, \dot{\gamma}_\alpha + (1 - \alpha)\ \dot{\gamma}_{(1-\alpha)}$. $\dot{\gamma}_\alpha = 0$ because the payoffs of all the high-quality producers are equal independently of their honesty, so $\dot{\gamma} = (1 - \alpha)\ \dot{\gamma}_{(1-\alpha)}$. For the simplicity we suppose that $\dot{\gamma} = \dot{\gamma}_{(1-\alpha)}$.

It follows that:

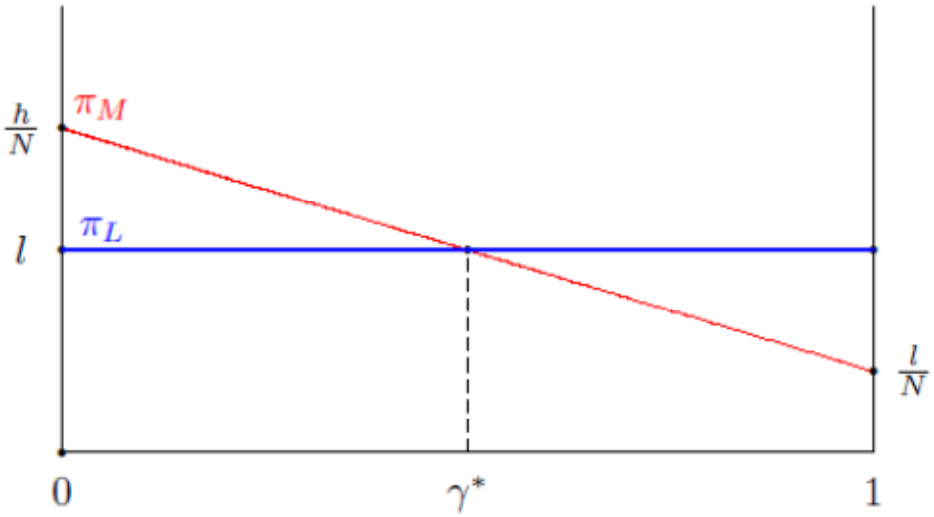
$$\gamma^* = \frac{\alpha(h - Nl)}{(N-1)l(1-\alpha)}$$

where $0 < \gamma^* < 1$ if $Nl - h < (h - l)(1 - \alpha)$ and $h > Nl$. The interior solution $0 < \gamma^* < 1$ is an asymptotically stable interior equilibrium[63] because the following derivative is negative:

$$\frac{d(\pi_M - \pi_L)}{d\gamma} = \frac{\alpha(1-\alpha)(h-l)}{N[\alpha + (1-\alpha)\gamma]^2} < 0$$

The reason is that π_L is independent while π_M is constantly decreasing with γ. An increase in γ decreases the reservation price $\bar{p}$ (Figure 2).

Figure 2. The interior stationary fraction of low-quality producers who mimic high-quality producers γ^*



Source: Author

Hence, if the sub-population of the low-quality types is lower than γ^*, then their payoff is higher than the payoff of the low-quality producers who reveal their quality. On the other hand, if their fraction is higher than γ^*, then the opposite holds.

Marginal effect of Parameters on γ^*

An increase in the fraction of the high-quality producers α increases the equilibrium fraction of the dishonest low-quality producers γ^* since an increase in α increases the reservation price, and an increase in the reservation price increases the profit of m. The effect of α is stronger at the higher values of α:

[63] Note that here we do not check for evolutionary stable strategies when concluding about the stability of the stationary state, but the results should be the same as if we concluded directly from the replicator equation. This was discussed previously.

$$\frac{\partial^2 \gamma^*}{\partial \alpha^2} = \frac{2(h - lN)^2}{l^2 (N - 1)^2 (1 - \alpha)^3} > 0$$

$$\frac{\partial \gamma^*}{\partial \alpha} = \frac{h - lN}{l(N - 1)(1 - \alpha)^2} > 0$$

An increase in N shifts π_M down and, thus, decreases the equilibrium fractionofthelow-qualityproducers. Anincreasein h or α increasestheequilibrium fraction of α. An increase in l decreases the fraction of *l* because the effect of *l* on payoff of *l* is much stronger than on the payoff of *m*.

γ^* decreases with the consumer group size N:

$$\frac{\partial \gamma^*}{\partial N} = -\frac{\alpha}{1-\alpha} \cdot \frac{h - l}{l(N-1)^2} < 0$$

The intuition is that the profit of the low-quality producer who imitates the high quality decreases because there are less experimenters who test his product (because the consumer population is organised in the larger groups). The intensity of this marginal effect decreases as the consumer group size increases:

$$\frac{\partial^2 \gamma^*}{\partial N^2} = \frac{2\alpha^2 (h-l)^2}{l(N-1)^3 (1-\alpha)} > 0$$

While the effect of h is always positive ($\frac{\partial \gamma^*}{\partial h} = \frac{\alpha}{l(N-1)(1-\alpha)}$; *h* increases $\bar{p}$ and this increases π_M while π_L remains unchanged), the effect of *l* on γ^* is ambiguous and depends on the sign of $N + h - lN$, that is:

$$\frac{\partial \gamma^*}{\partial l} = -\frac{\alpha}{1-\alpha} \cdot \frac{1}{l(N-1)} \cdot (N + h - lN)$$

Increase in *l* shifts both lines in the figure, so depending on *h*, *l* and *N* this shift will decrease or increase γ^*.

$$\frac{\partial \dot{\gamma}}{\partial \gamma} = (1 - 2\gamma)(\pi_M - \pi_L) + \gamma(1 - \gamma) \cdot \frac{d(\pi_M - \pi_L)}{d\gamma}$$

5 CONCLUSION

The aim of this paper is to explore the evolution of producers' quality and honesty when there is a communication among consumers, and the producers are bounded-rational. We explore a model where the low-quality producers consider if to cheat by misreporting their type. This approach is justified by observations like in Zak (2011:226) that moral violations are most likely to occuriftheincentivestolie, cheat, orstealaresufficientlypronounced, andifthe others with whom an individual interacts behave in such a way. The producers affect each other through the market price of the high-quality product. The price increases with an increase in the share of the high-quality or of the honest producers.

We provide a micro-foundation of the high-quality reputation dynamics and we arrive to the following results. Firstly, we study the model where the quality trait is endogenous only. We find that the share of honest producers in the population increases the probability of evolution toward a stable equilibrium where all the producers are of the high quality. Furthermore, we explore the model with endogenous honesty only, and we find an evolutionary stable state where honest and dishonest producers co-exist. An increase in the fraction of the honest producers increases the market price of the high-quality good, which increases the payoff of the dishonest producers and increases their fraction, which in turn reduces the market price.

Our model is different from the models initiating with Kandori (1992) for two reasons. Firstly, Kandori (1992) ground his finding on the assumption that there is a sufficient number of punishers. Although being a completely different mechanism, the consumer groups have a similar role like punishers because they do not buy the product after experimentation if its quality is low. Secondly, while in the cited model the agents behave honestly because honesty is rewarded in the future transactions, in our model the agents are backward-looking. At the end of the game, the agents compare their payoffs with the payoffs of the agents who played different strategies, and based on this comparison they decide if to behave honestly in the next period.

Ahn and Suominen (2001) also consider reputation and cheating (in this case the price is fixed and cheating refers to the provision of the low quality). Although they apply classical game theory, they arrive to the finding which is in line with our results. As the communication between consumers increases, the seller's incentive to provide high quality becomes easier to sustain, and this is in line with our finding that an increase in the consumer group decreases the fraction of the low-quality producers who misreport their quality.

Acemouglu (2010) suggests that future researches should answer why all the countries do not choose the optimal institutions (if it is relatively simply to copy them today when the ideas travel around the world very fast), why inefficient institutions do persist, and why many attempts to change them fail. The evolutionary game theory is a promising tool for providing answer to such questions. Bidner and Francois (2010:27) attempts to provides an answer by exploring the effect of institutions on honesty. He finds that the two mutually reinforce, so that some institutional enforcement is needed to sustain honesty. We as well tackle the problem of cheating, but instead of (formal) institutions, we relateittothe qualityandwe-explainwhy adishonestbehaviourmay persist. Thus, this approach opens up a new avenue for explaining the international development differences.

6 APPENDIX

6.1 Evolutionary Game Theory

The backgrounds are natural selection (from biology) and classical game theory.

Agents

The basic assumptions of the evolutionary game theory is that the agents bounded-rational. That is, the individuals have limited cognitive capacities (implying that an average human is not able to solve complicated optimisation problems), and that they update their strategies (behaviour) only occasionally buy using imperfectly observed local information.

Two Approaches

Evolutionary dynamics can be modelled by evolutionary stable strategy or by replicator dynamics. The evolutionary process combines two basic elements, *mutation mechanism* that provides variety and a *selection mechanism* that favours some varieties over others. While the criterion of evolutionary stability emphasises the role of mutations, the replicator dynamics emphasises selection. Both give the same conclusions if there are only two traits in the population. That is, among the stationary states obtained by replicator dynamics there are those that correspond to aggregate Nash-equilibrium behaviour. A proposition in Weibull(1996:100) shows the link between two approaches.

Proposition 4. *(Weibull,1996) Every evolutionary stable strategy is asymptotically stable in the replicator dynamics.*

We provide a short exposition about evolutionary stable strategies and then we focus on replicator dynamics which is the main tool used in this paper.

Evolutionary Stable Strategies

We provide the adjusted definition of evolutionary stable strategy taken from Weibull (1996:36). Lets Δ be a mixed strategy set and $x \in \Delta$ and $y \in \Delta$ be some strategies. Lets $\pi(x, y)$ be a payoff to strategy *x* when playing against *y*.

Definition 1. $x \in \Delta$ *is an evolutionary stable strategy if for every strategy* $y \neq x$ there exists some $\varepsilon \in (0, 1)$ *such that*

$$\pi [x, \varepsilon y + (1 - \varepsilon) x] > \pi [y, \varepsilon y + (1 - \varepsilon) x] .$$

Replicator Dynamics

We apply a replicator dynamic equation in our model. After exchange the producers are matched with the agents from the own population. If they are matched with a different type, and if this type obtained more than they did, they are likely to shift their type to the opponent. The likelihood is proportional to the difference in payoffs (Weibull, 1995:69). This could be also interpreted in the following way: at the end of the period, the agents get their offspring whose numerosity depends of the difference in payoffs (Bowles, 2004). We formalise the replicator dynamics in a standard way, that is, as a system of ordinary differential equations that do not include a mutation mechanism. Instead, the robustness against mutations is indirectly taken care of by the way of dynamic stability criteria. In contrast to evolutionary

stable strategies approach, the usual replicator dynamics presumes that individuals can only be programmed to pure strategies. There is random pairwise matching in a large population where payoffs represent fitness, measured as the number of offspring, and each offspring inherits its single parent's strategy. If the reproduction takes place continuously over time, then this results in a certain population dynamics in continuous time. This dynamics is called *replicator dynamics*.

Consider a large finite population of agents who are programmed to the behavioural trait $i \in \{1, ..., K\}$ with payooff π_i. Let $n_i(t) \geq 0$ be the *number* of agents who are currently programmed to the trait i, and let $n(t)= \sum_i n_i(t)$ be the total population. The associated population state is the vector $x(t)= (x_1(t) , ..., x_k(t))$ where $x_i(t)$ is a population share programmed to the trait i at time t, that is, $x_i(t)= n_i(t)/n(t)$. The expected payoff of an agent with the trait i when the population is in the state x is $\pi_i(x)$. The payoff to an individual drawn at random from the population is

$$\bar{\pi} = \sum \pi_i(x)$$

Now, we use biological terminology to arrive to the replicator equation. Suppose that payoffs represent the incremental effect of choosing a trait on an agent's fitness, measured as the number of offspring per time unit. Suppose also that each offspring inherits its single parent's strategy. If reproduction takes place continuously over time, then the birthrate at any time t, of individuals programmed to pure strategy i is $\beta + \pi_i(x)$, where $\beta \geq 0$ is the background fitness of individuals in the population. Let the death rate $\delta \geq 0$ be the same for all individuals. This results in the following population dynamics:

$$\dot{n}_i = [\, \beta + \pi (x) - \delta \,]\, n_i$$

It follows from the definitions that:

$$n(t)\, x_i(t) = n_i(t)$$

The time derivative of this expression is:

$$\dot{n} x_i + n \dot{x}_i = \dot{n}_i$$

$$n \dot{x}_i = \dot{n}_i - \dot{n} x_i = [\, \beta + \pi_i (x) - \delta \,]\, n_i - [\, \beta + \bar{\pi} (x) - \delta \,]\, n x_i$$

We divide both sides by n and obtain:

$$\dot{x}_i = [\, \pi_i (x) - \bar{\pi} (x) \,]\, x_i$$

Hence, the growth rate of a population share with trait i, $\frac{\dot{x}_i}{x_i}$, is equal to the difference between actual payoff of the agent with trait i and the current average payoff in the population. The growth rate is independent of the background fitness β or of the death rate δ.

Definitions

We have already defined evolutionary stable strategy. The definitions of *Lyapunov stability*, *asymptotic stability* and *basins of attraction* is provided in Weibull(1995:243-245). Intuitively

(we proceed from the discussion about evolutionary stable strategy), a state x $\in \Delta$ is Lyapunov stable if no small change in the population composition can lead it away, and x is asymptotically stable if moreover any suffciently small change results in a movement back toward x. For each evolutionary stable strategy, its basin of attraction is the set of initial conditions leading to the long-time behaviour that approaches that evolutionary steady state.

6.2 Proofs

Proof of Proposition 1. It is enough to demonstrate that both playing the high-quality or a mix of the low-qualities are Nash-equilibria against the mutant. Strategy here represents a type choice. We define the payoffs of producer type m at α =0 and α =1 as $\pi_{M(\alpha=0)} = l$ and $\pi_{M(\alpha>0)} = \frac{\overline{p}}{N}$ respectively.

First suppose that incumbent strategy is $\gamma \frac{\overline{p}}{N} + (1-\gamma)l$ and mutant strategy is h, with payoffs $\gamma\pi_M + (1-\gamma)\pi_L$ and π_H respectively.

$$\pi\,[\gamma m + (1-\gamma)\,l,\ \varepsilon h + (1-\varepsilon)(\gamma m + (1-\gamma)\,l)] = \gamma \frac{\overline{p}_{(\alpha=\varepsilon)}}{N} + (1-\gamma)\,l$$

$$= \gamma \frac{\mu(h-l)+l}{N} + (1-\gamma)\,l > \pi\,[h,\ \varepsilon h + (1-\varepsilon)(\gamma m + (1-\gamma)\,l)] =$$

$$= \overline{p}_{(\alpha=\varepsilon)} - c = \mu(h-l) + l - c$$

We write the above statements as

$$\gamma \frac{\mu(h-l)+l}{N} + (1-\gamma)l > \mu(h-l) + l - c$$

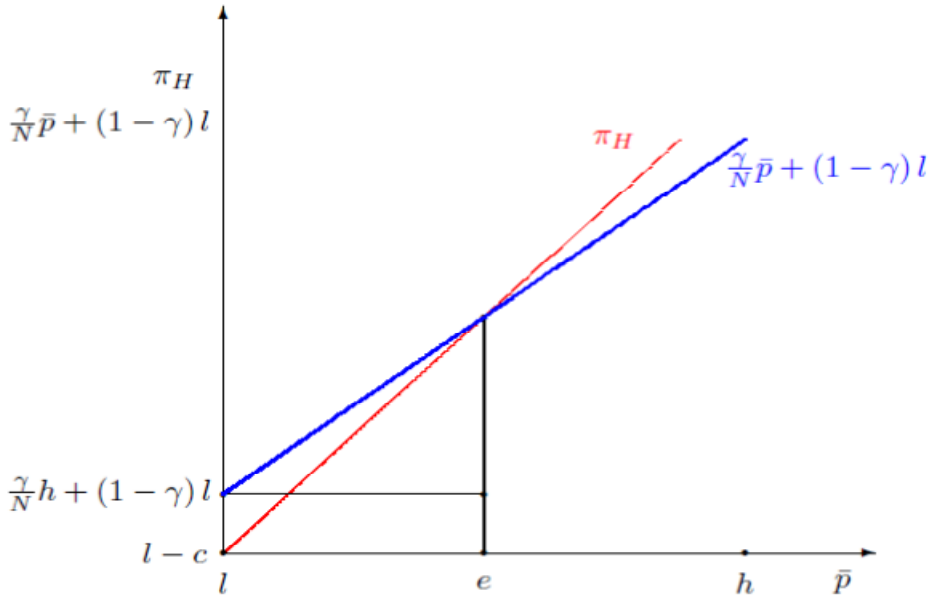
The above inequality holds if the following inequality holds:

$$\frac{\gamma}{N} l - \gamma l > \mu\,(h-l) - c$$

If we let $\alpha = \varepsilon \to 0$, then it should hold $\gamma l \frac{1-N}{N} > -c$. This is satisfied when the condition for the interior stationary state holds, $\gamma l \frac{N-1}{N} < c$. Hence, the incumbent strategy $\gamma m+(1-\gamma)l$ is evolutionary stable strategy. By the proposition from Weibull (1995) it follows that $\gamma m+(1-\gamma)l$ is asymptotically stable in the replicator dynamics.

Next, consider the trait h as an incumbent strategy and $\gamma m+(1-\gamma)l$ as a mutant strategy, where $\alpha=1$. h is evolutionary stable if $\gamma \frac{\mu(h-l)+l}{N} + (1-\gamma)l < \mu(h-l) + l - c$ when $\varepsilon = 1-\alpha \to 0$, i.e. $\alpha \to 1$.

Figure 3. Equilibrium reservation price e



Source: Author

From this inequality it must hold that:

$$c < \gamma h \frac{N-1}{N} + (1-\gamma)$$

This is certainly satisfied if the interior equilibrium exists, that is if $c < \gamma h \frac{N-1}{N}$. Hence, the equilibrium α is asymptotically stable.

Finally, we demonstrate that the interior equilibrium is unstable. For the interior equilibrium to be unstable it must be that small deviations from the equilibrium lead to the further deviations. We know that $\bar{\pi}(\alpha^*) = \pi_H(\alpha^*)$. We compare the payoffs if there is small increase E in the fraction of the producers who play h. $\bar{p}(\alpha^*) = \alpha^*(h-l) + l < (\alpha^* + \varepsilon)(h-l) + l$. We know from the equilibrium condition of α^* that $(1-\gamma)\,l + c = \bar{p}(\alpha^*)\frac{N-1}{N}$. It follows that $(1-\gamma)\,l + c < \bar{p}(\alpha^* + \varepsilon)\frac{N-1}{N}$. We just rearrange this expression and obtain $\bar{\pi}(\alpha^* + \varepsilon) = \pi_H(\alpha^* + \varepsilon)$.

Proof of Proposition 2. We define π_H and $\gamma\pi_M + (1-\gamma)\pi_L$ as functions of $\bar{p}$. If the reservation price $\bar{p}$ increases by unit, then π_H increases by unit, while $\gamma\pi_M + (1-\gamma)\pi_L$ increases by $\frac{\gamma}{N}$. $\pi_H = l - c < \bar{\pi} = \frac{\gamma}{N}l + (1-\gamma)\,l$ at $\bar{p} = l$.

However, as π_H increases faster, the two functions become equal at reservation price $\bar{p} = e$. e must be such that the following holds (We conclude from Graph 3):

$$e - l = \frac{\gamma}{N}(e - l) + \frac{\gamma}{N} l + (1 - \gamma)\, l - (l - c)$$

It follows that the equilibrium price e must be:

$$e = \frac{c - \gamma l \frac{N-1}{N}}{1 - \frac{\gamma}{N}} + l = A + l$$

That is, $A = \frac{c - \gamma l \frac{N-1}{N}}{1 - \frac{\gamma}{N}}$. e is a reservation price, thus, we can write:

$$\mu (h - l) + l = A + l \qquad (2)$$

From this we obtain:

$$\alpha^* = \frac{\gamma \frac{A}{h-l}}{1 - (1-\gamma)\frac{A}{h-l}}$$

$$\frac{\partial A}{\partial N} = \frac{-\frac{\gamma l}{N^2}\left(l - \frac{\gamma}{N}\right)}{\left(1 - \frac{\gamma}{N}\right)^2} - \frac{\left[c - \frac{N-1}{N}\gamma l\right]\frac{\gamma}{N^2}}{\left(1 - \frac{\gamma}{N}\right)^2} = \frac{[(\gamma - 1) - c]\frac{\gamma}{N^2}}{\left(1 - \frac{\gamma}{N}\right)^2} < 0$$

$$\frac{\partial \alpha}{\partial A} = \frac{\frac{\gamma}{h-l}\left[1 - (1-\gamma)\frac{A}{h-l}\right] + \frac{\gamma}{h-l} A (1-\gamma)\frac{1}{h-l}}{\left[1 - (1-\gamma)\frac{A}{h-l}\right]^2} =$$

$$\frac{\partial \alpha}{\partial A} = \frac{1 + \left(1 - \frac{1}{h-l}\right)\cdot(1-\gamma)A}{\left[1 - (1-\gamma)\frac{A}{h-l}\right]^2} \cdot \frac{\gamma}{h-l} > 0$$

We conclude that total derivative of the fraction of the high-quality producers α with respect to the consumer group size N is negative.

$$\frac{d\alpha}{dN} = \frac{\partial \alpha}{\partial A} \cdot \frac{\partial A}{\partial N} < 0$$

Proof of Proposition 3. The marginal effect of γ on α is:

$$\frac{d\alpha}{d\gamma} = \frac{\partial\alpha}{\partial A}\cdot\frac{\partial A}{\partial\gamma} + \frac{\partial\alpha}{\partial\gamma}$$

$$\frac{\partial\alpha}{\partial A} = \frac{1+\left(1-\frac{1}{h-l}\right)\cdot(1-\gamma)A}{\left[1-(1-\gamma)\frac{A}{h-l}\right]^2}\cdot\frac{\gamma}{h-l} > 0$$

$$\frac{\partial A}{\partial\gamma} = \frac{A-l(N-1)}{N\left(1-\frac{\gamma}{N}\right)}$$

$\frac{\partial A}{\partial\gamma}$ has an ambiguous sign.

$$\frac{\partial\alpha}{\partial\gamma} = \frac{\frac{A}{h-l}\left(1-\frac{A}{h-l}\right)}{\left[1-(1-\gamma)\frac{A}{h-l}\right]^2} > 0$$

because we know from condition 2 (e = A + l, then μ(h − l)= A) that μ =A/(h-l) . μ is by definition between 0 and 1, hence, 0 < A/(h-l) < 1. Then, it follows that 1 − A/(h-l) > 0.

Finally,

$$\frac{d\alpha}{d\gamma} = \frac{\gamma\frac{1}{N\left(1-\frac{\gamma}{N}\right)}\cdot(l+A)\left[1+\left(1-\frac{1}{h-l}\right)(1-\gamma)A\right]}{(h-l)\cdot\left(1-\frac{1-\gamma}{h-l}\right)^2} + \frac{\left(1-\frac{A}{h-l}\right)\cdot\left(c-l\gamma\frac{N-1}{N}\right)}{(h-l)\left(1-\frac{\gamma}{N}\right)\left[1-(1-\gamma)\frac{A}{h-l}\right]^2}$$

This total derivative is positive because α must be positive. $\alpha = \frac{\gamma\frac{A}{h-l}}{1-(1-\gamma)\frac{A}{h-l}}$.

The nominator is positive, hence, the denominator must be positive as well. Thus, it must be that *1 > (1 − γ)A/(h-l)* . Therefore, the second bracket of the first fraction in the above expression is positive as well. Hence, $\frac{d\alpha}{d\gamma}$.

7 BIBLIOGRAPHY

Acemouglu, D., (2010): **Challenges for social sciences: institutions and economic development**, *AEA*, White Papers. Available at http://www.nsf.gov/sbe/sbe_2020/2020_pdfs/Acemoglu_Daron_88.pdf, [Accessed 15.7.2013.]

Ahn, I. and Suominen, M. (2001):**Word-of-mouth communication and community enforcement**, ***International Economic Review***, 42(2):399–415

Akerlof, J., (1970): **The market for lemons: Quality uncertainty and the market mechanism, *Quartarly Journal of Economics***, 84(3):488–500

Bidner, C. and Francois, P., (2011): **Cultivating trust: Norms, institutions and the implications of scale, *The Economic Journal***, 121(555):1097-1129

Bowles, S., (2004): **Microeconomics: Behavior, institutions, and evolution**. *Princeton: Princeton University Press*

Briz, J., Garcia, M., de Felipe, I., and Poole, N. (2007): **Quality control in mediterranean fresh food export products**. *Cahiers Options Mediterraneaennes*

Berentsen, A., Loertscher, S. and Bruegger, E., (2007): **The evolution of cheating in asymmetric contests**. *Zurich IEER Working Paper No. 314,* 2007.

Burica, I., (2005): **Tourists demand the dental service because of price and quality**, *Zadarski List*, July 29

Cabral, L., (2005): **The economics of trust and reputation: A primer**, *New York University and CEPR,* http://megafotos.ru/-NZcGFnZXMuc3Rlcm4ubnl1LmVkdQ..ZN-~lcabral/reputation /Reputation_June05.pdf [Accessed 15.7.2013.]

Crino, R., (2010): **Service offshoring and white-collar employment**, ***Review of Economic Studies***, 77(2):595-632

Dranove, D. and Zhe Jin, G., (2010): **Quality disclosure and certification: Theory and practice. *Journal of Economic Literature***, 48(4):935–963

Galić, B. (2010): **Once, fresh eyes were put into a fish**, *Slobodna Dalmacija*, July 3, 2010.

Grgona, (2002): **Turizam u funkciji gospodarskog razvitka hrvatskih otoka**. ***Ekonomski Pregled***, 53:738-749

Jansen, J., B., Zhang, M., Soble, K., and Chowdury, A., (2009): **Twitter power: Tweets as electronic word of mouth. *Journal of the American Society for Information Science and Technology***, 60(11):2169–2188

Kandori, M., (1992): **Social norms and community enforcement. *The Review of Economic Studies***, 59(1):63–80

Lozano, J., Blanco, E. and Rey-Maquieira, J., (2010): **Can ecolabels survive in the long run? the role of initial conditions. *Ecological Economics***, 69(12):2525-2534

Nelson, R., (1976): **The economics of honest trade practices. *The Journal of Industrial Economics***, 24(4):282–293

Ottman, J. A., Stafford, E.R., and Hartman, C.L., (2006): **Avoiding green marketing myopia: Ways to improve consumer appeal for environmentally preferable products. *Environment: Science and Policy for Sustainable Development***, 48(5):22– 36

Pavlinovic, S. (2011): **Three essays on consumer communication and information asymmetry**, *PhD Thesis*, University of Siena, Italy

Persuric, I., Silvana, A., Oplanic, M., Trost, K., Jurakovic,L. and Mladen, R. (2010): **Agrotourism in Istria - state and perspectives**, in: ***Zbornik radova 2. kongresa o ruralnom turizmu, Hrvatski farmer,***129-136.

Rauch, J. E., and Casella, A., (2002): **Overcoming informational barriers to international resource allocation: Prices and ties. *The Economic Journal***, 113(484):21–42

Rauch, J. E., and Trindade, V., (2003): **Ethnic Chinese networks in international trade. *The Review of Economics and Statistics***, 84(1):116–130

Tirole, J., (1996): **A theory of collective reputations (with applications to the persistence of corruption and to firm quality).** ***Review of Economic Studies***, 63(1):1–22

Weibull, J. W., (1996): **Evolutionary game theory**. *The MIT Press*

Winfree, J. A., and McCluskey, J.J. (2005): **Collective reputation and quality.** ***American Journal of Agricultural Economics***, 87(1):206–213

Zak, P. J. (2011): **Moral markets.** ***Journal of Economic Behavior and Organization***, 77(2):212-233

LOCAL GOVERNMENT COST FUNCTION: CASE STUDY ANALYSIS FOR SLOVENIAN MUNICIPALITIES

Primož Pevcin
University of Ljubljana, Faculty of Administration
Gosarjeva ulica 5, SI-1000 Ljubljana, Slovenia
Phone: + 386 15 805 584; Fax: + 386 15 805 521
E-mail: primoz.pevcin@fu.uni-lj.si

Key words: *Local public finance, Optimal size of local authorities, Cost efficiency, Municipalities, Slovenia*

ABSTRACT

The appropriate creation and size of local jurisdictions are important for achieving efficiency gains in local government goods and services provision. In general, the size of local government units should efficiently combine scale and congestion effects in order to minimise local authority costs.

The theory predicts four different potential effects of local government size on its costs: linear negative effect, linear positive effect, non-linear U-shaped effect and non-linear inverted U-shaped effect. In the first case, the bigger local government means lower costs, whereas in the second case, the bigger local government means larger costs. In the third case, costs of local government units fall at the beginning, however they start to rise after certain size of local government is achieved, which implies some "optimal" size of local jurisdictions. The last case shows that costs of medium-sized local units are the largest, as they have not experienced the economies of scale yet, but they still experience congestion effects.

Consequently, the main purpose of the paper is to investigate the relationship between local government size and costs, empirical analysis being based on the data for Slovenian municipalities for the year 2011. The results reveal that the average costs function for Slovenian municipalities is U-shaped, and the estimated least-cost size of the municipality implies that the current number of municipalities is not optimal. Besides, the average cost efficiency of Slovenian municipalities is approximately 25% above estimated best-practice frontier.

1 INTRODUCTION

The efficiency of various segments of the public sector is a topic of increasing interest in particular in the field of public economics. This is also true for the local government level, where the research is combined with the related topic of the appropriate creation and size of local jurisdictions, as this tends to be important for achieving efficiency gains in the provision of local government goods and services. In general, one could claim that local provision of goods and services is useful, although in practice its optimal scope must be found, to efficiently combine scale and congestion effects in order to minimize local authority costs or maximize efficiency. Specifically, this notion was derived from the club theory: the size of the local jurisdiction and welfare of the resident of that jurisdiction are both positively and negatively related. Namely, the larger size of local jurisdiction denotes also the greater number of taxpayers, which decreases the per capita costs of public goods provision, yet it

also causes crowding problems (see Bises and Sacchi, 2011). Namely, local jurisdictions usually provide in-kind goods (schools, libraries, health services etc.), and a greater number of individuals sharing the benefit of those goods may cause crowding problems.

Holzer et.al. (2009) have argued that the non-linear relationship exists between the size of local jurisdictions and their performance, since too large jurisdictions experience diseconomies of scale (due to the organizational slack, prevailing horizontal integration of service plants delivering the major part of public services at local level etc.) and too small jurisdictions are not able to achieve economies of scale. In particular, economies of scale are persistent in capital-intensive services of local jurisdictions, those being, for example, water provision and rural road maintenance, meaning that larger units of local government can provide them more efficiently. In contrast, smaller units of local government deliver labor-intensive services more efficiently (for example, police and fire protection, refuse collection, public education etc.), since those services do not exhibit significant economies of scale.

Nevertheless, the existing literature suggests four different potential effects of local government size on its costs: linear negative effect, linear positive effect, non-linear U-shaped effect and non-linear inverted U-shaped effect (Andrews et.al., 2006). In the first case, the bigger local government means lower costs (economics of scale), whereas in the second case, the bigger local government means larger costs (possible bureaucratic congestions). In the third case, costs of local government units fall at the beginning, however they start to rise after certain size of local government is achieved. This means that costs of "medium" sized local authorities are lowest, which could be attributed to acquired economics of scale, but congestion effects have not been experienced yet. This implies some "optimal" size of local jurisdictions. Finally, the last case shows that costs of medium-sized local units are the largest, which could be attributed to the fact that they have not experienced the economies of scale yet, but they still experience congestion effects.

The problem of local government size and efficiency has been regularly addressed in the local public finance literature, as the optimal organization and consolidation of local government units has also been one of the measures to deal with stagnating or even declining revenues or to contribute to the ability to achieve scale and scope economies (Carey et.al., 1996; Dollery et.al., 2007; Reingewertz, 2012). Consequently, this empirical paper will asses average costs function as well as cost efficiency for 200 Slovene municipalities for the 2011 fiscal year. This period relates to the most recent data availability as well as to the fact that in 2011 one additional municipality was established, leading to the current number of 211 municipalities that are functioning in Slovenia. This number includes also 11 so-called urban municipalities (cities), which have special status by the law and they perform also tasks given to them from central government involving the development of the city (urbanism etc.) (Local Self-Government Act, 2007). Costs function is estimated comprehensively for total municipal expenditures in order to avoid fungibility and classification issues related to different types of local government spending; and the study allows observing determinants causing variations in the costs of municipalities. Section 2 outlines the methodology of estimation of cost function as well as data employed in the analysis. Section 3 gives the estimation outputs and discussion on the results obtained. Section 4 presents concluding reflections.

2 DATA AND METHODOLOGY

A regression analysis is used to estimate average costs function for 200 existing Slovenian municipalities in the year 2011. This means that total population of municipalities is included in the analysis, excluding only 11 urban municipalities (cities), which tend to have slightly

different responsibilities compared to other municipalities, so the costs of those two groups of municipalities could not be directly compared. The number of municipalities has substantially increased, in particularly in the period of the last 18 years, so cross-sectional data are employed in the analysis, and the data for the last available year (2011) are utilised. Specifically, the reduced-form regression model for average costs of municipalities is:

$$AC_i = \beta X_i + u_i,\ i=1,..,N,$$

where ACi stands for average total expenditures for municipality i (calculated as a division of total expenditures and number of residents in municipality i, and also serving as a proxy for costs), which is a dependent variable, and X_i represents explanatory variables that affect municipal expenditures, whereas u_i describes unobservable shocks to municipal spending. Besides to linear and squared term of municipal population, which enables us to have the focus on the (non-linear) effect of population on average costs, the inclusion of other explanatory socio-economic (control) variables is based on the on the empirical literature review (e.g., Carey, 1996; Acosta, 2010 etc.), predominantly to avoid problems related to the poor prediction and the instability of coefficients. Control variables in the model are the share of municipal population over 65 years of age and under 15 years of age, average yearly registered unemployment rate, spatial size of municipality (in km2), population density (population of municipality per km2), average yearly gross income per capita of municipal residents and average total transfer revenues received by municipality. The analysis utilises software package EViews to estimate average costs function.

Table 1. Descriptive statistics for variables in the average costs function estimation for 2011.

Variable	**AC (EUR)**	**Population**	**Population over 65 (%)**	**Population under 15 (%)**	**Unemployment rate (%)**
Mean	1092	6719	16.5	14.5	11.6
Median	999	4504	16.4	14.4	11.1
Maximum	3577	34195	26.9	20.5	24.1
Minimum	187	320	11.1	9.0	4.9
Std. Dev.	376	5974	2.3	1.8	3.8
Variable	**Spatial size (km^2)**	**Population density (per km^2)**	**Transfer revenues per capita (EUR)**	**Average gross income per capita (EUR)**	
Mean	91.9	98.2	214	15895	
Median	61.7	76.8	153	15788	
Maximum	555.4	556.2	1396	22636	
Minimum	6.9	5.0	3	10634	
Std. Dev.	86.3	87.5	210	1579	

Source: SORS (2013), Ministry of Finance (2013), author's calculations.

Following, this paper employs also the stochastic parametric approach to cost efficiency measurement in Slovenian municipalities. The analysis uses Frontier software programme for the maximum likelihood estimation of the stochastic cost function of the Slovenian municipalities. Specifically, cost function is based on the Battese and Coelli (1995) specification, which can be written as:

$$C_i = Y_i\beta + (V_i + U_i),\ i=1,...,N,$$

where C_i stands for the logarithm of the costs of the i-th municipality, Y_i is a k*1 vector of transformation of the input prices and output of the i-th municipality, β represents a vector of unknown parameters, the V_i are normally distributed and independent random variables, and

the U_i represents the non-negative random variables accounting for the cost of the inefficiency in production, often assumed to be half-normally distributed. The inclusion of input and output variables in the stochastic parametric analysis is predominantly based on the literature dealing with local government efficiency (e.g., Geys et.al., 2010).

Total expenditures in the municipality in 2011 are taken as input variables (C), whereas four output variables (Y) that describe important responsibilities of the Slovenian municipalities with respect to the social, educational and infrastructure services are: the number of pupils in primary schools (nine years programme); the total population of municipality (this is the most important variable in the model, since it indicates possible scale effects); the population over 65 year of age; and the number of employed persons in municipality.

Table 2. Descriptive statistics of the selected variables in efficiency estimation for 2011.

Variable	Minimum	Maximum	Mean	Std. deviation
Total expenditures (in EUR)	568026	37584411	6810097	5916354
Pupils (primary schools)	4	3288	579	555
Population	320	34195	6719	5974
Population above 65 years	69	4921	1094	959
Employed persons	118	14707	2741	2480

Sources: SORS (2013), Ministry of Finance (2013), author's calculations.

3 RESULTS

Table 3 presents the results of the econometric estimation of the average costs function for Slovenian municipalities in the year 2011. Both population variables and five additional socio-economic control variables are able to explain more than 70% of variation in average costs among municipalities. Indeed, two control variables are dropped out of the model due to the statistical reasons, and all the others included are statistically significant.

Although both population variables are statistically significant, they actually represent rather small part of the story, as some other variables are statistically more important for explaining the magnitude of variations, in particular variable Transfer revenues, which has the largest effect on the variations in average costs of municipalities.

All variables have the expected direction of sign, exceptions being variables for population below 15 years of age and unemployment, where one would expect positive signs due to the expected effect of the increased demand for municipal services (Worthington and Dollery, 1999), although recent literature also recognises possible existence of "preference effect", which should decrease demand for high-cost public services. Namely, this demand is likely to decrease with smaller income levels as well as with reduced available income (Geys et.al., 2010), and this consequently negatively affects municipal costs.

Table 3. Estimation output for the average costs function for Slovenian municipalities.

Explanatory variables	**Dependent: AC**
Population	-0.046 (-6.03)***
Population^2	1.38E-06 (5.71)***
Share of population below 15	-44.74 (-4.61)***
Unemployment rate	-11.17 (-2.85)***
Spatial size	0.39 (3.44)***
Transfer revenues p.c.	1.28 (12.22)***
Average gross income p.c.	0.02 (1.66)*
Constant	1507.34 (5.64)***
$R^2_{adj.}$	0.70
see	235.42
d-stat.	2.03
F-stat.	68.06***
Ramsey χ^2 (p)	0.31

*Note: N=200, Weighted least squares (WLS) regression, t-values are in parentheses. *** denotes significance at 99% level, ** at 95% level, and * at 90% level. Control variables are excluded from the model upon χ^2 test.*
Source: author's calculations.

The results suggest that U-shaped (convex) function of average costs can be observed in Slovenia, which means that at some point average costs of municipalities start to increase, as the squared population term seems to be positive. If we assume that a territory can be divided up arbitrarily with no restrictions, the above stated calculations enable us to determine the "optimal size" of municipality, which is the one that yields minimum average costs (least-cost size of municipality). If we divide the number of residents living in 200 observed Slovenian municipalities (slightly less than 1.4 million) with the calculated least-cost size of municipality (calculated as first order derivative that minimizes average costs function, and being consequently slightly less than 17 thousand inhabitants), the preferred number of municipalities would be roughly around 80, which is substantially lower than the actual number. This would imply that municipal consolidation should be considered. Nonetheless, it should be admitted that the average costs function is rather flat, and, more important, the effect of population on the variation in costs is rather limited, so the potential gains resulting from consolidation should be assessed conservatively, taking into the account all the limitations imposed by econometric modelling. Furthermore, the results of the stochastic parametric estimation of municipal cost functions are presented in table 4. The results indicate that Slovenian municipalities are, on average, approximately 25% above the cost efficiency frontier.

Table 4. Estimation output of the Cobb-Douglas type frontier analysis.

Variable	**Dependent: TC**
Constant (β_0)	8.74 (48.98)***
Pupils in primary schools	-0.92E-08 (-6.23)***
Population	-0.05 (-1.49)
Population above 65 years	-0.46E-10 (-0.29)
Employed persons	0.84 (31.37)***
Summary statistics on cost efficiency	
Average	1.25
Minimum	1.00
Maximum	1.75
Standard deviation	0.24

*Note: N=200, t-values are in parentheses. *** denotes significance at 99% level, ** at 95% level, and * at 90% level.*
Source: author's calculations.

4 CONCLUDING REFLECTIONS

Based upon the estimation outputs, we could argue that current average size of Slovenian municipalities is below its appropriate level, so excessive fragmentation of local jurisdictions could be seen as a problem, potential solution being municipal consolidation. Nevertheless, although average cost curve for Slovenian municipalities is U-shaped, implying also some optimal size (and number) of municipalities, we should also acknowledge that, on average, the effect of size on costs, although highly statistically significant, is rather modest as it describes less than 10% of the variation in municipal expenditures, other factors being more important. Among those factors the effect of transfer expenditures should be stressed, implying substantial expenditure effects of revenue-sharing. Besides, the estimated U-curve is rather flat, which means that potential savings could be rather limited. Furthermore, the cost efficiency estimation has also revealed certain inefficiencies in Slovenian municipalities, which indicates that the issues related to municipal consolidation and increased efficiency should be addressed further.

5 BIBLIOGRAPHY

Acosta, P., (2010): **The "fly-paper effect" in presence of spatial interdependence: evidence from Argentinean municipalities,** ***Annals of Regional Science***, 44: 453 - 466

Andrews, R., et.al., (2006): **Population Size and Local Authority Performance**, London: Department for Communities and Local Government

Battese, G. E., Coelli, T. J., (1995): **A Model for Technical Inefficiency Effects in a Stochastic Frontier Production Function for Panel Data,** ***Empirical Economics***, 20: 325 - 332

Bises, B., Sacchi, A., (2011): **On Cash Transfers, In-kind Provision, and the Size of Local Jurisdictions,** ***Public Finance Review***, 39: 527 - 550

Carey, M., et. al., (1996): **Optimal consolidation of municipalities: An analysis of alternative designs,** ***Socio-Economic Planning Science***, 30: 103 – 119

Dollery, B., et. al., (2007): **Is bigger better? Local government amalgamation and the South Australian rising to the challenge inquiry,** ***Economic Analysis & Policy***, 37: 1 - 14

Geys, B., et. al., (2010): **Voter Involvement, Fiscal Autonomy and Public Sector Efficiency: Evidence from German Municipalities,** ***European Journal of Political Economy***, 26: 265 - 278

Holzer, M., et.al., (2009): **Literature Review and Analysis Related to Optimal Municipal Size and Efficiency**, Newark: Rutgers University

Local Self-Government Act (2007): **Official Gazette of RS**, No. 94/2007

Ministry of Finance (2013): **Financial Statements of Municipalities,** Ljubljana: Ministry of Finance of RS, http://www.mf.gov.si [Accessed 14.2.2013]

Reingewertz, Y., (2012): **Do Municipal Amalgamations Work? Evidence from Municipalities in Israel",** ***Journal of Urban Economics***, 72: 240 - 251

SORS (2013): **SI-Stat Data Portal**, Ljubljana: Statistical Office of the Republic of Slovenia, http://www.stat.si [Accessed 10.2.2013]

Worthington, A. C., Dollery, B. E., (1999): **Fiscal Illusion and the Australian Local Government Grant Process: How Sticky is the Flypaper Effect?** ***Public Choice***, 99: 1 - 13

SCIENCE AND TECHNOLOGY PARK AND REGIONAL DEVELOPMENT

Mili Razović
University of Zadar; Department of Tourism and Communication Sciences
Ulica dr. Franje Tuđmana 24i, 23000 Zadar, Croatia
E-mail: milirazovic@gmail.com; mrazovic@unizd.hr

Zvonimir Mimica
E-mail::zvonimir.mimica@gmail.com

Key words: *Regional development, science and Technology Park, Employment*

ABSTRACT

This paper explores the influence of the example of a science and technology park on the development of Split-Dalmatia County as an administrative-regional unit. The basic principles of the theory of regional development are determined in this paper, as are the definition of the term and characteristics of the region. Through the analysis method, the concept and function of the science and technology park was determined. The main goal of this research paper is to determine whether the science and technology park can function as a part of the regional development of Split-Dalmatia County and for the employment of highly educated personnel. The results of this research, which involved 400 companies from the area of high technology and 79 scientific- research institutions from Croatia, proved that the science and technology park functions as part of the regional development of the Split-Dalmatia County. It will increase the employment of highly educated personnel. Furthermore, there are a sufficient number of economic, and scientific research and other operators who are willing to get involved in the work of the scientific- technology park of the Split-Dalmatia County in the initial period of its operation.

1 INTRODUCTION

A science and technology park is a business-organizational system under which development and business infrastructure is operated. This includes: an innovation incubator, and research and development, educational and manufacturing centers. Innovation incubator with business offices and research and development labs encourage new start-up companies to innovate and shape entrepreneurial ideas. A research and developmental center supports the development and marketing of products based on high technologies in domestic and foreign markets. An educational center contributes to the professional development of entrepreneurs and researchers. A production centre encourages investment projects from medium and large enterprises. The basic purpose of a science and technology park is its contribution to the socio-economic development of regional communities in the area of its action.

A science and technology park functions within the region's development. In this paper a theory of regional development is particularly defined. Besides the definition and characteristics of the region, the main theories of regional development are defined. Internal and external potentials of one region are perceived and presented, as are methods of management, with special emphasis on entrepreneurial ventures in regional development.

Research and technology park projects are normally supported by the government, regions, universities and companies from the field of high technology. Because of this, the goals for the development of a scientific and technology park are determined as well as the possibility of its impact on the socio-economic environment in which it develops and operates.

In this paper, a special emphasis is put on the science and technology park project of Split-Dalmatia County. Therefore, through research, this paper seeks to answer three key questions: a) does the science and technology park project function as regional development of the Split-Dalmatia County?; b) does the science and technology park project function to employ highly qualified personnel?; c) Is there a minimum number of economic, scientific research and other subjects who are willing to engage in the work of science and technology park in the initial period of its opening?

Based on the research results, it is possible to provide an assessment about the role of a science and technology park in the development of Split-Dalmatia County as an administrative and regional entity.

2 REGIONAL DEVELOPMENT

In defining regional development, theorists have added to this concept the social aspect of the development of one area along with the economical consideration of development. Thus, ecological sensitivity, sustainable development, cultural diversity, and quality of life have become an integral and essential part of all development issues at the regional level. The defined direction of development is subject to compliance with any requirements of time and with new ideas, improvement and change, and becomes "the subject of change over time." (Pike, Rodríguez-Pose, Tomaney, 2006: 25).

The meaning of the term - region, can be understood: as a geographical term, as an organized administrative unit in political and economic terms, and as a complete social unit. As far as „federal or regionalized countries“ are concerned „these are likely to be self-governing entities, defined as a 'region', 'state', 'province' or 'Ländler', depending on the country. (Mizzel, Allain-Dupré, 2013: 6). The issue of regional development is not easy and so professional

public debate "about the regional balance and imbalance, monocentric and polycentric regional development, about the jurisdictional versus open model of regional organization, about political, ethnic, economic and cultural structure of the region, etc." (Šimunović, 1992: 37). Each region discusses the development in a different way which is adjusted to their specific characteristics and needs.

Development of a region can be analyzed through the so-called qualitative and quantitative approaches. The qualitative approach takes care of nature and the character of the local and regional development, for example, economic, social and environmental sustainability and the form of growth, development of new businesses and job creation based on knowledge. On the other hand, the quantitative approach "could refer to numerical indicators, for example, the pace of growth in gross domestic product per capita, the number of created or preserved jobs, provided new investment projects or established new businesses." (Pike, Rodríguez-Pose, Tomaney, 2006: 40). Precisely, the ratio of the qualitative and quantitative gives an insight into the character of the chosen direction of development.

Regional development is also affected by the attitudes, principles and values the society or individual social structures that live and work in the region or at the national level where the region is located. Such principles "could reflect general opinion independent of the level of development of the state, such as democracy, equality, justice, freedom and solidarity. They are often a reflection of the relationship and balance of power between state agencies, markets, civil society and the public. "(Pike, Rodríguez-Pose, Tomaney, 2006: 44). Furthermore, „globalisation has contributed to the progressive evolution of the industrial organization paradigm of mass production towards more flexible and successful production systems as a way to respond to the increasing competitive pressure of international markets. " (Ascani, Crescenzi, Iammarino, 2012: 3).

Over time, theorists have developed a number of theories about the possible directions of regional development. The most important are: (Pike, Rodríguez-Pose, Tomaney, 2006: 62-120) neoclassical growth theory of local and regional convergence, the Keynesian theory of local and regional divergence, theories of structural and temporal changes ,institutionalism and socio economics, innovation, knowledge and learning, extended neoclassical theories, sustainable development and post-development. Classical theories seek balanced development of regions and the reduction of regional imbalances and convergence. The Keynesian approach is, among other things, directed at the export and observation of the development of the region from the "outside", and not from the "inside". Theories of structural and temporal changes put development into evolutionary and historical context through metaphor phases, cycles and waves. Institutionalism and socio-economics emphasize the role of institutions in market correction.

Contemporary approaches to regional development are based on innovation, knowledge and learning capability which leans on extended neoclassical theories and sustainable development.

The most recent post-development approach, based on post-structuralism and on the critique of "the continuation of colonization" and deepening of the gap between "developed" and "underdeveloped" in a short time has attracted criticism and has been named "naive." Each of these theories has its critics. This testifies to the complexity of the considerations of regional development.

When we talk about the potential of a region, especially in economic terms, we need to take

care of two different but equally important aspects: on one hand, about the inner potential, typically one that guarantees the economic development of the region, and on the other hand, the external potential, the capacities and capabilities of attracting foreign investment. While considering the development strategy of internal resource, the approaches that tend to achieve "less dependence on exogenous or external economic interests." are discussed; approaches that rely on the competitive advantages that local community offers and approaches that tend to achieve „the lower cost of the means of production, such as land and labor" (Pike, Rodríguez-Pose, Tomaney, 2006: 155). As the internal factor of development of the region, a special role belongs to entrepreneurs. The key word becomes innovation, but „it is also important to improve connectivity within the region and to create a set of brokers within the region with good knowledge about how innovation works“ (Benneworth, Dassen, 2011: 44).

Outside the, so-called, exogenous factors of regional development are connected with "attracting investment by transnational corporations and the exploitation of their potential benefits for local and regional economy. The role of corporations in today's globalized world may be crucial for the development of a particular region. This is because "The decisions of transnational corporations on investment, reinvestment or withdrawal, as well as the phenomenon of territorial competition, have the power to shape local and regional development and identify geographic patterns of prosperity and weaknesses." (Pike, Rodríguez-Pose, Tomaney, 2006: 175).

At the beginning of the 21st century, the regional aspect of development increasingly involves a new type of labor force - "creative class," one that is "made up of those workers from sectors such as technology, media and entertainment industry and finance, and whose activities include creativity, individuality and diversity . Particularly interesting is the creativity as "a new engine of the economy." (Florida, 2002, according to Pike, Rodríguez-Pose, Tomaney, 2006: 193)

The region in its development is striving towards two fundamental goals. The first is the socio-economic benefit, particularly employment. The creation of jobs is an important indicator of economic growth and other fundamental goal is "the ability to develop the economy," which "involves two interrelated processes: structural change and productivity improvement" (Malecki, 1997, according to Fisher, Nijkamp, 2009: 182).

Due to the inevitable impact of globalization and the policies that that are conducted on multiple levels in the world, through supranational, national, regional and local, today more and more people talk about the need of regional development management on multiple levels. It is almost impossible to determine the true objectives and priorities of regional development without the participation of a broad range of entities that operate and exist within the regulated democratic political environment. "Social partnership, that include statutory organizations and voluntary and social sectors, representatives and active citizens, are crucial for the management concept and have helped to establish social and economic priorities" (McCall, Williamson, 2001, according to Pike, Rodríguez-Pose, Tomaney, 2006; 147). It is, therefore, necessary „to identify the stakeholders involved“ and „a first step is to set up an 'institutional mapping' of their roles and responsibilities to clarify their relationships.“, bearing in mind that „sub national governments play a key role in public policies.“ (Charbit, 2011: 5).

One of the objectives of each regional government is to increase the standard of living of the population. In today's globalized world, it is only possible to achieve this with constant innovations in the high technology field. Innovation system can be observable at the state and local level, and it is the role of the so-called Triple Helix model. The Triple Helix model is a

form of connection of universities with industry and the government, especially customized for the modern high competitiveness that prevails on the global high-technology markets. (Veža, 2011). With such cooperation, competitiveness in the world market is achieved. This project is seen as a "challenge and a chance to increase the competence of the related region." (Veža, 2011)

"Building Entrepreneurial University" is based on the model that the university can play a significant role in innovation in the knowledge-based societies. Here there is "focus on the network overlapping of communications and expectations that transform the institutional arrangements among universities, industries and government agencies." (Etzkowitz, Leydesdorff, 2000: 109). The emphasis of the model is on the applied research the result of which becomes an innovation product that is designed and directed towards global markets.

Indicators of success of regional development are the result of the application of regional development policy. One of the most common indicators is economic growth. There are three main initiators: "development based on knowledge, culture and action in innovation and public infrastructure direction." (Fischer, Nijkamp, 2009: 188).

Every successful region should have a monitoring policy and entrepreneurship encouragement. Of great importance for the regional community are the existing established companies that have already achieved entrepreneurial ventures because they provide a certain stability and the level of employment.

Therefore it is important to provide those businesses further development and new ventures in the direction of quality improvement or additional extensions of work, which could lead to new market successes and to the increase in the number of employees. Opening business incubators, business zones, enabling incentives and financing methods is what every community through established institutions simply must plan and implement. "Incubators generate start-up companies and serve as an initiative force for new innovative companies helping them to succeed in the marketplace." (Saublens et al., 2008: 56).

For the initial start-up companies, it is important to have the understanding and support of the community, or of the fact that "tolerance of failure can encourage others and attract new businesses beyond the reach of local or regional." (Pike, Rodríguez-Pose, Tomaney, 2006: 159). Therefore, the thing that is important is the meaning of scientific and professional teams of employees in regional development organizations, which can be a significant link among the new entrepreneurs, financial institutions and the science and Technology Park in whose environment entrepreneurial ideas and projects are being implemented.

3 THE CONCEPT AND FUNCTION OF SCIENCE AND TECHNOLOGY PARK

In the theory of regional development there are four main goals of science and technology parks defined: (1) encouraging the creation of new start-up companies, (2) achieving transfer of knowledge and technology from universities to business entities in the park, (3) job creation and (4) attracting high technology (Massey, Quintas, Wield, 1992 : 30-50).

The new start-up companies are an important potential for the future development of the region, and the source of new business ideas and ways of thinking. Knowledge and technology transfer from academic universities to the entrepreneurial subjects in the park is certainly one of the main goals because with the new technologies, innovations are born" that are crucial for the competitiveness of today's globalized world. The use of available

knowledge of the subjects in the science and technology park becomes a particularly important prerequisite for success. One of the goals, which the local community is very sensitive to, is job creation or the creation of preconditions for new employment opportunities. New jobs contribute to the improvement of life standard and to overall quality of life of citizens of the region.

It can be said that "the main objective of science parks is attracting 'high tech' ventures, which act on the 'leading edge' of technology '(Massey, Quintas, Wield, 1992: 30 - 50). Contemporary technologies are a challenge to every scientific- research community. At the center of research and application of new technologies there is the concept of innovation. Science and technology parks are the place where the combination of science and business enables the development of innovation. Innovation is particularly important in today's modern understanding of economics under which "the basic economic resources are not material, human, or money, the main resource is knowledge." Orientation towards the new knowledge leads to the entrepreneurship approach in which the creation of knowledge through research and development (R and D) is the fundamental initiator of the establishment of the new economy" (Saublens et al., 2008: 54). For this purpose, there is also "a strong need for a combination of theoretical knowledge and business practices, a strong need to strengthen the cooperation between the two environments: academic and business." (Saublens et al., 2008: 54). The promotion of the economic development and competitiveness of regions through science and technology parks is possible with: (Saublens et al., 2008: 64) a) creation of new business opportunities and added value in older businesses; b) encouraging entrepreneurship and incubation of innovative enterprises; c) the creation of jobs based on knowledge, d) creating space for scientific research workers; d) increase of the synergy between universities and companies; e) the creation of skills base and accompanying innovation capacity ; f) the creation of regional innovation infrastructure in the service of support of the regional development; g) promoting new businesses directed towards new technologies.

The basis of the concept of science and technology park is an effort of the regional community towards the connection of science and business, and putting modern scientific achievements from high technology fields in the function of future production, and thereby the creation of new employment opportunities. As a "common denominator" of minimum agreement it is stated that "these parks bring together producers of products and services of high technology and provide opportunity for the degree of institutional cooperation between universities and industry" (Saublens et al., 2008: 54). It can be determined that the "science parks are a form of guidance from academic towards the closer needs of industry" (Massey, Quintas, Wield, 1992: 34).

In today's world of new technologies and relations in the global market, it is considered that the science and technology park is a meeting point of science and entrepreneurial initiatives at the regional level. Many entrepreneurial initiatives already exist since „firms tend together to profit from shared expertise and services and the development of mutual trust has encouraged interest in fostering industry clusters to enhance regional development“ (Wessner, 2001: 22). Science and Technology Park may bring this sharing of expertise to a higher level.

The connection of science and economy as part of science and Technology Park happens at one physical location which must have all technical requirements and resources for collaboration between entrepreneurial firms and other entities. In the science and technology park, research laboratories and other academic departments function for innovation deliberation and its practical, market-oriented application.

Considering that with the concept of a science and technology park, concentration of various companies is planned in the context of technology transfer. There are usually two types of such subjects: "(i) academic start-up enterprises - the academic staff transfer the research from university laboratory to the park, starting their own company, and entering the market. (ii) new entities without prior contact with local academic institutions, as well as existing operators that are changing the location inside the park, using university resources, expertise, technology, knowledge, etc. "(Massey, Quintas, Wield, 1992: 34). In both cases, the importance of the academic community-university is crucial for the work of science and technology parks. One of the components of science and Technology Park, without which the concept would not be complete, is a business incubator. A business incubator provides strategic guidance for innovation projects, complex and innovative services to enterprises and sufficient infrastructure for new start-up companies. Business incubators are often the core of new science parks (Saublens et al., 2008: 56).

This confirms the fact that at the level of the European Union operates more than 900 business incubators that significantly contribute to the creation of jobs and wealth. About 40,000 new workplaces are created each year in business incubators (Saublens et al., 2008: 56). Science and Technology Park is in a physical sense located on the location specified by the founder, and usually within a larger regional center. Location needs to be well connected, infrastructural, with international, national and regional center. Science and Technology Park must be full utility equipped and energetically secured. Within the park, facilities should exist such as administrative buildings, business halls, business- administrative offices, scientific-research laboratories, hotels and catering facilities, green spaces and recreational facilities.

The park becomes the new content for students of regional universities and related institutions based on scientific research and technological innovation providing them potential workplaces in the near future. A successful park can contribute significantly to the overall economic potential of the region. The tourism dimension of the park is not negligible. With its attractiveness, the park can attract foreign visitors and potential investors and entrepreneurs, who visited it within their leisure trip in the tourist region.

A science and technology park for a certain area means new content that offers further opportunities for employment and implementation of potentially competitive entrepreneurial projects in domestic and global markets.

4 METHODOLOGY AND RESEARCH RESULTS

The subject of research in this paper is to determine: a) if the science and technology park project is in function of regional development of Split-Dalmatia County; b) to which extent a science and technology park contributes to the employment of highly educated personnel; c) whether there is even a minimal number of economic, scientific- research and other subjects that are willing to become involved in the work of a science and technology park in the initial period of its opening. The research was conducted during October 2012, through electronic mail. The research was conducted using anonymous surveys among all companies from the high technology field , as well as among all scientific- research institutions in the Republic of Croatia whose e-mail addresses were available to the public. Each message included a link to a questionnaire prepared under U.S. website "Survey Gizmo" (www.surveygizmo.com) that is intended for researchers from around the world who conduct online research.

The message included a request to fill out of the questionnaire via the attached link. According to register, 9072 companies from the high technology field in the Republic of

Croatia on three occasions forwarded a total of 2186 e-mail-questionnaires to all publicly available e-mail addresses of companies. From the 2186 e-mails that were sent to companies, no answer was received from 1786 companies (2186 - 400) which was 81.70%. Therefore, 400 companies (18.3%) from the high technology field in the Republic of Croatia (1 questionnaire for companies) were included in this research.

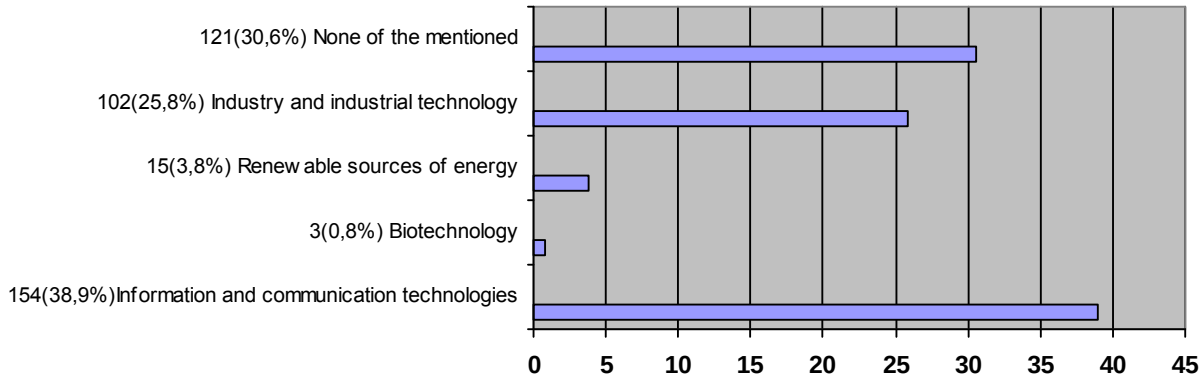
From the 197 existing scientific research institutions in the Republic of Croatian, on three occasions, a total of 187 e-mails were forwarded to research institutions. (The survey questionnaire 2-institutions). Of 187 questionnaires messages sent, but no answer was received from 108 institutions (187-79) which was 57.75%. Therefore, 79 scientific- research institutions in the Republic of Croatia (The survey questionnaire 2 - institutions) were included in the research.

Based on listed samples, collected data from the questionnaires were analyzed statistically-methodologically and the following results were obtained.

4.1 The main areas of activity of companies and institutions

According to the data from the research, four main areas of activity of companies and institutions in the Science and Technology Park were: information and communication technologies, biotechnology, renewable sources of energy, and industry and industrial technology.

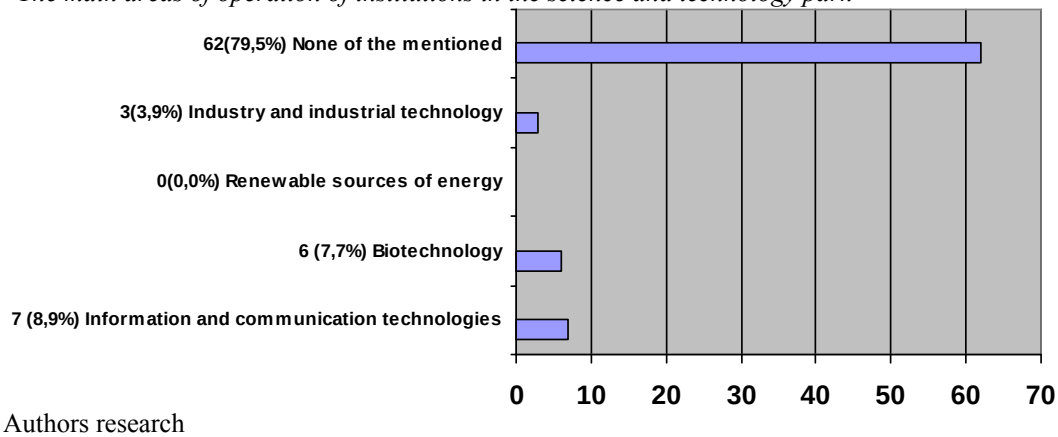
Chart 1. The main areas of activity of companies in science and Technology Park



Source: Authors research

The main areas of activity of companies (38.9%) in the science and technology park were information and communication technologies.

Chart 2. The main areas of operation of institutions in the science and technology park



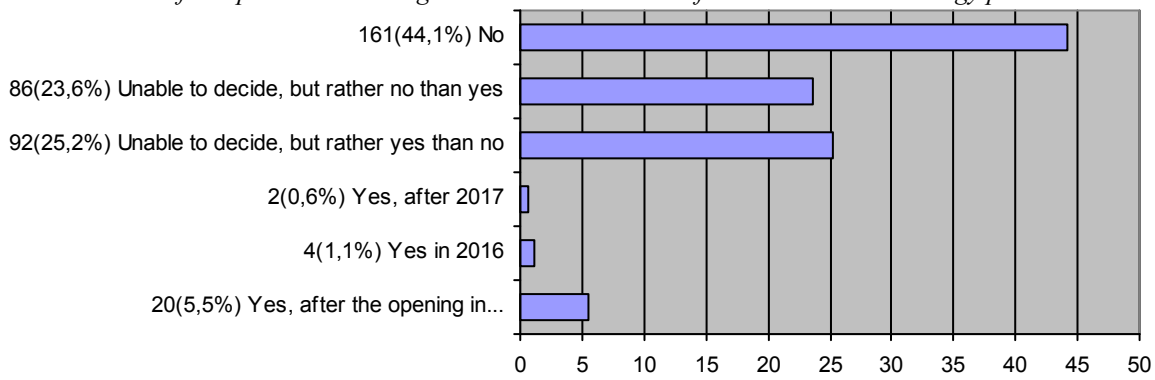
Source: Authors research

Information and communication technologies (8.9%) and biotechnology (7.7%) are the main areas of operation of institutions in a science and technology park.

4.2 Business interest in entering the business incubator of a science and technology park

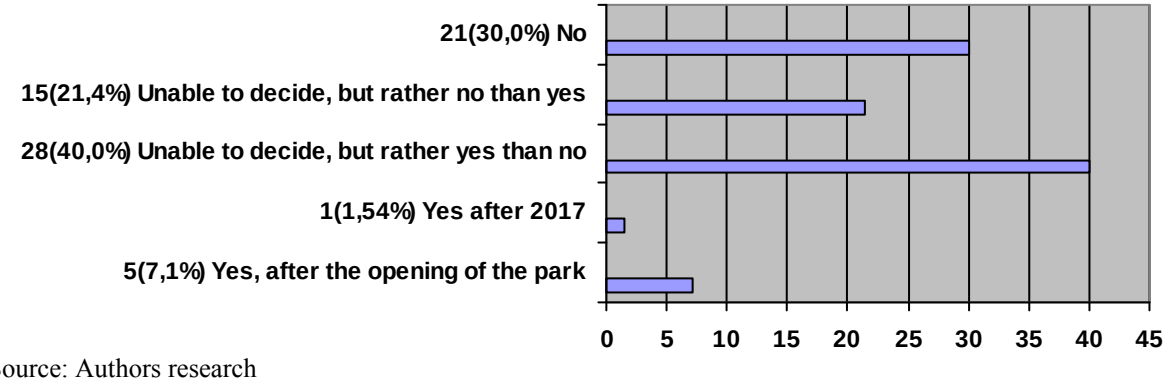
Most companies are not interested in entering the business incubator. However, it is positive for the project that 26 (7.2%) of companies wanted to get into that part of the science and technology park of the Split-Dalmatia County.

Chart 3. Interest of companies ib entering the business incubator of a science and technology park



Source: Authors research

Chart 4. Interest of institutions in entering the business incubator of a science and technology park



Source: Authors research

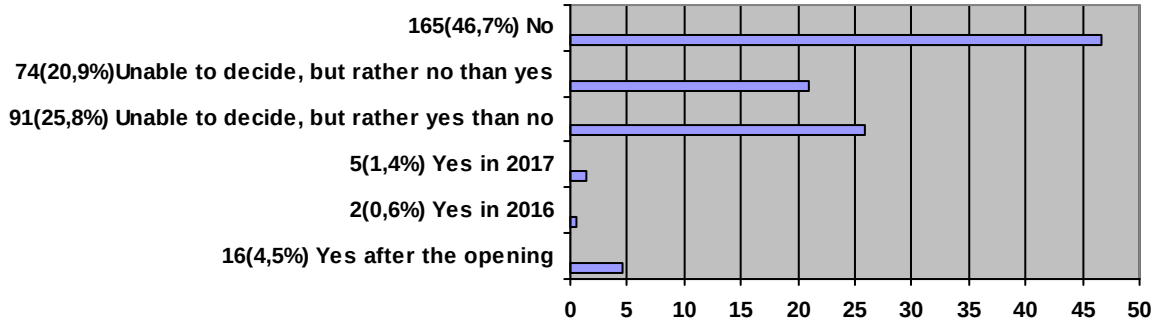
The largest number (40.0%) of institutions that were included in the research could not decide about entering the business incubator while 7.1% of institutions were ready to enter into this

part of the science and technology park after its opening.

4.3 Business interest in entering the Centre for Innovative Entrepreneurship and the Centre for Research and Development of a science and technology park

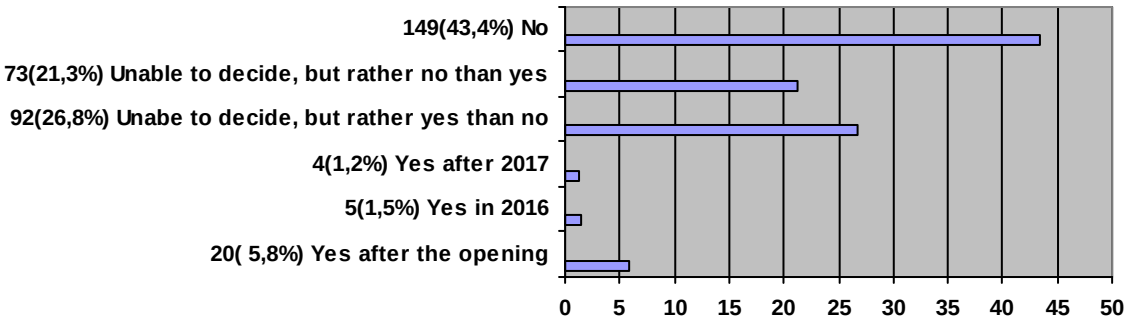
6.4% of the companies covered by the survey were ready to enter the Centre for Innovative Entrepreneurship However, 25.8% of companies were ready to enter the Centre for Innovative Entrepreneurship a year after its opening.

Chart 5. Interest of companies in entering the Centre of Innovative Entrepreneurship of science and Technology Park



Source: Authors research

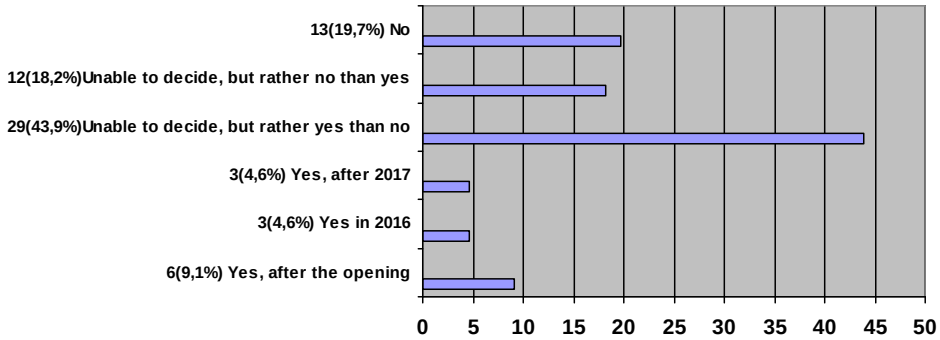
Chart 6. Interest of companies in entering the Center for Research and Development



Source: Authors research

Most of the companies (43.4%) were not interested at all in joining the Center for Research and Development. However, a positive attitude towards this project was shown by 7.2% of the companies that wanted to enter immediately and 26.8% of companies that still could not decide but still left the possibility open ("rather yes than not") for joining the Center for Research and Development.

Chart 7. Interest of institutions in entering the Center for Research and Development



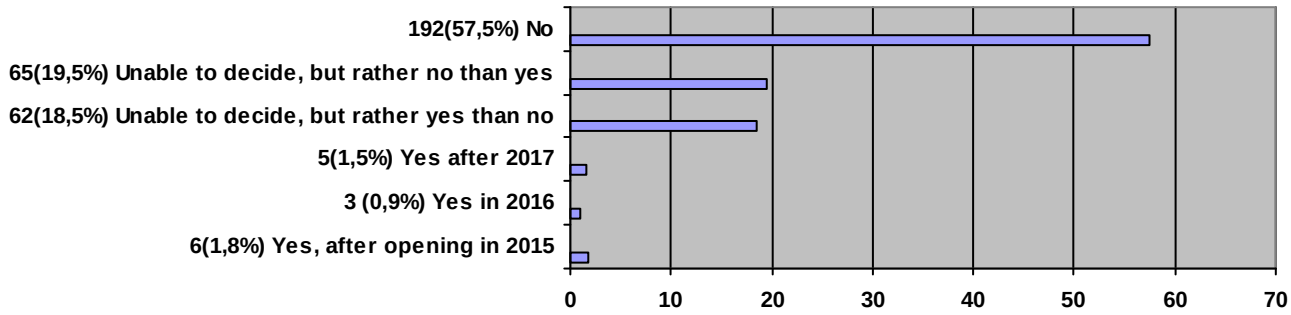
Source: Authors research

Most of the institutions (43.9%) could not decide whether to enter the park, but had a certain degree of options because they were still interested ("rather yes than not"). A positive attitude towards the project was expressed by 13.6% of the institutions that expressed a willingness to be involved at the very beginning in the working of the Centre for Research and Development.

4.4 Business interest in investment in production center of science and Technology Park

More than half of companies (57.5%) were not interested in investing in the construction of the facility within the production center. However, for the project, it is positive that 15 or 4.5% of companies wanted to start their activities immediately in this part of the science and technology park of the Split-Dalmatia County.

Chart 8. Interest of companies in investment in facilities within the Production Center for the science and technology park

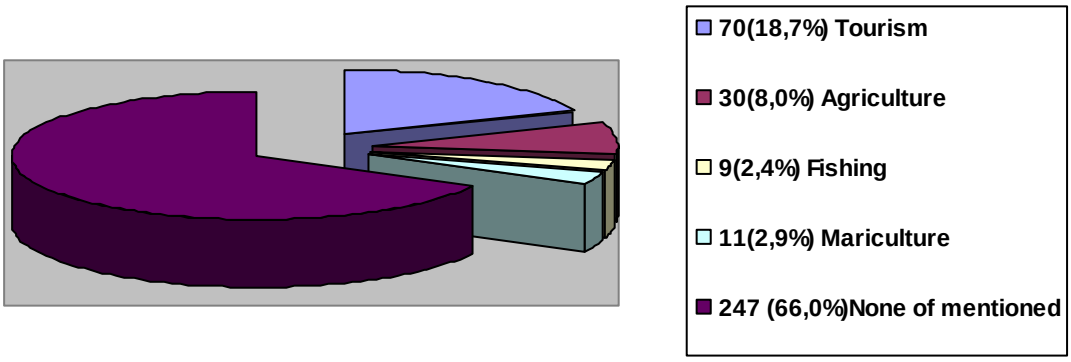


Source: Authors research

4.5 Contribution of a science and technology park to development goals of the Split-Dalmatia County

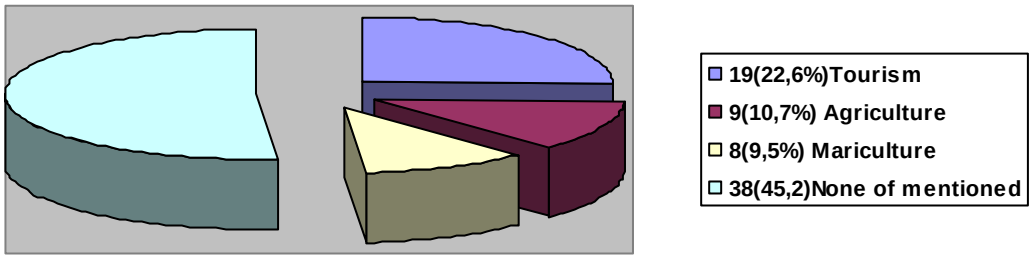
The greatest contribution to the development of Split-Dalmatia County by companies that would operate in the area of the science and technology park would given to the tourism sector (18.2%), then to agriculture (8.0%), and finally to the fishing and aquaculture sector (5.3%).

Chart 9. Contribution of companies to developmental goals of the Split-Dalmatia County



Source: Authors research

Chart 10. Contribution of institutions to developmental goals of the Split-Dalmatia County



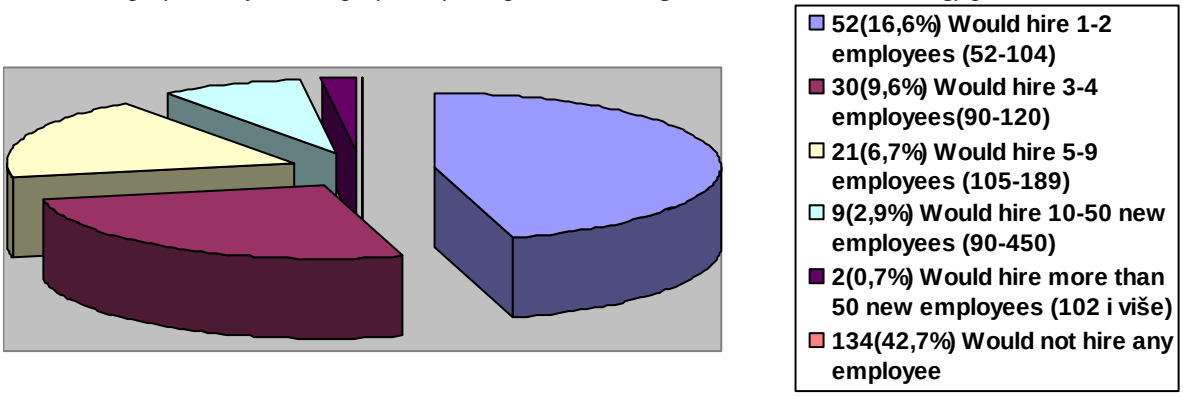
Source: Authors research

The contribution of institutions to te developmental goals of the Split-Dalmatia County through activities in a science and technology park is most expressed (22.6%) in tourism, then fishing and aquaculture (17.8%) and finally agriculture (10.7%).

4.6 Employment of new employees by entering of companies and institutions in the science and technology park

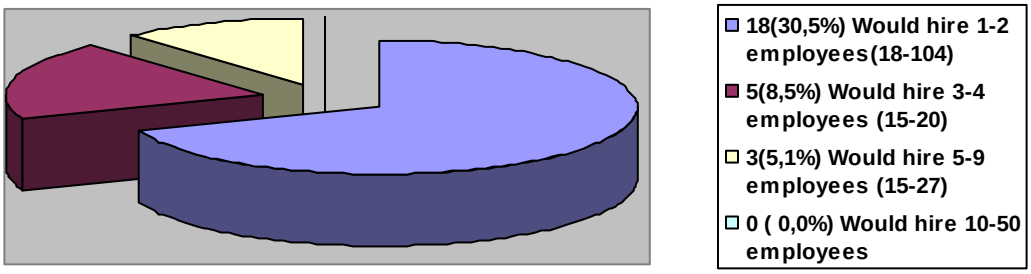
According to the research, 16.6% of companies, by entering the science and technology park, would employ 1-2 employees, 9.6% of the companies would hire 3-4 new employees, 6.7% of companies would hire 5-9 new employees, 2.9% of companies would hire 10-50 new employees and 0.7% of the companies would employ more than 50 new employees.

Chart 11. Employment of new employees by companies entering the science and technology park



Source: Authors research

Chart 12. Employment of new employees by entering of institutions in the science and technology park



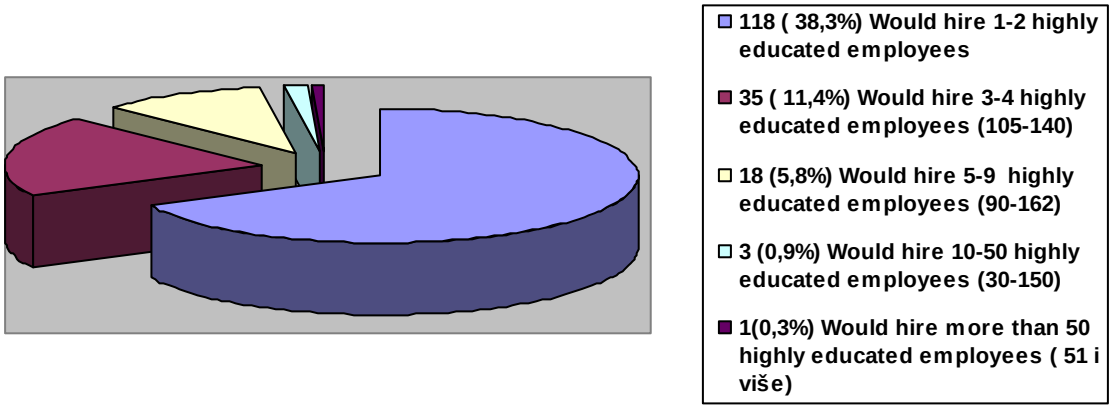
Source: Authors research

Most institutions (30.5%) would employ 1 or 2 new employees. The contribution of institutions to job creation, as one of the most important goals of regional development of the Split-Dalmatia County, would be from 48 to 151 newly hired employees.

4.7 Employment of new highly educated employees by the entry of institutions and companies in the scientific and technology park

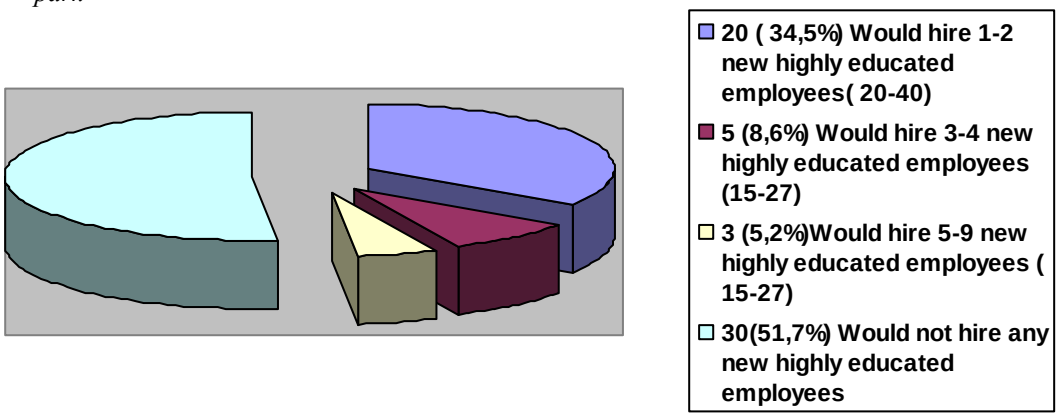
Most companies (38.3%) would employ from 1 to 2 new highly educated employees. Companies, by joining the science and technology park help to provide 394-739 new jobs for highly educated employees, which is one of the most important goals of the regional development of the Split-Dalmatia County.

Chart 13. Employment of new highly educated employees by entering of companies in the science and technology park



Source: Authors research

Chart 14. Employment of new highly educated employees by entering of institutions in the science and technology park



Source: Authors research

Most institutions (34.5%) would employ 1 or 2 new highly educated employees. The research results showed that institutions, by joining the science and technology park of the Split-Dalmatia County, would create conditions for the employment of 50 to 87 highly educated employees. With the employment of highly educated employees in the science and technology park, basic conditions for social and economic development of the Split-Dalmatia County are created.

5 DISCUSSION ON RESEARCH RESULTS

In the Development Strategy of the Split-Dalmatia County 2011- 2013 (2011: 68) it was explicitly stated that the science and technology Park of the Split-Dalmatia County would be built "in accordance with the development programs of the Split-Dalmatia County, on a surface of 240 ha in the area of Vučevica." Theoretically it can be concluded that the project

must comply with the development programs of the Split-Dalmatia County, which confirms the first hypothesis - a science and technology Park functions to develop the Split- Dalmatia County. However, this claim is not enough, because apart from the development plan, it contains no empirical verification and realization of the plan. Therefore, the research was conducted to test the contribution of a science and technology park as functioning to develop the Split- Dalmatia County. In the text below, the comparison of research results with the goals of development Split- Dalmatia County is made.

Creating a competitive economy based on knowledge - A science and technology park contributes to the attraction of subjects in its three main functional parts: Business Incubator, Innovative Entrepreneurship Center and the Center for Research and Development. This encourages the creation of a competitive economy based on knowledge, strengthens entrepreneurial infrastructure and attracts investments.

Strengthening business infrastructure and attracting investments- 26 companies and 6 institutions are ready to be included in the business incubator of the park immediately, while 92 companies and 28 institutions are able to be included immediately and thus have left this option opened ("rather yes than no"). 23 companies are ready to be included in the Center for Innovative Entrepreneurship immediately, while 91 companies have left the option opened ("rather yes than no"). 29 companies and 12 institutions would immediately get involved in the Center for research and development, while 92 companies and 29 institutions have left this option opened.

Tourism development- 330 companies and 64 institutions responded to the question about the goals of the development vision of the Split-Dalmatia County that would contribute if they entered the park. 70 companies and 19 institutions would contribute to the development of tourism, and thus the science and technology park would contribute to the development of this high priority target, and thus the regional development of Split-Dalmatia County.

Human resource development and increase in employment - Exploring the possibility of hiring new employees by joining the park area, 52 companies and 18 institutions stated that they would employ 1 or 2 new employees, 30 companies and institutions 3 to 4 new employees, 21 companies and 3 institutions 5 to 9 new employees, 9 companies 10 to 50 new employees and two companies more than 50 employees. Contribution to employment is: 439 to 965 and more by companies and 48 to 151 by institutions (total: 487-1116 or more). Science and Technology Park would contribute to the development of human resources and increase of employment because 105 companies and 29 institutions responded that they are willing to include highly educated staff in one of development programs of human resources in the educational center.

Partnerships development among stakeholders of development- 72 companies would get involved in partnerships with other entrepreneurs, 44 with the University of Split and 37 with the Split-Dalmatia County. In addition, 59 companies are subsequently willing to involve in partnerships with some of the stakeholders while 19 institutions would involve in a partnership with the Split-Dalmatia County, 17 with the University of Split and 11 with entrepreneurs.

Strengthening international cooperation- 213 companies and 42 institutions are ready for international cooperation. In addition, 23 companies and 9 institutions that could not decide, left the option opened (rather yes than no).

Promotion of economic potentials- Research has shown that the science and technology park, although it has not even started to operate, already in the preparation stage with its promotion, introduces potential users to the project, although not at a completely satisfactory level.

T the question: "Are you familiar with the project science and technology park of Split-Dalmatia County?", from the total number of 388 companies, 3 companies have responded that they are well familiar with the project, and 71 that they were, but only superficially. To the same question, 3 of 78 institutions responded that they were well familiar with the project, and 26 that they were, but only superficially.

Contribution of a science and technology park to the employment of highly qualified personnel - 35 companies and institutions would employ 3 to 4 new highly educated employees, 18 companies and 3 institutions 5 to 9 new highly qualified employees, 3 companies 10 to 50 new highly qualified employees, and one company would employ more than 50 highly skilled employees. To the employment of highly educated staff, a science and technology park would contribute: 394 to 739 new employees and more by companies and 50 to 87 by the institution (total: 444 to 826 and more). With this, a science and technology park contributes to the achievement of priority objectives (increased employment), especially the to the employment of highly qualified staff (confirming hypothesis 2).

There is a minimum number of economic, science- research and other subjects willing to be engaged in the work of a science and technology park in the initial period from its opening. Based on the research results, the utilization rate of three main functional parts of a science and technology park was estimated: Business incubator, Innovative Entrepreneurship Center and Center for Research and Development. These three parts are the only parts that assume entry of operators in the park area on a more permanent basis. For the initial period of the opening of park, the first three years of operation were taken into consideration: zero year (2015), first year (2016) and second year (2017). Maximum utilization of the business incubator is - 40 subjects (40 business offices of 90m2), innovative entrepreneurship center - 8 subjects (8 business areas of about 290m2) and the center for research and development - 3 subjects (3 production space of 400m2. With comparison between the estimation of facility utilization and research results it can be concluded that for entering business incubator, innovation entrepreneurship center and center for research and development of science and technology park of Split-Dalmatia County there is more interest than it is necessary for estimation of the project's success for economic, scientific and research and other subjects. Research results and comparative analysis showed that there were a sufficient number of such subjects, and thereby hypothesis 3 was confirmed: there is a certain number of economic, scientific-research and other subjects that are willing to engage in the work of science and Technology Park in the initial period.

The research proved the positive evaluation of the hypotheses and on that basis it is possible to intensify activities to create a science and technology park of the Split-Dalmatia County.

6 CONCLUSION

The conducted research, along with the term definition of regional development, clearly expresses the significance of the science and technology park project for the development of the Split-Dalmatia County as a defined regional administrative unit.

This paper defines nine priorities that the scientific and technology park project has and

directly contributes to the development of the Split-Dalmatia County. The entry of 26 companies and 6 institutions in the business incubator, 23 companies in the area of innovative entrepreneurship center, and 29 companies and 12 institutions in the center for research and development proves the importance of this project in creating a competitive knowledge-based economy.

A science and technology park project encourages development of individual sectors. Thus, 70 companies and 19 institutions would contribute to the development of tourism, 30 companies and 9 institutions to development of agriculture, 11 companies and 8 institutions to the mariculture, 9 companies and 7 institutions to fishing, and 7 companies and 3 institutions to hunting. One of the most important priorities of the regional development is the human resource development and the increase of employment. Research has shown that there is a possibility for 487 to 1116 new employees in the science and technology Park. This would at least partially solve the problem of unemployment among highly educated personnel in the Split-Dalmatia County.

The promotion of a science and technology park is one of the economic potentials promotions of the Split-Dalmatia County. Although only 3 companies and 3 institutions responded that they were well familiar, and 71 companies and 26 institutions that they were familiar, but only superficially, with this project , it can be concluded that the project, though still in the preparatory stage, contributes to the promotion economic potential of the Split-Dalmatia County. A large number of subjects who had not previously heard of this project, were informed through the research, and it can be concluded that the research contributed to the promotion of this economic and development potential of the Split-Dalmatia County.

It can be concluded that the science and technology park does not only function as regional development in the Split-Dalmatia County, but also functions in increasing employment. Science- research institutions by entering the park would employ 444 to 826 and more highly educated staff. This is particularly important because of the possibility of employing highly educated staff who have completed their education at the University of Split.

In the year zero (2015), first year (2016) and second year (2017), 29 subjects would enter a business incubator, 18 subjects would enter an innovative entrepreneurship center and 34 subjects would enter the centre for research and development. Considering that these figures far exceed the estimated minimum rate of capacity utilization of science and Technology Park, it can be concluded that there is a sufficient number of economic, science- research and other subjects that are willing to join the commencement of a science and technology park.

The collected data from 400 companies and 79 institutions that were systematized and analyzed in this paper is valuable information and produces guidelines for achieving the implementation of a science technology park as an area for the employment of highly educated staff and an important factor for the development of the Split-Dalmatia County. Research results along with scientific contribution; provide a special development incentive for Split-Dalmatia County and the University of Split as protagonists of a science and technology park. This research proved that the science and technology park project can foster social and economic development of the Split-Dalmatian County as a regional unit.

7 BIBLIOGRAPHY

Ascani, A., Crescenzi, R., Iammarino, S. (2012), **Regional Economic Development: A Review**, WP1/03 Search working paper, London School of Economics and Political Science.

Benneworth, P. and A. Dassen (2011), **Strengthening Global-Local Connectivity in Regional Innovation Strategies: Implications for Regional Innovation Policy**, *OECD Regional Development Working Papers*, 2011/01, OECD Publishing.

Charbit, C. (2011), **Governance of Public Policies in Decentralised Contexts: The Multi-level Approach**, *OECD Regional Development Working Papers*, 2011/04, OECD Publishing.

Etzkowitz, H., Leydesdorff, L. (2000), **The dynamics of innovation: from National Systems and 'Mode 2' to a Triple Helix of university-industry-government relations**, u: Research Policy, 29 (2000), str. 109-123, Elsevier.

Europska komisija (2008), **Regional Intensive Clusters and Science Parks**, izvješće neovisne ekspertne grupe, predsjedavajući Saublens, C., European Communities, Belgium: EC 2008.

Fischer, M., Nijkamp, P. (2009), **Entrepreneurship and regional development**, u: Capello, R., Nijkamp, P. (ur.) Handbook of Regional Growth and Development Theories, Chelthenham: Edward Elgar Publishing Limited, str. 182-198.

Florida R. (2002a), **The learning region**, u: Gertler, M., Wolfe, D. (ur) Innovation and Social Learning, Basingstoke: Palgrave Macmillan.

Katalog poduzetničkih zona (2011), Splitsko-dalmatinska županija.

Malecki, E. J. (1997), **Technology and Economic Development**, Harlow: Addison Wessley Longman.

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

McCall, C., Williamson, A. (2001), **Governance and democracy in Northern Ireland: the role of the voluntary and community sector after the Agreement**, Governance 14(2), str. 363-383.

Mimica, Z. (2012), **Znanstveno-tehnologijski park u funkciji regionalnog razvoja Splitsko-dalmatinske županije,** diplomski rad, Sveučilište u Zadru, Odjel za turizam i komunikacijske znanosti.

Mizell, L. and D. Allain-Dupré (2013), **Creating Conditions for Effective Public Investment: Sub-national Capacities in a Multi-level Governance Context**, ***OECD Regional Development Working Papers***, 2013/04, OECD Publishing.

Pike, A., Rodríguez-Pose, A, Tomaney, J. (2006), **Local and Regional Development**, New York: Routledge.

Razvojna strategija Splitsko-dalmatinske županije 2011.-2013. (2011), Split, Razvojna agencija Splitsko-dalmatinske županije - RERA.

Regionalni operativni program Splitsko-dalmatinske županije, (2006), Split, Splitsko-dalmatinska županija

Saublens, C. (pr.), Bonas, G., Husso, K., Komarek, P., Koschatzky, K., Oughton, C.,Santos Pereira, T., Thomas, B., Wathen, M. (2008.), **Regional Research Intensive Clusters and Science Parks**, European Commission Report, European Communities, Brussels.

Studija izvedivosti Znanstveno-tehnološkog parka Vučevica (2011), Zagreb, Mreža znanja.

Šimunović, I. (1992), **Regionalni koncept razvitka Hrvatske – kritički osvrt i mišljenja**, ***Društvena istraživanja 1***, godina 1 (1992), br. 1, str. 37-54, Zagreb: Institut društvenih znanosti Ivo Pilar

Veža, I. (2011), **Doprinos znanstveno-tehnologijskih parkova konkurentnosti gospodarstva**, u: Božičević, J. (ur.) Konferencija: „Postanimo nacija uspješna u vlastitoj obnovi“, Zagreb: Hrvatsko društvo za sustave, rad br. 11.

Wessner, W. (ur.) (2001), **Understanding Research, Science and Technology Parks: Global Best Practicies, Report of a symposium**, ***Research Parks in the 21st Century***, National research Council, Washington DC: The National Academic Press.

Državni zavod za statistiku Republike Hrvatske, www.dsz.hr, (page visited 9th June 2012) IASP, International Association of Science Parks and Areas of Innovation, www.iasp.ws, (page visited 19th May 2012).

Splitsko-dalmatinska županija, www.dalmacija.hr, (page visited 9th June 2012).

BizNet – inteligentni sustav poslovnih informacija, Hrvatska gospodarska komora, www.biznet.hr, (page visited multiple times during September 2012).

Narodne novine, Zakon o poticanju razvoja malog gospodarstva, http://narodnenovine.nn.hr/clanci/sluzbeni/308389.html, (page visited 13th September 2012).

Survey Gizmo, web softver za provođenje online istraživanja, www.surveygizmo.com, (page visited multiple times during October 2012).

Survey Gizmo, poveznica na Anketni upitnik 1 namijenjena istraživanju, http://edu.surveygizmo.com/s3/1044221/Anketa-ZTP-Tvrtke (page available during October 2012).

Survey Gizmo, poveznica na Anketni upitnik 2 namijenjena istraživanju, http://edu.surveygizmo.com/s3/1044302/Anketa-ZTP-Institucije (page available during October 2012).

Triple Helix Association, http://www.triplehelixassociation.org (page visited 20th November 2012.).

INCREASING COMPETITIVENESS OF UNIVERSITIES BY DEVELOPING STUDENTS' ENTREPRENEURIAL BEHAVIOR

Ljerka Sedlan Kőnig
Faculty of Economics, Osijek
Gajev trg 7, 31 000 Osijek
Phone: + 385 91 224 40 58; Fax: + 385 31 211 604
E-mail: sedlan@efos.hr

Key words: *Competitiveness, Entrepreneurial behaviour, Competences, Informal and non-formal education, tertiary education*

ABSTRACT

Entrepreneurship has become a driving force behind national economies and societies. Besides providing benefits at the society level by promoting sustainable growth and development, entrepreneurship offers benefits at the individual level through personal satisfaction and achievement. In today's highly competitive world, in which universities face substantial changes, they have to devote more attention to defining learning outcomes that will contribute to the creation of entrepreneurial society through entrepreneurial literacy.

The influence that demographic factors, attributes, attitudes, beliefs and intentions have in the development of entrepreneurial behavior has substantially been documented in the literature. However, the role of education in previous models has been unjustly neglected. An alternative model of entrepreneurship behavior is, therefore, proposed in this paper.

Purpose of the empirical research presented in this paper was to define the impact that teaching has on the development of entrepreneurial behavior. In the research, a sample of 324 students of Josip Juraj Strossmayer University in Osijek was surveyed by means of a questionnaire and a structured test. Apart from the descriptive, univariate statistics, a bivariate analysis was also used, as well as a multivariate data analysis. The results indicate that it is possible to stimulate the development of entrepreneurial behavior through teaching at universities, in particular by developing competences. Apart from that, the research highlights the role of experience gathered during informal and non-formal education in influencing entrepreneurial behavior.

Thus, in order to increase their competitiveness, universities should apply a number of different strategies to stimulate the development of entrepreneurial competence and acknowledge non-formal and informal learning as important areas for the development of entrepreneurial behavior.

1 INTRODUCTION

Information and communication revolution allows the binding of knowledge in a way that was unknown before. The ability to innovate and create new knowledge has always been a prerequisite for development. Competitive advantages are no longer based on possession of natural resources but on possession of specific knowledge and skills (Porter, 1990), and growth today is more a function of accumulation of knowledge than accumulation of capital. Investing in the development of a country's knowledge base is a fundamental prerequisite for survival on the global market. The World Bank report argues that developing countries need to increase their capacity to use knowledge. Furthermore, the importance of this cannot be overstated (World Bank, 1999). Penetration of knowledge into all aspects of life is a fundamental characteristic of our time, and the ability to use that knowledge a requirement for survival and development.

Development and promotion of entrepreneurship has been a strategic objective of the policies of both EU member states and pre-accession counties as entrepreneurship has become a driving force behind national economies and societies. European Commission has identified fostering a stronger culture of entrepreneurship and entrepreneurial mindsets, particularly among young people, as one of the key activities. At the same time, the European Framework for Key Competences for Lifelong Learning (2006) identifies the sense of initiative and entrepreneurship, i.e. "an individual's ability to turn ideas into action, (which) includes creativity, innovation and risk-taking, as well as the ability to plan and manage projects in order to achieve objectives" as one of the key competences for the new literacy.

In recent years the concept of competitive advantage has taken a central place in discussions about business strategy. According to Porter (1990), competitive advantage means having low costs, differentiation advantage, or a successful focus strategy. Similarly, Saloner, Shepard and Podolny (2001) claim that competitive advantage means that either a firm can produce some service or product that its customers value more than those produced by competitors, or that it can produce its services or products at a lower cost than its competitors. In reviewing the use of the term competitive advantage in the strategy literature, the common theme is value creation. In the case of university, competitive advantage grows fundamentally out of the value a university is able to create for its students, and which exceeds the cost, that the university has, of creating it. How can university create extra value for the stakeholders?

In today's highly competitive world, countries cannot ensure sustainable growth and progress without adequate higher education. Although universities are very traditional and change-resistant institutions they have to realize the opportunities they have for influencing and developing entrepreneurial competence and behavior, and they have to devote more attention to defining learning outcomes that will contribute to the creation of entrepreneurial society through entrepreneurial literacy. Universities should become an "open learning environment"[64] and leaders in promoting entrepreneurial competence and behavior.

2 DEFINING ENTREPRENEURIAL COMPETENCE

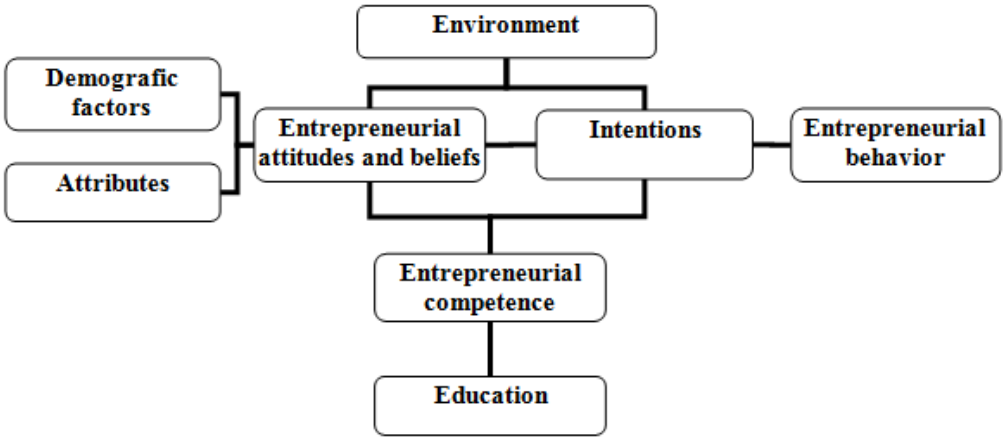
It can be accepted that, as any other kind of behavior, entrepreneurial behavior consists of individual's actions and reactions, which present a response to the external and internal impulses. Based on the definition of entrepreneurship (Bygrave, 1991, p.28; Herron and Robinson, 1993, p. 281; Gibb and Cotton, 1998, p.67) it can be concluded that in case of

[64] European commision (2007), Schools for the 21st century

entrepreneurial behavior, these particular actions and reactions are the ones needed for the creation and recognition of opportunities, introduction of changes and development of organizations whose aim is to make use of these opportunities and manage the increasing levels of uncertainty and complexity in the environment.

Integrating the discussion about the factors that influence the development of behavior and the argument about entrepreneurship as a way of thinking and acting, as well as the analysis of teaching and learning process, a model has been developed that emphasizes the role of education, and particularly, competences in the development of entrepreneurial behavior. Although previous research (O'Gorman et. al., 1997; Gibb and Cotton, 1998) has shown a positive correlation between education and development of entrepreneurial behavior, earlier models of entrepreneurial behavior did not recognize education as a critical element. The proposed model introduces seven elements that determine entrepreneurial behavior: personality (demographic factors and attributes), attitudes and beliefs, intentions, environment, education and competence (See Figure 1).

Figure 1. Model of entrepreneurial behavior.



Source: Sedlan-Kőnig, 2012.

The influence that demographic factors, attributes, attitudes, beliefs, intentions and environment have in the development of entrepreneurial behavior has extensively been documented in the literature (Misra and Kumar, 2000; Ajzen, 1991, Krueger and Carsrud, 1993; Barbosa, 2006; Boyd and Vozikis, 1994; Shapero, 1982). Apart from these factors, this model suggests that education, especially through development of entrepreneurial competence, has a substantial influence both on entrepreneurial attitudes and beliefs, and intentions, and subsequently entrepreneurial behavior. It has been shown that interventions in education can affect opportunity recognition, desirability of entrepreneurial behavior together with beliefs about the feasibility of actions, but at the same time reduce the resistance towards entrepreneurial behavior, caused by negative attitudes and social norms.

This model explains why entrepreneurship education programs focused on knowledge transfer and entrepreneurial attributes do not produce expected outcomes. With the same or similar attributes and knowledge individuals do not demonstrate similar entrepreneurial behavior because their competence is developed at different levels. This seems to be the critical variable that explains the difference between entrepreneurs.

Therefore, the development of entrepreneurial competence should be emphasized as one of the outcomes of entrepreneurship education programs. Competence will affect beliefs about self-efficacy, perception of risk, along with actions that individuals will perform. This

presents another reason why in entrepreneurship education programs stress should be put on the development of competences. In addition, acquired competence will consequently increase students' propensity towards entrepreneurial behavior (Sedlan- Kőnig, 2013).

It has to be noted that for the development of competences both knowledge and skills are important, as skills without procedural knowledge remain pure technique with limited potential for development. Besides, literature highlights the crucial role of experience in real life situations in the development of higher levels of competence (Dreyfus and Dreyfus, 1987).

3 THE ROLE OF UNIVERSITIES IN DEVELOPING ENTREPRENEURIAL BEHAVIOUR

Education is the foundation for creation, dissemination and application of knowledge, and university is "no longer a quiet place to teach and do scholarly work at a measured pace and contemplate the universe as in centuries past. It is a big, complex, demanding, competitive business requiring large-scale ongoing investment" (OECD, 2004). The World Bank paper (2002) emphasizes the importance of tertiary education in building society's capacity to accept change and development. In addition, tertiary education plays a central role in society's response to the challenges of globalization. However, it has been reported that countries with lower GDP per capita spend less per student in higher education, and that new EU member countries spend less than is EU25 average (Oberman-Peterka, Perić, Delić, 2012).Following this further, the Lisbon Agenda highlights the importance of universities in the efforts to make European Union the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion (European Commission, 2000).

Changing dynamics of environment and the way economies function today have created the imperative for a broader understanding of the role of entrepreneurship education. Besides professional skills and knowledge, entrepreneurship education should foster entrepreneurial competence in every individual, as well as the awareness about the benefits of entrepreneurship for individuals and the society. There is evidence from GEM reports that better educated persons are more likely to establish "opportunity" as opposed to "necessity" businesses, and that the former are more likely to grow (Gibb and Hannon, 2006). Therefore, universities, through their programs, have been encouraged to provide a more substantial impact on increasing entrepreneurial knowledge, skills attitudes and beliefs, i.e. competence, which forms the basis of an entrepreneurial mindset.

The evidence concerning the contribution of education, and in particular tertiary education, to entrepreneurship is soft (Gibb and Hannon, 2006), and the question in what way tertiary education influences the development of entrepreneurial behavior remains. While there is understanding of entrepreneurship as a key competence, there is a lack of understanding how this key competence can be effectively addressed in the teaching and learning process. There is also a distinct lack of defined learning outcomes of entrepreneurship education programs.

Based on the literature review on entrepreneurship education pedagogy it is obvious that entrepreneurship education should take the action-learning or experience oriented learning approach in order to increase the likelihood of effective entrepreneurship outcomes. Furthermore, the main challenge for entrepreneurship educators is to create appropriate learning environment which reflects the life and the world of entrepreneurs. Therefore, teachers in entrepreneurship education are encouraged to adopt experiential approaches (Gibb,

1993, 1996). Learning through experience, that combines experience, perceptions, cognitions and behaviors, and emphasizes the central role that experience plays in the learning process (Rae and Carswell, 2000), is seen as an alternative to traditional teaching.

It seems necessary to focus on universities as the units of change in order to achieve strategic and sustainable development of lifelong entrepreneurial learning[65]. Universities should become an "open learning environment"[66] and leaders in promoting entrepreneurial competence and behavior. At the same time, educating individuals who are able to think and act entrepreneurially and turn ideas into action has become a compulsory prerequisite if universities aspire to become more competitive on the global market. But, there is the question whether it is possible to educate entrepreneurial individuals if their teachers and institution are not entrepreneurial themselves. Entrepreneurial university refers to the university which is able to survive and adapt in highly complex and uncertain conditions of the environment in which it operates (Clark, 2001).

Another question also exists: If university is not proactive, innovative, does not have the capacity to assume risk and cannot manage change, can it be competitive in today's global market and participate actively in the development of the society in which knowledge becomes a right and an obligation for all? Survival and the development of the university depend on the extent to which a university incorporates the principles of efficiency (internal performance) and effectiveness (external performance) into its functioning. Universities too often use the efficiency as a measure of quality of their activities, without taking into account the effectiveness (for example, their contribution to the process of change for the better in the society, and reduction of unemployment). This creates a gap between the development needs of the society and the university's ability to respond to these demands (Singer, 1996).

Obviously, Croatian universities must redefine their mission, vision and activities, and replace the traditional approach with a new, entrepreneurial approach if they want to survive in the long-run. A competitive university needs to provide entrepreneurship education that will foster an entrepreneurial mindset among students and provide them with entrepreneurial skills, and thus encourage entrepreneurial behavior. This will have a positive impact on future economic growth, job creation, innovation and wealth generation (Survey of Entrepreneurship in Higher Education in Europe, 2008).

4 METHODOLOGY

The objective of the empirical research that was conducted on the convenient sample of 324 students of Josip Juraj Strossmayer University in Osijek was to explore the impact that university teaching has on the development of entrepreneurial behavior. The sample consisting of students of all three years of graduate studies and all university programs was put into three subsamples: students who regularly do sports, secondly, students who are members of students' associations[67] and finally, the control group, students who neither do sports nor are members of students' associations. The detailed characteristics of the sample can be seen in Table 1.

[65] Entrepreneurial learning is defined as all forms of education and training, both formal and non-formal, which contribute to entrepreneurial spirit and activity with or without commercial objective (Gribben, 2006).

[66] European commission (2007), Schools for the 21st century

[67] Membership in sports clubs has in this research was taken as an example of informal education because it takes place outside of a formal educational setting and represents projects that students undertake for themselves. Taking part in students' associations is in this research an example of non-formal education because it occurs in a formal learning environment, but is not formally recognized within a curriculum or syllabus framework.

Table 1. Characteristics of the sample in percentage

Variable	Modality of answer	Sportsmen	Members of associations	Control group
Gender	Male	69,2	41,5	41,9
	Female	30,8	58,5	58,1
Year of studying	First	30,8	24,6	29,5
	Second	26,9	13,8	27,9
	Third	42,3	61,5	42,6
Faculty	Economics	53,1	84,6	52,7
	Philosophy	1,5	10,8	1,6
	Civil engineering	3,8		4,7
	Medicine	2,3		2,3
	Agriculture	1,5		0,8
	Food technology	1,5		1,6
	Law	28,5	1,5	28,7
	Education	2,3	3,1	2,3
	Other	5,4		5,4
Sport	Am. football	3,1		
	Athletics	2,3		
	Kick boxing	1,5		
	Basketball	10,8		
	Soccer	32,3		
	Volleyball	15,4		
	Swimming	3,8		
	handball	14,6		
	Table tennis	6,9		
	Tai boxing	0,8		
	Tennis	1,5		
	Water polo	6,9		
Association	AIESEC		44,6	
	EWOB		35,4	
	LEO KLUB		20	
Years of training/membership	One	3,8	27,7	
	Two	2,3	67,7	
	Three	1,5	4,6	
	Four or more	92,3	0	
Intensity of training/meetings (times a week)	Once	0	29,2	
	Twice	5,4	12,3	
	Three times	20,8	27,7	
	Four or more times	73,8	30,8	

Source: Sedlan-Kőnig, 2012.

The instrument used in this quantitative research was a questionnaire consisting of three parts. The first part includes eight closed questions related to the demographics of the respondents, their propensity for entrepreneurial behavior and the estimated probability of starting their own business. In the second part of the questionnaire, respondents were asked to estimate

their efficiency in the following categories[68]: market opportunity recognition, collecting, analysis and understanding of data, persuasion and negotiation, use of information technology, managing interpersonal relationships, managing finances, sales and marketing, managing stress, managing uncertainty, planning and dealing with changes in the environment. Likert scale was used for the answers. Students also had to evaluate the influence that university teaching, membership in sports clubs and students' associations and firsthand experience have on the acquisition of this competence. Finally, students were asked to complete the General Enterprising Tendency (GET) Test (Caird, 1991). In this test, respondents express their agreement or disagreement with the 54 statements that cover the following entrepreneurial attributes: need for achievement, need for autonomy, creative ability, risk taking propensity, motivation and determination.

The analysis of the results included nonparametric and parametric descriptive statistics. Besides univariate statistics, bivariate analysis and multivariate data analysis were used. A univariate analysis of variance (ANOVA) was used for the comparison of means of several groups for both dependent and independent variables. A multivariate analysis of variance (MANOVA), on the other hand, was employed for the testing of effects and interactions of several independent variables on more dependent variables.

For the purpose of this research the following hypotheses were tested:

H1: Teaching at Croatian universities does not contribute significantly to students' perception of acquired entrepreneurial competence.

H2: Doing sports and taking part in students' associations, as well as firsthand experience contribute more to students' perception of acquired entrepreneurial competence than university teaching.

H3: Students who are members of students' association or do sports demonstrate stronger propensity for entrepreneurial behavior than students who do not have that experience.

H4: Students who are members of students' association or do sports demonstrate a higher probability of starting their own business than students who do not take part in such activities.

4.1 Results

The research was designed to investigate the difference in perceptions of acquired entrepreneurial competence between students who regularly do sports or are members of students' associations over an extended period of time on one side and students who do not share that experience on the other, because it was expected that teaching at universities, which includes mostly lectures and knowledge transfer does not contribute sufficiently to the acquisition of entrepreneurial competence. As the acquisition of both knowledge and skills, as well as experience in real life situations are required for the development of competence, it was presumed that students-sportsmen and students-members of students' associations would demonstrate stronger propensity towards entrepreneurial behavior primarily because of their experience in informal or non-formal education, as it incorporates action learning and learning through experience which combine perceptions, cognition, experience and behavior.

[68] These are the aspects of competence that have been identified by several authors as fundamental for entrepreneurial success.

Hypothesis 1: Teaching at Croatian universities does not contribute significantly to students' perception of acquired entrepreneurial competence was tested with the correlation analysis for particular segments, and for the general perception of self-efficacy. As it can be seen in Table 2, the lowest correlation exists for the impact of university teaching on efficacy in persuasion and negotiation, and the highest for efficacy in sales and marketing. The results suggest that it is possible to influence the development of entrepreneurial competence at the university, but a concern is voiced because the estimation of the general impact of university teaching on efficacy shows only a medium positive correlation.

Table 2. Pearson's coefficients of correlation between different aspects of self-efficacy and estimation of influence of university teaching

General perception of efficacy in	**.35**
a) detection of market opportunities	.31
b) collection of, analysis and understanding of data	.42
c) persuasion and negotiation	.21
d) usage of IT	.34
e)development of interpersonal relations	.25
f) management of financial resources	.44
g) sales and marketing	.54
h) work under stress	.38
i) dealing with uncertainty	.28
j) planning	.34
k) managing changes in the environment	.27

Source: Sedlan-Kőnig, 2012.

The results of the testing for the Hypothesis 2: Doing sports and taking part in students' associations, as well as firsthand experience contribute more to students' perception of acquired entrepreneurial competence than university teaching are shown in Table 3.

Table 3. Pearson's coefficients of correlation between perception of competence and estimation of influence of university teaching

	1	**2**	**3**	**4**
1. Perception of competence	1.000	.398**	.603**	.347**
2. Estimation of sports clubs'/associations' influence	.398**	1.000	.381**	.421**
3. Estimation of influence of firsthand experience	.603**	.381**	1.000	.314**
4. Estimation of university teaching influence	.347**	.421**	.314**	1.000
** positive correlation , $p<0.01$				

Source: Sedlan-Kőnig, 2012.

It is evident that the correlation between general impact of university and perception of acquired competence is lower (0.347) than general impact of firsthand experience (0.603) and membership in students' associations and sports clubs (0.398). Hence, they contribute stronger to perception of acquired competence. Therefore, the Hypothesis 2 is also confirmed.

The results of the testing for the Hypothesis 3: Students who are members of students' association or do sports demonstrate stronger propensity for entrepreneurial behavior than students who do not have that experience and Hypothesis 4: Students who are members of

students' association or do sports demonstrate a higher probability of starting their own business than students who do not take part in such activities are shown in Table 4.

Table 4. Descriptive statistics for the variables: Propensity for entrepreneurial behavior and Probability of starting own business

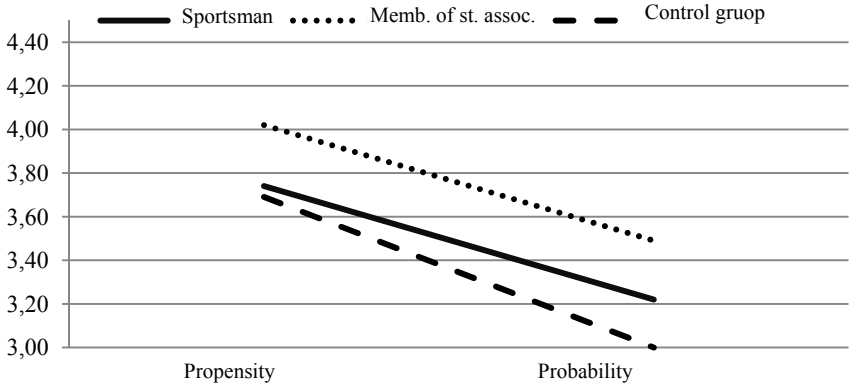
Variable	Category	Mean	Std. dev.	N
Propensity for entrepreneurial behavior	control	3.69	1.117	129
	sportsmen	3.74	1.111	130
	associations	4.02	1.125	65
	Total	3.77	1.119	324
Probability of starting own business	control	3.00	1.132	129
	sportsmen	3.22	.990	130
	associations	3.49	1.062	65
	Total	3.19	1.075	324

Source: Sedlan-Kőnig, 2012.

Differences in means for propensity for entrepreneurial behavior and probability of starting own business (student self-assessment) can be observed, although a statistically significant difference was observed only in propensity for entrepreneurial behavior. Also, there is no clear evidence whether the students show stronger propensity for entrepreneurial behavior only because of their experience in informal or non-formal educational interventions or because of some other factors. Thus, the Hypotheses 3 and 4 need to be further tested.

The above results show that students who are not members of sports clubs or students' associations (the control group) demonstrate weaker propensity for entrepreneurial behavior (mean 3,69) and lower probability of starting own business (mean 3,00) than students with considerable experience in informal and/or non-formal learning. On the other hand, no significant difference was observed between students involved in informal learning and those participating in a form of non-formal learning regarding these matters. Interestingly, members of students' associations (non-formal learning) on average, show the strongest propensity for entrepreneurial behavior. They also assess the probability of starting own business as the highest (Graph 1).

Graph 1. Means for variables: Propensity for entrepreneurial behavior and Probability of starting own business with subsamples



Source: Sedlan-Kőnig, 2012.

These results suggest that a considerable pattern exists in the means for the observed variables. However, a difference between examples of informal and non-formal education regarding their influence on the development of entrepreneurial behavior can be observed.

In order to discuss the Hypothesis 3 (Students who are members of students' association or do sports demonstrate stronger propensity for entrepreneurial behavior than students who do not do sports) and Hypothesis 4 (Students who are members of students' association or do sports demonstrate a higher probability of starting their own business than students who do not take part in such activities) in more detail, a further analysis of the results of GET test was performed (Table 5).

Table 5. Descriptive statistics of the results of GET test according to subsample

		N	Mean	Std. deviation	Maximum
GET total	control	129	28.8605	6.16789	43.00
	sportsmen	130	32.0000	5.49418	44.00
	associations	65	34.2000	6.27047	50.00
	Total	324	31.1914	6.25914	50.00

Source: Sedlan-Kőnig, 2012.

A detailed analysis confirms that both, students who do sports and students members of students' associations display a stronger propensity for entrepreneurial behavior than students non-members. Almost in all aspects, students who are members of students' associations display the highest results of all. Therefore, both Hypotheses 3 and 4 are confirmed.

4.2 Discussion

The research sought to explore the way in which university teaching impacts on the development of entrepreneurial behavior. Although the results can only be indicative, certain conclusion can be made. Based on the perception of students, it can be seen that university teaching contributes only slightly to the development of entrepreneurial competence. According to the results of this research, informal and non-formal education have a more significant role in that. As it was elaborated earlier, firsthand experience has the most powerful influence on the students' perception of acquired entrepreneurial competence and behavior. Therefore, in order to increase their competitiveness, it seems necessary that universities encourage more often use of experiential teaching methods and practical activities in formal education at the university with the aim of exercising a stronger influence on the development of entrepreneurial competence.

Based on the research results, the following proposals can be made. It is necessary to consider ways of using the potential of firsthand experience for the development of entrepreneurial competence through supplementing university courses with some form of informal and non-formal learning. In addition, universities need to embed entrepreneurship in the overall strategy and structure the institutions in the way that will support entrepreneurship education. Not only must entrepreneurship courses be made available to all students of the university (because entrepreneurs can exist in all walks of life and all professions), but universities also need to offer a wide range of different learning opportunities to their students. Competence needs to be defined as an important outcome of all entrepreneurship programs in tertiary education and sustainability of entrepreneurship education has to be ensured. Finally, competitive universities need to communicate with the wider community in order to offer students practical experience through various extracurricular activities.

Moreover, students who do sports, along with those who are members of students' associations, in other words, students who gather considerable experience through informal and/or non-formal learning, demonstrate a stronger propensity for entrepreneurial behavior

and a higher probability of starting their own business than students who lack such experience. Hence, it seems that informal and non-formal learning have a positive influence on propensity for entrepreneurial behavior and probability of starting own business.

These educational processes also ensure networking and contacts with the life in society. In informal and non-formal educational projects students are encouraged to share ideas, learn the new ways of doing things and get an overview of what the world and life of entrepreneurs is really like. Apart from that, informal and non-formal learning opportunities influence students' personal and social development and empower them to gain experience applying academic knowledge in practice, which leads to better understanding of the real life. In other words, informal and non-formal instruction prepare students in a better way for professional life and careers, and this helps them to actively participate and contribute to the development of the environment in which they operate. Thus, in entrepreneurial education where the expected outcome is the development of entrepreneurial competence and consequently behavior, it seems essential to encourage students to participate in various informal and/or non-formal learning projects.

Furthermore, universities should put additional effort into creating closer links with businesses in the search for more effective ways of teaching and opening the learning environment, as well as in order to reduce the gap that exists between what tertiary education provides and what the economy demands and needs.

5 CONCLUSION

Modern university does not have the role, which it once used to have, of enlightening the society, producing students and publishing research. It is becoming a place for communicating knowledge in a society (Delanty, 2001). Despite limitations of this research (preliminary findings, data collected at one university and at one point in time), certain recommendations can be made. To enhance the competitiveness of the university an increased level of awareness and understanding among higher education establishments about the importance of entrepreneurial learning needs to be built. The findings of the presented study provide evidence that the university environment gives weak encouragement and support to the development of entrepreneurial competence. University programs in Croatia, in general, are traditionally un-entrepreneurial, and oriented toward supplying knowledge about entrepreneurship, not for entrepreneurship. The focus and process of much entrepreneurship education at Croatian universities is too mechanic, and may actually work against promoting entrepreneurial behavior. Therefore, considerable challenge faces educators to derive programs which present a preparation for learning in the real world. It is important that universities apply a number of different strategies to stimulate the development of entrepreneurial competence, and acknowledge informal learning as an important area for development of entrepreneurial behavior. One of the ways is by employing informal and non-formal learning projects in formal education as a supplement to traditional teaching practices, as well as by involving entrepreneurs into teaching entrepreneurship. Studying in such a way will create an improved awareness of the reality of working and provide students with the awareness, interest and preparation for self-employment as a career alternative.

A competitive university operates as a center of education, research and innovation, monitors what is happening in the environment and responds to changes and signals from the environment, and thus acts as a frontrunner of sustainable growth and development. Such universities create a good image which brings in more students and more attractive projects and consequently more income which is vital for the development of the university.

Universities must not ignore the enormous potential that entrepreneurial education has. Universities have to recognize the incredible opportunity they have of becoming the centers of entrepreneurial thought and take the responsibility to improve their competitiveness by offering the possibility of developing entrepreneurial behavior as an integrated topic to all students in all academic disciplines.

Universities take time to implement the change, and although it is unlikely that the changes in the system will come without considerable influence from above, the bottom-up approach through faculties (even chairs) seem more feasible, as it allows for maximum flexibility and minimum difficulty in its implementation. Consequently, this change will also include more flexible approaches, development of more multi-disciplinary approaches, the change of traditional attitude to timing and subject content, greater involvement with businesses, and the training of staff, as well as the readiness of the faculty to allocate time and resources to ensure that this alternative approach to learning and teaching is evident in the institution.

In order to research the way in which teaching at the university contributes to the development of entrepreneurial competences and behavior it would be interesting to undertake a longitudinal evaluation of a selective intervention for raising students' entrepreneurial competence. For increasing the competitiveness of the university it is important to further investigate the ways of replacing academic knowledge based assessment criteria with competency criteria, as well as additionally explore the ways of incorporating the development of entrepreneurial behavior (in an integrated manner) into non-business disciplines at the university.

6 BIBLIOGRAPHY

Ajzen, I., (1991): **The theory of planned behavior,** ***Organizational Behavior and Human Decision Processes,*** 50 (2): 179-211

Bandura, A., (1986): **Social foundations of thought and action**, Englewood Cliffs: Prentice-Hall

Barbosa, S. D., Fayolle, A., and Lassas-Clerc, N., (2006): **Assessing Risk Perception, Self-Efficacy, and Entrepreneurial Attitudes and Intentions: Implications for Entrepreneurship Education,** in ***IntEnt2006: Internationalizing Entrepreneurship Education and Training****,* Fundação Getulio Vargas, São Paulo, Brazil, July 9-12,2006, pp. 32-47.

Boyd, N. G., and Vozikis, G. S., (1994): **The Influence of Self-Efficacy on the Development of Entrepreneurial Intentions and Actions,** ***Entrepreneurship Theory and Practice,*** 18 (2): 63-77

Brockner, J., Higgins, E. T., and Low, M. B., (2004): **Regulatory Focus Theory and the Entrepreneurial Process,** ***Journal of Business Venturing,*** 19 (2): 203-220

Bygrave, H., (1991): **Theorizing About Entrepreneurship**, ***Entrepreneurship Theory and Practice,*** 15 (1): 27-32

Caird, S., (1991): **Testing Enterprising Tendency in Occupational Groups,** ***British Journal of Management*** 2 (2): 177-186

Clark, B., (2001): **The Entrepreneurial University: New Foundations for Collegiality, Autonomy and Achievement,** ***Higher Education Management,*** 13 (2): 9-24

Commission of the European Communities (2003) **The role of the universities in the Europe of knowledge,** http://europa.eu/legislation_summaries/education_training_youth/lifelong learning/c11067_en.htm [Accessed 15.10.2012]

Delanty, G., (2001): **Challenging Knowledge: The University in the Knowledge Society,** Buckingham: The Society for Research into Higher Education and Open University Press

Dreyfus, H. L., and Dreyfus, S. E., (1986): **Mind over machine: The power of human intuition and expertise in the era of the computer**, New York: Free Press

European Commission (2006) **The European Framework for Key Competences for Lifelong Learning,** http://ec.europa.eu/dgs/education_culture/publ/pdf/ll-learning/keycomp_en.pdf [Accessed 18.09.2012]

European Commission (2007) **Schools for the 21st century,** Brussels, Commision Staff Working Paper, No.1009, July 2007, http://ec.europa.eu/education/school21/consultdoc_en.pdf[Accessed 19.09.2012]

European Commission (2008) **Survey of entrepreneurial universities in Europe - Main Report,** http://ec.europa.eu/enterprise/policies/sme/files/support_measures/training_education/highedsurvey_en.pdf [Accessed 15.10.2012]

Fayolle, A., Gailly, B., and Lassas-Clerc, N., (2006): **Effect and Counter-effect of Entrepreneurship Education and Social Context on Student's Intentions**, ***Estudios de Economia Aplicada,*** 24 (2): 509-523

Gibb, A.A., (2002): **In pursuit of a new enterprise and entrepreneurship paradigm for learning: creative destruction, new values, new ways of doing things and new combinations of knowledge**, ***International Journal of Management Reviews,*** 4 (3): 233-269

Gibb, A.A., (1996): **Entrepreneurship and small business management: Can we afford to neglect them in the 21st century business school?** ***British Journal of Management,*** 7 (4): 309-321

Gibb, A.A., (1993): **The enterprise culture and education: Understanding education and its links with small business, entrepreneurship and wider education goals,** ***International Small Business Journal,*** 11 (3): 11-34

Gibb, A.A., and Cotton, J., (1998): **Work Futures and the role of Entrepreneurship and Enterprise in Schools and Further Education,** ***Background Keynote paper to the 'Creating the Leading Edge Conference'***, London, December, 1998, pp. 67-84.

Gibb, A.A., and Hannon, P., (2006): **Towards the Entrepreneurial University**, ***International Journal of Entrepreneurship Education,*** 4 (1): 73-110

Gorman, G., Hanlon, D., and 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 (3): 56-77

Gribben, A.A. (2006) **Entrepreneurship Learning: Challenges and Opportunities**, ETF, http://www.etf.europa.eu/webatt.nsf/0/C12578310056925BC125723400373D47/$file/NOTE6VYDT3.pdf [Accessed 03.10.2012]

Herron, L., and Robinson, R.B., Jr., (1993): **A Structural Model of the Effects of Entrepreneurial Characteristics on Venture Performance,** ***Journal of Business Venturing,*** 8 (3): 281-294

Jones, C., and English, J., (2004): **A contemporary approach to entrepreneurship education**, ***Education and Training,*** 46 (8/9): 416-423

Krueger, N.F., Jr., (2003): **The Cognitive Psychology of Entrepreneurship**, in Z.J. Acs and D.B. Audretsch, eds.: ***Handbook of Entrepreneurship Research***, N.Y.: Springer Science and Business Media, Inc.

Krueger, N.F., Jr., and Carsrud, A., (1993): **Entrepreneurial intentions: Applying the theory of planned behavior**, ***Entrepreneurship & Regional Development,*** 5 (4): 315-330

Lave, J., and Wenger, E., (1991): **Legitimate peripheral participation,** Cambridge: University of Cambridge Press

Lisbon European Council (2000) **Presidency conclusions,** www.europarl.europa.eu/summits/lis1_en.htm [Accessed 9.01.2013]

Misra, S., and Kumar, S.E., (2000) **Resourcefulness: A Proximal Conceptualisation of Entrepreneurial Behaviour**, http://joe.sagepub.com/cgi/content/abstract/9/2/135 [Accessed 27.04.2012]

Oberman-Peterka, S., Perić, J., and Delić, A., (2012): **Role of Student Association in Changing the Old Educational Paradigm**, ***From Old Industries to a New Entrepreneurial Development Structure – Reality and Challenges for Pforzheim and Osijek***, 32nd Scientific Symposium, Pforzheim, Germany, October 26-28, 2011, pp. 43-54.

Organisation for Economic Co-Operation and Development, Programme on Institutional management in higher education, and Higher Education Funding Council for England, (2004): **On the Edge: Securing a Sustainable Future for Higher Education**, Report of the OECD/IMHE – HEFCE project on financial management and governance of higher education institutions, OECD

Porter, M. E., (1990): **The Competitive Advantage of Nations**, New York: Free Press

Rae, D., and Carswell, M., (2000): **Using a life-story approach in researching entrepreneurial learning: The development of a conceptual model and its implications in the design of learning experiences**, ***Education and Training,*** 42 (4/5): 220-228

Salmi, J., (2002): **Constructing Knowledge Societies: New Challenges for Tertiary Education**, Washington, D.C.: The World Bank

Saloner, G., Shepard, A., and Podolny, J., (2001): **Strategic Management,** New York: John Wiley & Sons

Sedlan-Kőnig, Lj., (2012). *Higher education pedagogy in the development of entrepreneurial behavior* (Doctoral thesis) Osijek: [Lj. Sedlan-Kőnig].

Shane, S., and Venkataraman, S., (2000): **The Promise of Entrepreneurship as a Field of Research**, ***Academy of Management Review***, 2 (1): 217-226

Shapero, A., (1982): **Some Social Dimensions of Entrepreneurship** in C. Kent, D. Sexton and K. Vesper, eds.: ***The encyclopedia of entrepreneurship,*** Englewood Cliffs, NJ: Prentice Hall.

Singer, S., (1996): **Transformation of CEE countries and unemployment – is the university a missing link in making transformation faster and unemployment lower?**, in: ***EAEPE Conference*** Antwerp, Belgium, November 7-9, 1996

World Bank, (1999): **World Development Report: Knowledge for Development 1998/1999.**, New York: Oxford University Press

THE CONCEPT OF ENTREPRENEURIAL UNIVERSITY AND POTENTIAL OBSTACLES FOR ITS IMPLEMENTATION IN CROATIA

Iva Senegović
University of Applied Sciences VERN'
10 000 Zagreb, Croatia
Phone: + 385 91 48 25 844; Fax: + 385 1 48 25 910
E-mail: iva.senegovic@vern.hr

Anita Harmina
University of Applied Sciences VERN'
10 000 Zagreb, Croatia
Phone: + 385 91 48 25 871; Fax: + 385 1 48 25 910
E-mail: anita.harmina@vern.hr

Zrinka Gregov
University of Applied Sciences VERN'
10 000 Zagreb, Croatia
Phone: + 385 91 48 25 920; Fax: + 385 1 48 25 910
E-mail: zrinka.gregov@vern.hr

Key words: *Entrepreneurial University, Good practice examples, HE trends, Croatian context, obstacles for implementation, Academic staff work overload*

ABSTRACT

This paper presents an overview of existing literature and research concerning the concept of entrepreneurial university: prerequisites for the transformation of traditional universities in to entrepreneurial, trends and good practice examples, and challenges in pursuit of entrepreneurial university. A special emphasis is put on the academic staff work overload as a threat to the concept of entrepreneurial university in the context of seven Croatian universities. Namely, with nine faculties performing study programs in economics as their integral parts.

The degree of academic staff overload is analyzed by means of the following indicators: teaching overload indicator, and ratio between the number of academic staff and students. The research shows that, in most of the observed faculties, academic staff is overloaded with teaching. Although there is insufficient numerical data that would confirm it, it is assumed that this is due to the large ratio of academic staff to students. The mean ratio at the faculties is higher by 53.40% than the provided one, and that is 1:30, in the first year of the observed period (2009/2010-2011/2012). However, the results show a decreasing trend in the ratio between the number of academic staff and students. The calculation of the mean ratio decrease rate per faculties shows that within the observed period of three consecutive academic years, every year it decreased by 8.28%. Should the falling trend continue at the average decrease rate in the years to follow, not earlier than in the academic year 2014/2015 the ratio smaller than 1:30 could be expected.

One of the main stakeholders in transformation of traditional universities into entrepreneurialis certainly academic staff that is and should be the main carrier and promoter of this concept and as such should be recognized by the decision makers.

1 INTRODUCTION

In the era of great uncertainty and complexity, it is almost impossible to predict the future. Globalization changed the way people perceive their future with regard to their occupation, place of living, and education. Insecurity, constant change, adaptation, fluidity, and ambiguity have become a part of our everyday lives. Because of the ever shorter „shelf life" of knowledge, our college degrees are of limited importance. In the years to come, we can just as well expect to have a time-limited degree validity, rankings of Higher Education (HE) institutions based on intensity and quality of electronic wiring as opposed to the number of permanently employed academic staff having doctoral academic degrees, change in the demographic shape of HE institutions, and countries having their main export earnings coming from selling HE services.[69]

Traditional organizational and pedagogical model that the majority of European universities still practice will simply not do. What will need to happen are new alternatives which will promote: activity and collaboration instead of passivity and seclusion of students in acquiring knowledge, applicable knowledge to real-life situations, computers and innovative technology as communication, research and learning tool, learning and understanding instead of memorizing data and information. It is easier said than done, especially in the countries where bureaucratic regulations and very complicated and rigid procedures make it very hard for HE institutions to make changes in academic programs and operations.

The first aim of this paper is to explore the possibilities of enhancing the role of HE sector in the social and economic development by introducing an entrepreneurial mindset. The second aim is to explore possible difficulties (or obstacles) in the implementation of this concept in Croatia, with a special emphasis on the academic staff work overload. Contextualizing the problem will enable us to better understand external influences that could constrain or support the pursuit of entrepreneurial university in Croatia.

2 LITERATURE REVIEW

This chapter represents an overview of existing literature and research concerning the concept of entrepreneurial university: prerequisites for the transformation of traditional universities in to entrepreneurial, and trends and good practice examples from Europe, USA and Australia. Potential challenges in pursuit of entrepreneurial university will be highlighted, with an emphasis on the work overload of academic staff as a threat to the concept of entrepreneurial university.

2.1 Prerequisites for applying the concept of Entrepreneurial University

Universities that serve as good examples of modern university reforms are the ones that make a difference by taking an active role in contributing to local and regional development strategies. They contribute to the growth in competitiveness of local economies but also to social development. It is certainly not an easy task. However, it has made multiple positive results by mobilizing other stakeholders in their communities. What needs to happen? There

[69]Thorp, H. and Goldstein, B. (2010) **The Entrepreneurial University**, http://www.insidehighered.com/views/2010/09/27/thorp [Accessed 26.05.2011.]

is a need to attract people who will share a vision of more active and engaged role of the university in society. Recognizing people who will facilitate this cultural change process and their needs are *conditio sine qua non* in building entrepreneurial university.

No change is expected to happen if universities do not demonstrate real collegiality and autonomy. Universities have grown large and have become more of multiversities[70] rather than universities in their operations: each delivering its own separate programs, employing its own faculty which is considered „their own property", and promoting more self-centered mindset instead of a holistic one. Autonomy should not be granted by passivity. Universities have obligation to demonstrate the preparedness to take initiatives for a better future, not waiting directions to come from others. Entrepreneurial university creates coalitions with different stakeholders in the community and promotes the transfer of knowledge in all directions. That kind of behavior does not diminish, but enhances the university authority. Government and HE agencies can further stimulate entrepreneurial culture in the universities by reducing their financial support (i.e. UK and Australia)[71], supporting diversity and collaboration, and regulations in the form of statutes and university policies which will favor entrepreneurialism.

Traditionally, most of the European universities have earned and retained their autonomy and status by the state funding. There was no pressure for them to develop partnerships with other stakeholders. We consider stakeholders to be: regional and local development agencies, local businesses and entrepreneurs, associations of entrepreneurs and NGO's, local communities and local authorities, other HE institutions, and others. As opposed to the European ones, American public universities account as little as 20% of state funding, and have been putting much more effort in finding most diverse funding bases. They have been doing so by forming different sorts of partnerships with stakeholders and commercializing their research and ideas. Some of the possible ways of doing so are consultancy, training, R&D, forming of institutional support of different sorts to local/ regional businesses, commercializing physical campus assets for external use, etc. By creating such formal and informal networks, universities are building on their credibility and reputation and are becoming not only teaching but also learning institutions.

In order to engage the HE sector more with the local community, some European governments have changed funding mechanisms hoping to motivate more regional dimension of the HE sector. Experience shows that local funding of higher education is closely related to its local orientation.[72] It is important to note that companies devote one-third of their investment to intangible products and services related to knowledge, such as: training, R&D, design, marketing, licensing, patents, etc.[73] Many of them outsource such services to other parts of the world, without recognizing the potential of domestic universities in servicing their needs. There is an enormous market niche that could be fulfilled if only universities would be more open and flexible to recognize this growing market demand, and if relevant institutions would be more supportive in recognizing and rewarding such initiatives. If we only look at this market segment, we have a 3-way win-win situation: companies will be serviced in their

[70]Clark, B., (2001): **The Entrepreneurial University: New Foundations for Collegiality, Autonomy and Achievement**, ***Journal of the Programme of Institutional Management in Higher Education***,2: 9 - 25

[71]Davies, J.L, (2001): **The Emergence of Entrepreneurial Cultures in European Universities**, ***Journal of the Programme of Institutional Management in Higher Education***, 2: 25 - 43

[72]Gibb, A. and Hannon, P., (2006): **Towards the Entrepreneurial University?**, ***International Journal of Entrepreneurship Education***

[73]Salmi, J., (2001): **Tertiary Education in the 21st Century: Challenges and Opportunities**, ***Journal of the Programme of Institutional Management in Higher Education***, 2: 105 - 128

home country by an accredited university which employs the best experts in the field (presumably better, faster, cheaper, and „nicer"), universities will develop networks of different sorts with the industry, and governments will not carry the burden of being almost exclusive source of University funding.

Another way of linking HE sector and industry more closely is to hold regular consultations with employers and alumni. That will enable the university to better and quicker adjust curricula to the changing needs of industry. Some universities have done so by including top representatives of successful companies in the advisory boards. Others give different forms of warranties to their students: i.e. in five years following the graduation, if an alumnus needs to demonstrate certain skills or knowledge, but has no necessary training at the university, he or she can acquire these skills or knowledge free of charge and the university will take this responsibility. These methods are very effective as they enable universities keep their programs up-to-date, gain respect and credibility in the community, and create networks which are prerequisites for success in this highly competitive sector.

The quality of universities can be improved by cooperation, not only competition. In search of excellence, universities will need to work on joint programs. Experts from different disciplines will focus on the problems the society is facing and on grasping opportunities. Greater focus will be on development out of research as opposed to publications which contribute to the discipline but have limited practical application. Pure and applied research should not be held separate any longer. Short lifetime of new information and products helps us further understand this necessity. What will need to happen is to move entrepreneurship out of its business background and to embrace its applicability across the university. Only by doing so, we can expect promotion of inter-disciplinarity in research, programs, and other initiatives. Inter-disciplinarity is creating new knowledge. Learning factories, where students from different fields could work on interdisciplinary projects, are necessary for this good practice to take place. Without such projects, we will be left with recycled circulating knowledge.

The cooperation between HE institutions can take place for a number of reasons: securing of the supply chain, increased productivity and effectiveness, increased income and reputation. Additional income can be also pulled from the European-funded projects, which are a very good motivator for building networks. Collaboration history of potential partners, mutual respect, confidence, high degree of flexibility and adaptability, similarity in orientation, and leadership status in the alliance are important factors in starting cooperation between institutions. Very often, cooperation takes place between the institutions that are indirectly connected by a third-party institution. Social capital plays an important role in developing these „clusters of trust" and has an economic value which cannot be omitted.[74]

2.2 Trends and examples of good practice in Europe, USA and Australia

On the global level, we can notice some fairly good entrepreneurial initiatives in the universities. Universities have, slowly but surely, started to recognize the need for change. To be more competitive, they diversify their programs, demonstrate flexibility, and become more market oriented. In the literature, it is often referred to as the world-renowned entrepreneurial universities which have the idea of entrepreneurial activity permeated in their mission and vision statements, such as Stanford, MIT, University of California, Columbia, Cambridge,

[74]ibid. pp 70 - 71

University of Waterloo, Canada; Chalmers University of Technology, Sweden; Leuven from Belgium, etc.[75]

One example which is an acknowledged best practice in the regional engagement is certainly the "Knowledge House" in North East England. Motivated by the change in university funding regulations in 1995, by permitting access to European Structural Funds, the Newcastle University created a project proposal called the "Knowledge House". The idea behind it was to create a physical location where companies could come with their problems and ask academic staff to solve them. The European Funding committee in the region decided to fund the project, but not as initially proposed. They decided to fund its virtual version where companies could contact any of the five regional HE institutions - Durham and Newcastle Universities, and Polytechnics at Newcastle, Sunderland and Teesside. In 2006, the Knowledge House network employed 14 staff and generated £2.2m, by delivering 133 completed projects for 600 business enquiries. It has repeatedly been recognized as an example of the best university/business practice.[76] Not surprisingly, for it embeds all the characteristics of successful entrepreneurial university network initiative: network whose relationship evolved over a longer period of time, recognizing the importance of working together collectively, choosing a regional approach for developing new initiatives, recognizing the opportunity by change in context, letting the context influence them and vice versa, changing the attitudes and behavior within the university and consequently contributing to cultural change, and stakeholder involvement.

There are other HE institutions which have early recognized or are themselves at the forefront of trends in the HE sector, and are directly connected with the idea of entrepreneurial university:

[75]Dabić, M and Švarc, J. (2011): **O konceptu poduzetničkog sveučilišta: ima li alternative?**, ***Društvena istraživanja Zagreb***, 4: 991-1013

[76]Benneworth, P. and Sanderson, A., (2007): **Building Institutional Capacity for HEI Regional Engagement in a Sparse Innovation Environment: A Case Study of Knowledge House (NE England)**, in : ***International Conference on 'Globally Competitive, Locally Engaged Higher Education and Regions'***, ***Proceedings,*** OECD/ IMHE, Valencia, Spain, September 19–21, 2007.

Table 1. Trends in the HE sector supporting the idea of entrepreneurial university

No	Trend	Who?	What?	How?	Why?
1.	Two-model internationalization of HE[77]	Harvard, Cambridge, Oxford, Stanford, MIT, Webster…	They offer on-line courses, courses in partner countries where franchise institution performs program on behalf of host universities, establishing subsidiaries that will teach programs in English, etc.	As opposed to the *import model* where foreign students were brought to a host HE institution and were integrated with domestic students, they introduced an *export model*, where domestic students, academic staff and programs are being sent overseas.	It has made it easier for students and HE institutions to find their best fit, in terms of gaining educational experience in the country of their choice and the desired degree. While for some students, the cost or world-wide recognition of a degree is most significant, for others it is the social dimension of studying.
2.	Trans-binary model of cooperation[78][79]	The University of Amsterdam and Hogeschool van Amsterdam 'Dual sector universities' in Australia[80]	They continue to execute and develop both types of education (academic and professional education) separately, but they cooperate where they find it possible and logical, i.e. they share infrastructure (like student facilities and services) try to combine courses, work on joint programs in specific subject areas, …	They have begun the process of combining both types of education in a single institution by forming a separate unit called the University Hogeschool van Amsterdam.	They believe that the labor market needs different kinds of education and educated people – professionally oriented and academic, but that there are also possibilities and advantages of their cooperation.
3.	Corporate universities[81]	Disney, Motorola, Toyota, IBM (their own campuses); Bell Atlantic, United HealthCare, United Technologies (by alliances)	They link organization's strategies to the learning goals of all its stakeholders (employees, customers, suppliers).	They create their own campuses (physically or virtually) or they establish an alliance with some existing HE institution.	Their aim is to make an organization more competitive by investing corporate resources to stakeholders' skills and knowledge maintenance.

[77]Skinner, H. and Blackey, H.: **Globalization of Business Education – A British Course or a British Educational Experience? Comparisons from a UK University**, ***Journal of Applied Research in Higher Education***, 2: 22 - 32

[78]Pratt, J. (2001): **Changing Patterns of Diversity in Europe: Lessons from an OECD Study Tour,** ***Journal of the Programme of Institutional Management in Higher Education***, 2: 93 - 103

[79]Morgan, B. and Lydon, J., (2009): **Bologna: Some Thoughts on its Effect in the Internationalization of Higher Education**, ***Journal of Applied Research in Higher Education***, 1: 64 - 72

[80]Moodie, G., (2009): **Australia: the Emergence of Dual Sector Universities**, http://www.academia.edu/359619/Australia_the_emergence_of_dual_sector_universities [Accessed 7.03.2013.]

[81]op. cit. Salmi, pp 112

4.	Academic brokers[82]	Connect Education, Inc., Nexus, ECollegebid …	They bring together suppliers and consumers of educational services.	They organize fairs (matching HE institutions and students interested in studying abroad), match students' objectives with their possibility to pay tuition (they can negotiate with the HE institution for a better deal), help corporations find the best program for their employees' training needs, etc.	To make it easier and cheaper for students to make the best choice for them.
5.	Lifelong or continuing education[83]	Private HE institutions cater this new growing student group very well: carried out inside the host institutions, on the job, in partner institutions, or at home.	The growing need for such programs has started to make an important shift in demographic pyramid and programs of traditional HE institutions.	They use directive approach to learning where students are focused to solve a client's problem (i.e. problem-based learning - PBL). The idea behind this approach to learning is to organize the content of the curricula around problem scenarios instead of subjects. It is very useful in building networks with the industry.	Diversification in the student body: there are students with part-time jobs who are working longer hours but want to be full-time students, older students who are employed and attend university on a part-time basis and expect to instantly apply new acquired knowledge for professional growth, students who are unemployed but are job-seekers and expect to become employed during their studies … Lifelong education also enables participants to shape their skills to be most competitive for the labor market.
6.	Regional dimension of HE	University of Oulu, Finland Czech city of Olomouc	Finnish University of Oulu, located in a remote area near the Arctic Circle, transformed small rural community into high-tech zone, and Czech city of Olomouc, responded to the great reform of their legal system by specializing in new law courses[84], both with remarkable results.	They focused on achieving excellence in certain specialties[85] which enabled small universities become one of the best outside the country's borders.	Enhances mobility, diversifies offer in different regions, stimulates specialization, and extends possibilities for competitiveness.

Source: See footnotes.

[82]op. cit. Salmi, pp 116

[83] Finland is one of the first countries in Europe which promoted the practice of *lifelong or continuing education*. Ten years ago the country had more adults participating in such programs (200, 000) than young people attending regular HE degree courses (150, 000).[83] There is no surprise that this trend continues, not only in Finland, but across the world.

[84]op. cit. Salmi, pp 121

[85]Mora, J. and Villarreal, E., (2001): **Breaking Down Structural Barriers to Innovation in Traditional Universities**, ***Journal of the Programme of Institutional Management in Higher Education***, 2: 57 - 66

Trends and good practice examples in HE, tending toward the concept of entrepreneurial universities, suggest as follows:

- A model was developed that facilitates students and HE institutions to find their best fit, in terms of gaining educational experience as well as desired degree;
- Although it is recognized that the labor market needs different kinds of education and educated people - professionally oriented and academic, there are possibilities and advantages of their cooperation;
- To achieve greater competitiveness, corporations establish their own campuses or cooperate with HE institutions that offer programs tailored to the needs of the organization;
- Appearance of intermediaries and models that make it easier for individuals to find the best program that will make them competitive in the labor market;
- Strengthening the regional dimension of HE that enhances mobility, diversifies the offer, stimulates specialization, and extends possibilities for competitiveness on international level.

It is easy to conclude that the common denominator of all these trends in HE is the term "competitiveness", which is by its nature a part of the corporate vocabulary. Writing about the transformation of HE in South Africa, Baatjes criticizes the neoliberal fatalism that causes corporatization of HE institutions. His thoughts could just as well be applied to the rest of the world. Forced transformation occurs in non-commercial institutions under the pressure of global market utopia based on the "TINA - There Is No Alternative" principle, rather than protects them as areas that represent the values of substantive democracy and as a site of struggle for education as a public good. Scientists stopped to be the seekers of truth and the common good, but servants of the rich corporations; academic staff stopped to be role models and educators, but the service providers, with students as their customers.[86] Collapse of the collegial culture that comes as a result of these changed roles may lead to major undesired effects.

2.3 Challenges in pursuit of entrepreneurial university

Throughout the past, the main tasks of a university have been teaching and doing research. The critics of the entrepreneurial university concept argue that its role as a teacher and disseminator of knowledge is increasingly becoming replaced by the term *„the seller of knowledge"*, providing commercial education, supplementary training and consulting services for a fee, commercialization of intellectual property, licensing of intellectual property, etc.[87] The changed role of the university in the society brings and may bring about some issues which need to be addressed.

One of the main university tasks is to contribute to the promotion of the social and economic development of society. Because of that, each country has a clear interest in financing

[86]Baatjes, I. G., (2005): **Neoliberalni fatalizam i korporativizacija visokog obrazovanja u Južnoj Africi.** ***Političko obrazovanje*****,** 1(2), pp 107-119.
[87]Pisuke, H. and Kelli, A., (2007): **Some Issues Regarding Entrepreneurial Universities and Intellectual Property**, ***Juridica International***, http://www.juridicainternational.eu/index.php?id=12675, pp 161 – 172 [Accessed 19.02.2013.]

research in universities, and does so, as the majority of the funds used for research in European universities come from the state budget. In comparison with the US universities, private funding of university research in Europe is modest. That is why universities may manifest entrepreneurial behavior still within the limits of the tasks imposed by the state and the rules prescribed by the state. Concurrently, the prerequisites for financing research must be created and that can sustainably be done only by stimulating and supporting a positive entrepreneurial environment and fostering cooperation between universities, private and public sector, in all respects.

How successfully will this assumption be implemented, is still largely dependent on the country itself and its understanding of the role of education in the development of the individual, business and society in general. Although the European Commission is proposing politically prioritized actions that should be, in this sense, applied to the Lisbon strategy[88], the majority of countries regulates the relationships between universities and society through its own legislation. As entrepreneurial university differs from the traditional one in the regulatory sense as well, a new regulatory and institutional framework should be provided to support its new found role. One of such roles is production of innovations as a part of research. To support them, universities establish different kinds of technology transfer and R&D departments, units, or branches. Those units are then responsible for ensuring well-organized cooperation between academic staff and industry, as well as collecting and organizing the resources necessary for its realization. Academic staff could then raise a question of intellectual property – whose is it: universities', R&D or technology transfer units', or their own? Is intellectual property created **at** the university or **by** the university? Does the author hold the right to receive remuneration on the account of the profit received from the invention? The model that is widely accepted throughout the world is the one in which the author/ inventor, university and R&D unit share profit on 1/3 each. Reasoning behind that is that it is researcher's job to contribute to the development of the university and the unit, so 1/3 of the invention's profit, additional to his or her salary, should be a good motivating factor for further positive initiatives in the commercialization of innovations. Others decide to give 2/3 of the profit to the author of invention to stimulate more intensive inventing activities.[89]

Other open questions are: Is there and who is the principal beneficiary of this cooperation?

- *Academic staff* who wish to conduct research driven by their own personal curiosity and interest in the specific field without carrying the burden of its commercial value[90];

Students to whom it is important to acquire scientific knowledge and develop practical knowledge and skills that will help them in (self)employment; or

[88]i.e. In response to a request from the European Council, the European Commission sets out a broad-based innovation strategy for Europe, with the fundamental guiding principle that the European Union (EU) must become "an innovation-based society". The main objective is to lay down a framework for promoting all types of innovation and encouraging the development of innovation-friendly lead markets. The logic behind that idea can be found in the EU's exceptional innovation potential, which is under-exploited as the European regulatory and economic framework is not conducive enough to innovation. (EU, **Summaries of EU Legislation**, http://europa.eu/legislation_summaries/employment_and_social_policy/eu2020/growth_and_jobs/i23035_en.htm [Accessed 20.02.2013.])

[89]ibid. Pisuke, H. and Kelli, A.

[90]D' Este, P. and Perkmann, M. (2010) **Why do Academics Engage with Industry? The Entrepreneurial University and Individual Motivations**, http://www.aimresearch.org/uploads/file/Working%20Papers/Full-Working-Paper-Perkmann.pdf [Accessed 20.02.2013.]

- *Industry* that wishes to increase access to new university research and discoveries in order to solve a specific problem or to identify market opportunities.

How to balance diverging and possibly conflicting interests of so many different stakeholders? The answer might be found in networking; building and managing trust based relationships among the stakeholders, on the local, regional, national, and international level.[91]

Transforming universities will certainly open a lot of questions and cause a lot of dissent and resentment among stakeholders who participate in the transformation.[92] Those to whom particular attention should be given in the process, and are often in such situations ignored are the academic staff who would participate in the transformation process from the idea to its realization. Their changed role in the transformation process, complemented with new workloads, will therefore be explored in more detail in the following chapters.

2.4 Work overload of academic staff as a threat to the concept of entrepreneurial university

In Europe, after the Bologna process implementation, the frustration of academic staff is becoming increasingly evident. They are burdened with multiple conflicting pressures of quality expectations that „kill them like the goose that lays the golden eggs".[93] They are expected to modernize their teaching, research, administration of the university and to serve their community. Teaching norms have increased as the size of teaching groups decreased and the length of study increased from 3 or 4 to 5 years. They are expected to develop new teaching materials for e-learning and to intensify their communication with students for the sake of ongoing monitor of achieving defined learning outcomes (exercises, assignments, seminars, projects, portfolios, distance learning ...). There are much more administrative tasks and collecting of various reports and data that seem needless. There is a general belief among academic staff that they end in "the data cemetery" because nobody reads or uses them for making management decisions.

Academic staff loses motivation because there is no appropriate recognition or reward system for the efforts put in quality, so they aim to meet the minimum requirements necessary for the election to titles. On one side, training and the quality of teaching is forced, as well as the responsibility to serve the community. However, when considering advancement possibilities, the ones who published more papers continue to have the advantage over the others. Because of that, when the university offers programs for training and international cooperation, the academic staff are not applying because they feel too tired by working weekends and holidays, and no one knows when and if they met the standard and when it is enough.

The main problems related to academic staff work overload can be grouped into three sections:

[91]Subotzky, G., (1999): **Alternatives to the Entrepreneurial University: New Modes of Knowledge Production in Community Service Programs**, Higher Education, Kluwer Academic Publishers, Netherlands
[92]Redmond, R., Curtis, E., Noone, T. and Keenan, P., (2008): **Quality in Higher Education**, ***International Journal of Educational Management***, 5: 432 - 441
[93]Loukkola, T. and Zhang, T., (2010): ***Examing Quality Culture: Part 1 – Quality Assurance Processes in Higher Education Institutions.*** Brussels: European University Association., http://www.eua.be/pubs/Examining_Quality_Culture_Part_1.pdf [Accessed 25.07. 2012.]

1. Academic staff is tired of change fostered by Bologna Declaration over the recent years accompanied by shortage of manpower and time. Research shows that the time spent on administration has increased (which is considered as serious distraction from core academic activities and even more so from activities that would promote entrepreneurialism).

2. There is a lack of extrinsic support (like clearly defined goals, performance criteria, feedback on their work, and autonomy in work) which would encourage creative activities.

3. There is a lack of intrinsic motivators where academic staff would do the work they feel passionate about and the one in which they hold strong personal interest. Research shows that many academic staff is doing inadequate work, for which they lack qualification and training.[94,95,96]

Students' workload, on the other hand, has been limited to a 40-hour working week, without any indication of unloading of academic staff. Even when they are paid overtime, it is not good enough compensation for the lack of time for scientific research, for mentoring students and teaching assistants, or quality preparation of the classes, and eventually decline in health and quality of life. Higher social status of academic staff and material compensation are no longer even remotely adequate to live only for the profession, to sacrifice private life and to stay bachelors.

In addition to the increase of proportion of working hours in teaching and administration, and increasing wage gap to the corporate sector[97], academic staff career becomes less attractive to men, and the result is feminization of the profession.[98] However, despite the growing corporatization of academic management, most universities do not have a professional service for the management of human resources, to deal with reducing the work-family conflict and create family friendly work environment. It can also present a serious threat to the quality and long-term sustainability of the system.

Above-identified problems reasonably impose many questions regarding human resource management in universities, as an important prerequisite for the implementation of the concept of entrepreneurial university. In this research we shall concentrate on the number of working hours spent in the classroom as well as to identify other teaching obligations via academic staff to student ratio. Recommended ratio of working hours (as well as the importance of criteria in promotion and remuneration) of academic staff typically amounts to 40% in research, 40% in teaching and 20% in serving the needs of the university and community.[99,100] Research conducted at Zagreb University in 1996, identifying work

[94]McInnis, C., (2001): **Promoting Academic Expertise and Authority in an Entrepreneurial Culture**, ***Journal of the Programme of Institutional Management in Higher Education***, 2: 45 - 55

[95]Daumard, P., (2001): **Entreprise Culture and University Culture**, ***Journal of the Programme of Institutional Management in Higher Education***, 2: 67 - 74

[96]Chan, A. and Chan, C., (2009): **A New Outcome-Based Curriculum: Its Impact on Student Core Competence**, ***Journal of Applied Research in Higher Education***, 2: 24 - 32

[97] Cornell, B., (2004): **Compesation and recruiting: private universities versus private corporations**, ***Journal of Corporate Finance*** 10: 37-52.

[98] Moodie, G., (2009): **Australia: the Emergence of Dual Sector Universities**, http://www.academia.edu/359619/Australia_the_emergence_of_dual_sector_universities [Accessed 7.03.2013.]

[99]Badri, M. A. and Abdulla, M. H., (2004): **Awards of excellence in institutions of higher education: An AHP approach.** ***International Journal of Educational Management*****,** 18(4): 224-242.

satisfaction and the allocation of academic staff working hours shows the following distribution: teaching - 45%, research - 25%, consulting - 14% and administration - 16%. In comparison to other countries, Croatia was one of the first ranked countries in the world regarding time spent in teaching, and the last one regarding time spent in research.[101]

3 METHODOLOGY AND DATA

One of the aims of this paper is to contextualize our entrepreneurial university research and explore possible obstacles in the implementation of the concept at Croatian universities, with special emphasis on academic staff work overload. In order to achieve these objectives, secondary sources of data will be used: overviews of the scientific and professional literature, statistical data, laws and collective agreements, statements of self-evaluation and external evaluation of the Agency for Science and Higher Education (ASHE), as well as the data from websites of certain universities. The data will be analyzed by descriptive statistics.

Research has been carried out at the following nine faculties being integral parts of seven universities:

1. The Faculty of Economics, University of Split,
2. The Faculty of Economics and Business, University of Zagreb,
3. The Faculty of Economics at the University of Josip Juraj Strossmayer Osijek,
4. The Faculty of Economics at the University of Rijeka,
5. The Faculty of Tourism and Hospitality Management in Opatija, the University of Rijeka,
6. Department of Economics and Tourism Juraj Dobrila at the University of Pula,
7. Department of Economics at the University of Zadar,
8. Department of Economics and Business at the University of Dubrovnik,
9. The Faculty of Organization and Informatics Varaždin, University of Zagreb.

The above quoted faculties, all with economics and business studies, were chosen because they represent all Croatian universities and there are publicly available data derived from external evaluations conducted by the ASHE. The data on class norm hours for the academic staff and assistants at the universities and the faculty performed norm hours have been collected from three different sources as well as the data on the number of students and permanently employed academic staff in the academic years 2009/2010, 2010/2011 and 2011/2012. The sources are: Croatian Bureau of Statistics (CBS), ASHE and web pages of the above universities. The collected data have been thoroughly analyzed in order to identify the systematic care devoted to the issue of academic staff work overload at the individual faculties.

[100]Husić, M. and Kubinska, E., (2005): **Primjena AHP metode prilikom izbora najboljeg univerzitetskog profesora.** ***Zbornik radova Ekonomskog fakulteta u Sarajevu,*** 25: 345-363.
[101] Kesić, T. Previšić, J., (1996): **Zadovoljstvo poslom i alokacija vremena nastavnika na zagrebačkom Sveučilištu.** ***Društvena istraživanja Zagreb***, 1(21): 147-159.

4 RESEARCH RESULTS AND DISCUSSION

The degree of academic staff overload will be analyzed by means of the teaching overload indicator and the ratio between the number of academic staff and students.

4.1 Teaching overload indicators

The tasks of the employees having scientific-educational, educational and associate titles within 40-hour working week (full-time job) defined in Collective Agreement for Science and Higher Education (article 18, paragraph 1) consist of the following: adequate level of teaching, scientific and expert work on the project of the Ministry of Education, Science and Sports as well as professional growth and education including the publishing of papers.[102]

The class teaching overload also includes field classes, consultations, mentorship, corrections and reviews of programs and seminar works, time devoted to exams and colloquium exams, preparation for classes, education in teaching skills and work in the bodies of higher education. Working hour norms provided in the Collective Agreement for academic staff and associates on a yearly basis are given in the Table No. 2 below.

Table 2. Academic staff teaching norms according to the academic titles

Academic Titles	Teaching norms (number of norm hours)	
	Yearly	Weekly*
Scientific-educational (full professor, associate professor, assistant professor)	300	10
Educational (college professor, senior lecturer and lecturer)	450	15
Associate (senior assistant)	225	7,5
Associate (assistant)	150	5
Professional (professional associate, professional adviser)	600	20

*Note: * It is presumed for the majority of HE institutions to have an academic year based on 45 working weeks including 30 class teaching weeks.*

Source: Croatian Government and Independent Syndicate of Science and Higher Education (2010), **Collective Agreement on Science and Higher Education**, Official Gazette 142/10., http://narodne-novine.nn.hr/clanci/sluzbeni/2010_12_142_3607.html, article 33. [Accessed 15.02.2013]

Teaching overload is calculated in the manner that the total number of performed norm hours be divided by the full load of permanently employed academic staff (according to the Collective Agreement). Full load of academic staff employed on a part time basis is also included based on the calculation which takes into account full load of permanently employed academic staff multiplied by an adequate percentage of the academic staff's teaching hours.[103]

[102]Croatian Government and Independent Syndicate of Science and Higher Education (2010), **Collective Agreeement on Science and Higher Education**, Official Gazette 142/10, http://narodne-novine.nn.hr/clanci/sluzbeni/2010_12_142_3607.html, article 18, 19, 20, 21, 23, 27, 28, 29 [Accessed 15.02.2013]

[103]NCN: National Committee for Higher Education (2011), **The Network of Higher Education Institutions and Study Programs in Republic of Croatia**, https://www.azvo.hr/images/stories/visoko/Mre%C5%BEa_visokih_u%C4%8Dili%C5%A1ta_i%20studijskih_programa_u_RH_final.pdf, pp 15 [Accessed 15.02.2013]

The data on the total number of performed class norm hours are necessary for the calculation of teaching overload indicators. But only the Faculty of Organization and Informatics Varaždin (FOI), University of Zagreb has on its web pages self-analysis[104], the data written according to the instructions for the preparation of self-analysis[105] and per instructions for the preparation of tables[106] for faculty self-analysis prepared by the ASHE for the needs of re-accreditation. For that reason, the calculation presented shall be based on the example of the FOI. The definition of teaching overload will be applied to all the study programs performed at the FOI although the calculation has been originally envisaged as one of the criteria for the introduction of new study programs at the existing HE institutions.[107] Total teaching burden for permanently employed academic staff and assistants at FOI is shown in the Table 3 below.

Table 3. Total teaching burden at the FOI in the academic year 2009/2010

Academic staff at FOI	Number of full-time employment contract basis employees	Academic staff work norms per academic year	Total Teaching Burden
Full professors	13	300	3900
Associate professors	9	300	2700
Assistant professors	13	300	3900
Educational titles	7	450	3150
Assistants*	28	225	6300
Junior researchers**	17	150	2250
		Total	22500

*Note: *Number of assistants has not been transparently distributed to senior and junior assistants since, according to the article 33, paragraphs 2. and 3 of the Collective Agreement, the yearly number of norm hours differs for the two academic ranks. Therefore, all the assistants will be considered as senior assistants. **According to the article 43. of the Collective Agreement junior researchers are elected to the ranks of assistants.*

Source: op. cit. FOISA, pp 66; op. cit. GSCA, article 33

The academic staff can, as exception, perform teaching more than the standard teaching norms prescribe, taking as a basis the average of full academic year, while academic staff having scientific-educational and teaching titles as well as senior assistants are not obliged to work more than 1/3 above the standard teaching norm hours. In addition, the work exceeding full teaching burden (norm) can increase the salary by maximum 37.5% above the basic salary except for the senior assistants who can have the salary increase due to the same reasons by maximum 18.75%. It is important to emphasize that assistant and junior researchers should not work overtime except in exceptional cases determined by the faculty council and based on the previous opinion of the relevant institution employment council.[108]

[104]FOISA: Faculty of Organization and Informatics Varaždin, University of Zagreb (2010), **Self-Analysis Report 2010**, http://www.foi.unizg.hr/fakultet/kvaliteta/Reakreditacijska-prosudba-kvalitete-FOI/Izvjestaj-Samoanaliza-2010/(language)/cro-HR [Accessed 22.02.2013]

[105]Agency for Science and Higher Education (2007), **Instructions for Assembling the Self-Analysis of Higher Education Institutions Within the University**, https://www.azvo.hr/index.php/hr/vrednovanja/postupci-vrednovanja-u-visokom-obrazovanju/arhiva-provedenih-vrednovanja [Accessed 05.03.2013]

[106]Agency for Science and Higher Education (2007), **Instructions for Assembling Self-Analysis Tables of Higher Education Institutions Within the University**, https://www.azvo.hr/index.php/hr/vrednovanja/postupci-vrednovanja-u-visokom-obrazovanju/arhiva-provedenih-vrednovanja [Accessed 05.03.2013]

[107]op. cit. NCN, pp 14-15

[108]op.cit. GSCA, article 34, paragraph 1, 2, 3, 8

Taking into account the above framework, the academic staff is considered to be overloaded with teaching if the indicators show the 37.5% overload.[109] However, it is not clear which is the threshold for overload if the calculation includes both academic staff and associates.

The total number of performed teaching norm hours in the academic year 2009/2010 at the FOI is shown in the Table 4 below:

Table 4. The number of performed teaching norm hours in the academic year 2009/2010

Form of Teaching	Performed teaching norm hours
Class Teaching	9840
Seminars and Auditory Exercises	9433
Other Forms of Teaching	6183
Total	25456

Source: op. cit. FOISA, pp 67

As the sources from which they were taken it is not clear whether the data presented in Table 4 apply only to academic staff or academic staff and associates, teaching overload indicator will be calculated for both options. Assuming that the data is related to academic staff and associates, teaching overload indicator calculated on the basis of data from Tables 3 and 4 amounts to 1.1314 (25.456/22.500), whence we conclude that teaching overload amounts to 13.14%.

If the data in Table 4 apply only to the academic staff, then teaching overload indicator amounts to 1.8649 (25.456 /13.650) or 86.49%.

The statement on the issue of teaching overload at some faculties covered by this research was given by the ASHE after the completion of re-accreditation process of the faculties and relevant university departments summarized in the Table 5 below.

[109] op. cit. NCN, pp 15

Table 5. Agency opinion on teaching overload issued by the ASHE for the faculties and university departments under research

	Opinion of ASHE on the Teaching overload
Faculty of Economics at J.J. Strossmayer University of Osijek	Academic staff work load is very high – approximately 500 teaching hours per year, considerably above the relevant international standards. As a consequence, their research production is modest as to both – the quantity and quality. There are no available data on the total work load of individual academic staff at the HE institutions of Slavonski Brod and Vukovar, as dislocated center, which additionally increases the ratio between the academic staff and students. The work load among the academic staff is uneven. The work load has been balanced among the employed and non-employed on the projects.[42]
Faculty of Economics at University of Rijeka	There are no available data on the work load of individual academic staff in the two dislocated centers, which additionally increases already unfavorable ratio between the number of academic staff and students. There is a need for a more balanced approach in the determining of the academic staff adequate work load, which currently varies in the broad range between 245 and 105 teaching hours per year. Numerous data indicate teaching overload, which situation does not leave room to scientific research in the field and other relevant activities. Currently, the work load is balanced among the academic staff engaged on the projects and those who are not engaged.[43]
Faculty of Economics at University of Split	There are substantial differences in the academic staff work load depending on the study programs they lecture. This obviously shows the need for the academic staff work load analysis at the level of study programs and not only the faculty levels in total. There is no formalized politics regulating the academic staff work load. Scientific work is limited not only by the available budget but also by the fact that priority is given to the increase in the engagement of currently insufficient academic staff.[44]
Faculty of Economics and Business at University of Zagreb	The faculty assistants are critical towards the limitations in the research work imposed by the considerable work overload. There are substantial differences in the work load distribution depending on the study programs they lecture. There is no formalized politics regulating the academic staff work load. Scientific work is limited not only by the available budget but also by the fact that priority is given to the increase in the engagement of currently insufficient academic staff.[45]
Department of Economics and Tourism at Juraj Dobrila University of Pula	The number of academic staff is sufficient for normal teaching without any need for the academic staff work overload. However, the academic staff has been more focused on teaching activities which leaves them limited room for scientific and research activities. This fact has impact on the quality of scientific papers. Currently, the work load of the employees engaged on the projects is equal to the work load of other employees not engaged on the projects.[46]
Department of Economics at University of Zadar	There are no comments on the teaching work (over)load .[47]
Department of Economics and Business Economics at University of Dubrovnik	Teaching work load varies within the norm by 10%.[48]
Faculty of Tourism and Hospitality Management in Opatija, University of Rijeka	Teaching work load has been adequately distributed among the academic staff but insufficient attention has been given to the distribution of workload between teaching and scientific research.[49]
FOI, University of Zagreb	The academic staff is not overloaded with teaching. The rules governing the distribution of the teaching work load ensure correct distribution of commitments among the academic staff (teaching, scientific research, mentorships).[50]

Source: Agency for Science and Higher Education (2011), https://www.azvo.hr/images/stories/Akreditacija/

It is evident that, at some faculties, academic staff is overloaded with teaching. Although there is insufficient numerical data that would confirm it, it is assumed that this is due to the large ratio of academic staff to students, which will be analysed in the next subsection.

4.2 The ratio of academic staff to students

The ratio between the total number of permanently employed academic staff and the total number of students must not be higher than 1:30, where the number of full-time students is multiplied by the coefficient 1, and part-time students by 0.5. Academic staff are considered to be the employees elected to scientific-educational and educational titles. If a HE institution does not meet this criterion, associates can also be taken into consideration but their number is multiplied by the coefficient 0.5.[119]

The faculties have interpreted the ratio definition in different ways. The difference comes from the calculation of total number of students and permanently employed academic staff and assistants as they had different approach and reasoning related to the answers to the following questions: 1) Should the total number of students include the students of all study levels – concretely, the number of all students enrolled at the specialized post-graduate and doctoral studies? 2) Should the calculation include the number of failed students repeating the study year and if so, should their number be pondered in a manner? 3) Is there equal evaluation of the permanently full-time employed academic staff and those permanently employed but having part-time work load? 4) How are junior researchers included in the total number of academic staff? 5) Should the total number of permanently employed academic staff include the associates in professional titles and if so, what coefficient their number is to be multiplied by?

Based on available data it was feasible for some faculties to follow up their „reasoning" and determine how they responded to the above questions posed and then replicate their procedure for the calculation of ratio between the academic staff and students. When collecting the data necessary for the calculation of the academic staff/ students ratio which is published for public use by the CBS, the following additional issues came to the surface:

- For all observed faculties only data on the total number of students enrolled at the post-graduate studies exist, but data on the number of full-time and part-time students within that total are not available.
- For all the three university departments planned to be included in the analysis, there are only summary figures on the number of students enrolled at all the university departments and not for individual ones.
- The figures related to the number of employees per individual ranks relate to permanently employed academic staff and external assistants.
- The total number of academic staff is not the relevant number since the number of permanently employed full-time academic staff is correct while the number of part-time academic staff is smaller than in reality since the same person can work at different faculties in the same period performing part-time teaching.[120]

[119]MSES: Ministry of Science, Education and Sports of the Republic of Croatia (2010), **Regulation on the Re-accreditation of Higher Education Programs and Institutions**, Official Gazette No. 24/10, http://narodne-novine.nn.hr/clanci/sluzbeni/2010_02_24_575.html, article 6, paragraphs 3 and 5 [Accessed 15.02.2013]

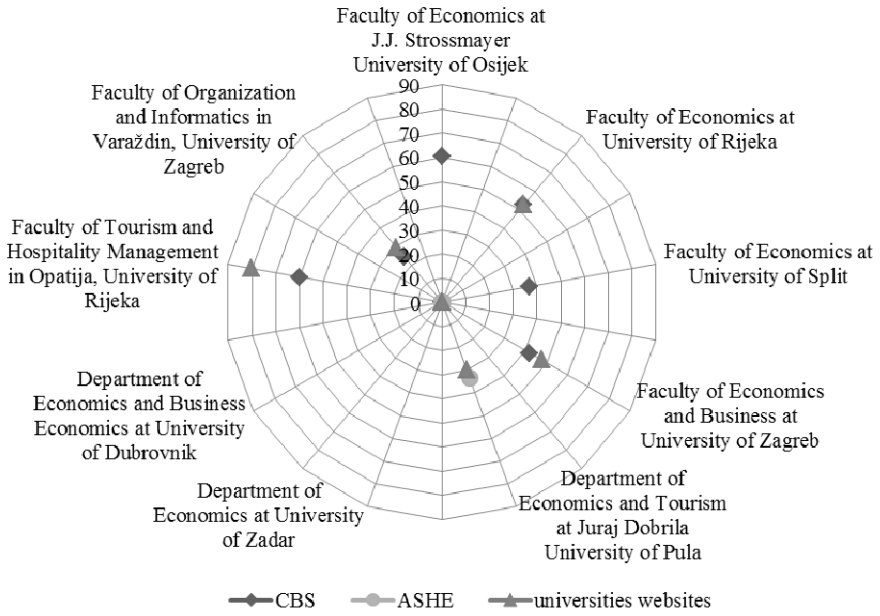
[120]Croatian Bureau of Statistics (2010), **Higher Education, 2009**, Statistical Rreports 1415, www.dzs.hr, pp 12 [Accessed 15.02.2013]

The above problems obviously result in the incorrectness of calculated ratios between the number of academic staff and students. As a consequence of the above approach, the academic staff / students ratio figures given by the faculties are neither comparable among the faculties nor with the figures resulting from this research. Directly comparable, although not precise, are only the ratios obtained based on the figures from the State Bureau of Statistics. Although aware of the problems, the work presented will compare the figures obtained and comment them in order to emphasize the incompleteness of the definition of ratio calculation and the lack of transparency and reliability of publicly available data.

The ratios between the number of academic staff and students in the academic years 2009/2010, 2010/2011 and 2011/2012 have been given in the table attached to this work while the shortened graphical presentation is given in the Figures 1, 2 i 3. It is visible that there are big differences in some cases among the ratios between the number of academic staff and students at certain faculties when the data are obtained from two or three sources at the same time.

Figure 1 shows that the data from the CBS calculated ratio between the number of academic staff and students in the academic year 2009/2010 is the smallest for the FOI and amounts to 1:24.65 and the least favorable ratio is calculated for the Faculty of Economics J. J. Strossmayera in Osijek and amounts to 1:60.36. The mean ratio per each faculty is 46.02, with the standard deviation from the quoted average of 12.87 or 27.97%. Should we consider as acceptable the deviation of almost 30% from the quoted average, we could conclude that the quoted mean ratio presents well the situation at the faculties. The resulting conclusion is also that the observed faculties do not fulfill the requirements from the Regulation and that the mean ratio at the faculties is higher by 53.40% than the one provided in the Regulation and that is 1:30.

Figure 1. The ratio of academic staff to students in academic year 2009/2010



Source: see enclosed table.

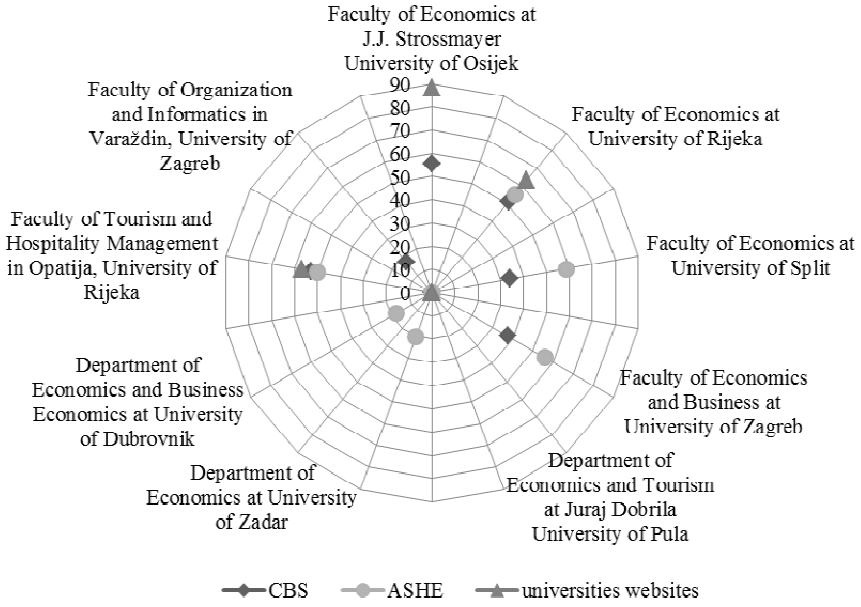
The ratios provided in the re-accreditation reports of the ASHE, individual faculty ratios between the number of academic staff and students have not been calculated for any of the

observed academic years as the calculation procedure is not transparently shown in its documents. Some of the data are taken from the self-analyses performed by the faculties while some calculations have been performed by the Agency as per the data available from the information system MOZVAG. The only data available in this academic year refer to the Department of Economics and Tourism at Juraj Dobrila University of Pula and amount to 1:33.43.

According to the data made available at the web pages of the faculties, it is obvious that the ratio smaller than 1:30 is reached by the Department of Economics and Tourism Juraj Dobrila at the University of Pula (1:29.74) and the FOI (1:29,57). The biggest ratio in the number of academic staff and students is quoted by the Faculty of Tourism and Hospitality Management and that is 1:80.06.

Figure 2 shows that the ratio between the number of academic staff and students calculated based on the data obtained from the CBS for the academic year 2010/2011 is again the smallest for the FOI and that is 1:17.20 and again the highest of all at the Faculty of Economics J. J. Strossmayer in Osijek and amounts to 1:55.68. The mean ratio per each faculty is 41.44, with the standard deviation from the above quoted average of 13.47 or 32.50%. The deviations of the individual ratio values from the mean ratio per faculty are now bigger than 30%. Consequently, it may be concluded that the representability of the mean ratio is modest. On the average, in the current academic year as well, the observed faculties do not satisfy the Regulation requirements since the mean ratio per individual faculties is higher by 38.13% than the prescribed one of 1:30.

Figure 2. The ratio of academic staff to students in academic year 2010/2011



Source: see enclosed table.

The data quoted by the ASHE in its Re-accreditation Reports show that the ratio between the number of academic staff and students at each of the following faculties is smaller than 1:30 for the Department of Economics at the University of Zadar it is 1:20.30, for the Department of Economics and Business Economics at the University of Dubrovnik 1:18.00, and for the FOI the exact value is not known. From the remaining faculties with available data, the most

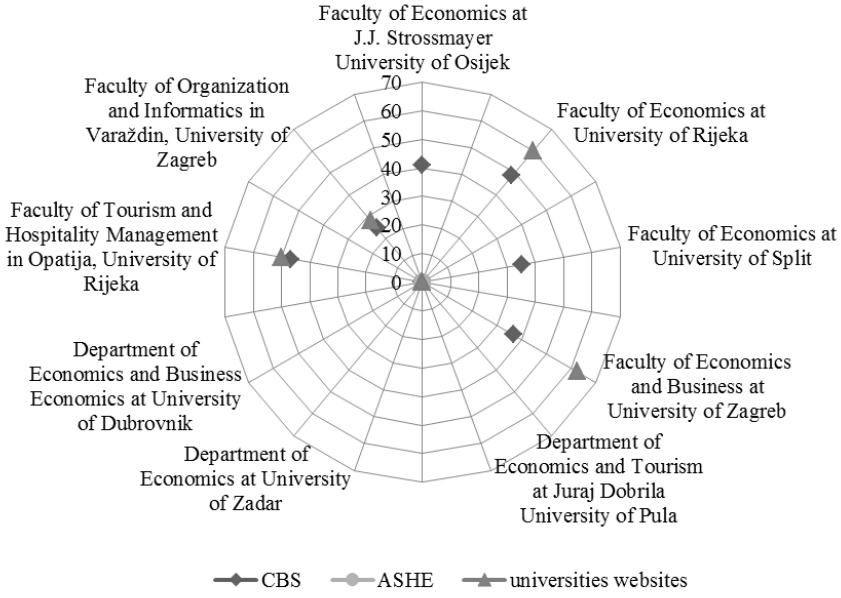
unfavorable ratio is the one calculated for the Faculty of Economics at the University of Split and that is 1:58.44.

For the academic year 2010/2011 only three faculties have published the ratio at their web pages, none of them having the ratio smaller than 1:30. The biggest ratio has been published by the Faculty of Economics J.J. Strossmayer in Osijek and that is as high as 1:88.00.

Figure 3 shows that the ratio calculated on the data obtained from the CBS for the academic year 2010/2011 is the lowest for the FOI, 1:24.79 and the biggest ratio of 1:48.54 for the Faculty of Economics at the University of Rijeka. The mean ratio is now 38.73 with the standard deviation from the quoted mean ratio of 7.91 students per academic staff or 20.42%. Consequently, it can be concluded that the mean ratio is representative. Also in the current academic year the observed faculties on the average do not satisfy the Regulation requirements while the mean ratio per faculty is by 29.10% higher than the prescribed one of 1:30.

The ratios between the number of academic staff and students for the academic year 2010/2011 published on the web pages of the individual faculties and departments show that only FOI has the ratio smaller than 1:30. The biggest ratio has been published by the Faculty of Economics at the University of Zagreb and that is as high as 1:62.26.

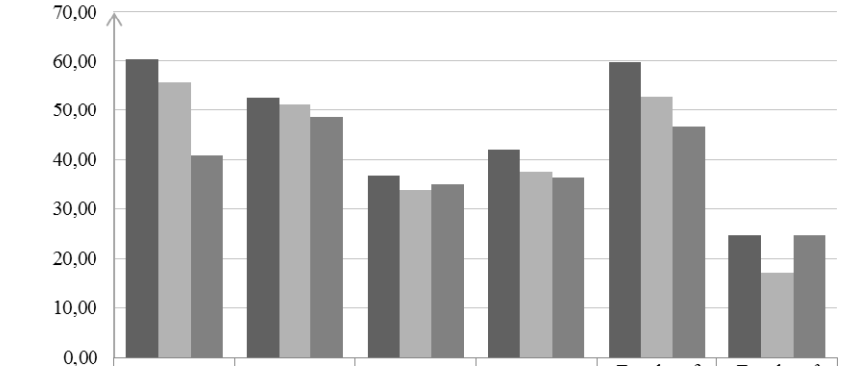
Figure 3. The ratio of academic staff to students in academic year 2011/2012



Source: see enclosed table

In the following passages the analysis of the ratios between the number of academic staff and students will be made only based on the data published by the CBS. Figure 4 shows the ratios per faculties for all the three observed academic years.

Figure 4. Ratio between the number of academic staff and students per faculties in the academic years 2009/2010, 2010/2011 i 2011/2012



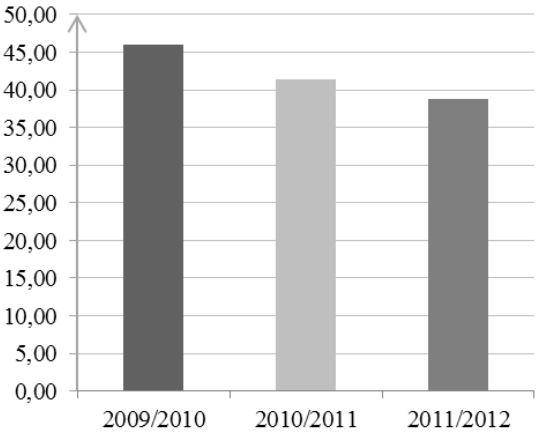
	Faculty of Economics at J.J. Strossmayer University of Osijek	Faculty of Economics at University of Rijeka	Faculty of Economics at University of Split	Faculty of Economics and Business at University of Zagreb	Faculty of Tourism and Hospitality Management in Opatija, University of Rijeka	Faculty of Organization and Informatics in Varaždin, University of Zagreb
2009/2010	60,36	52,60	36,85	42,05	59,75	24,65
2010/2011	55,68	51,40	34,00	37,58	52,79	17,20
2011/2012	40,85	48,54	35,04	36,54	46,59	24,79

Source: see the enclosed table

Based on the Figure 4 it can be concluded that four (4) out of six (6) faculties or 66.67% show a decreasing trend in the ratio between the number of academic staff and students. It is also obvious that only one faculty out of six (FOI) or 16.67% meets the criterion that the ratio should be smaller than 1:30 through all the three observed academic years.

Mean ratios between the numbers of academic staff and students per faculties for the academic years 2009/2010, 2010/2011 and 2011/2012 are shown in the Figure 5, while their relative individual change rates are shown in the Table 5 below.

Figure 5. Mean ratio between the number of academic staff and students per faculties for the academic years 2009/2010, 2010/2011 i 2011/2012



Source: see the enclosed table

Table 6. Mean ratios between the number of academic staff and students and individual change rates of the mean ratios between the number of academic staff and students per faculties for the academic years 2009/2010, 2010/2011 and i 2011/2012 (in percentage)

	Mean ratio of students to academic staff	Rate of change
2009/2010	46,04	N/A
2010/2011	41,44	-9,99
2011/2012	38,73	-6,54

Source: see the enclosed table

As a conclusion, the mean ratio between the number of academic staff and students per faculties also shows a decreasing trend, having the decrease of 9.99% in the academic year 2010/2011 when compared to the previous year and in 2011/2012 it decreased by 6.54% as compared to the year 2010/2011. The calculation of the mean ratio decrease rate per faculties obviously shows that within the observed period between 2009/2010 and 2011/2012 every academic year it decreased by 8.28%. Should the falling trend continue at the average decrease rate in the years to follow, not earlier than in the academic year 2014/2015 the ratio smaller than 1:30 could be expected.

5 CONCLUSION

The first aim of this paper was to explore the possibilities of enhancing the role of HE sector in the social and economic development by introducing an entrepreneurial mindset. Literature review shows that one of the ways universities pursue when dealing with the changing, complex and uncertain environment is to break their traditional boundaries. Some academics go so far to announce the end of the traditional university as we know it. There are favorable and harmful trends in the HE sector that challenge universities to pursue better and more effective ways of dealing with the change. Some universities consider these trends a threat, others see them as an opportunity, and the rest try to ignore them. Universities are under pressure to promote economic development and to find new sources of revenue by commercializing their research. However, there is a growing concern that their economic dimension will overshadow the social one. Just as it is important to adapt to the changing environment which promotes commercialization of research and better links between university and industry, it is equally if not more important to stimulate the development of appropriate values and social skills among students which will govern and direct their actions and lives in the future. Both economic and social dimension of HE can be reconciled by a deliberate inclusion of community-related courses and initiatives.

The second aim was to explore possible difficulties (or obstacles) in the implementation of this concept in Croatia, with a special emphasis on the academic staff work overload. Research results shows that three of nine faculties has academic staff work load as proposed by the relevant institution through at least one of three observed academic years. However, only one of six faculties under research, for which we had the comparable data necessary to calculate the ratio, meets the criterion that the ratio between the number of academic staff and students is smaller than 1:30 through all three observed academic years. Academic staff at other five faculties is overloaded up to 50%. Fortunately, all of them with decreasing trends in all three observed academic years.

Wider engagement with the stakeholder community, re-creation of university autonomy, collegiality and authority and wider range of interdisciplinary initiatives, are a good starting point in creating an entrepreneurial university. One of the main stakeholders in transformation

of traditional universities into entrepreneurial is certainly academic staff who is and should be the main carrier and promoter of this concept, and as such should be recognized by decision makers. However, the practice demonstrates quite the opposite. On the one hand, an increased engagement in the local community is expected as well as collaboration with the industry. On the other hand, indicators such as teaching overload indicator and ratio between the number of academic staff and students suggest they are overloaded with the teaching responsibilities and administration only. What can be done to enhance extrinsic support which would encourage creative activities, and intrinsic motivators where academic staff would do the work they feel passionate about and thereby contribute to the development of this new concept? We may try to find the answer at the beginning of this paragraph.

There is no doubt that universities will need to reshape and stretch their traditional boundaries under the influence of globalization and ever-changing environment. However, there is no single model of best practice that all universities could pursue to become entrepreneurial. There are good practice models around the world, some of which have been presented in this research paper, but all of them need to be contextualized. That means that we need to understand circumstances, conditions, situations, and environments which will provide opportunities or set boundaries in implementing parts or complete good practice models. If insensitive to differences in the context, universities will not be able to find their specific pathways and develop their own entrepreneurial characters.

6 BIBLIOGRAPHY

Baatjes, I. G., (2005): **Neoliberalni fatalizam i korporativizacija visokog obrazovanja u Južnoj Africi.** ***Političko obrazovanje*****,** 1(2): 107-119

Badri, M. A. and Abdulla, M. H., (2004): **Awards of excellence in institutions of higher education: An AHP approach.** ***International Journal of Educational Management*****,** 18(4): 224-242

Benneworth, P. and Sanderson, A., (2007): **Building Institutional Capacity for HEI Regional Engagement in a Sparse Innovation Environment: A Case Study of Knowledge House (NE England)**, in ***International Conference on 'Globally Competitive, Locally Engaged Higher Education and Regions'***, ***Proceedings,*** OECD/ IMHE, Valencia, Spain, September 19–21, 2007.

Chan, A. and Chan, C., (2009): **A New Outcome-Based Curriculum: Its Impact on Student Core Competence**, ***Journal of Applied Research in Higher Education***, 2: 24 - 32

Clark, B., (2001): **The Entrepreneurial University: New Foundations for Collegiality, Autonomy and Achievement**, ***Journal of the Programme of Institutional Management in Higher Education***, 2: 9 - 25

Coaldrake, P., (2001): **Responding to Changing Student Expectations**, ***Journal of the Programme of Institutional Management in Higher Education***, 2: 75 - 92

Cornell, B., (2004): **Compesation and recruiting: private universities versus private corporations**, ***Journal of Corporate Finance*** 10: 37-52

Dabić, M and Švarc, J. (2011): **O konceptu poduzetničkog sveučilišta: ima li alternative?**, ***Društvena istraživanja Zagreb***, 4: 991-1013

Daumard, P., (2001): **Entreprise Culture and University Culture**, ***Journal of the Programme of Institutional Management in Higher Education***, 2: 67 - 74

Davies, J. L, (2001): **The Emergence of Entrepreneurial Cultures in European Universities**, ***Journal of the Programme of Institutional Management in Higher Education***, 2: 25 - 43

D' Este, P. and Perkmann, M. (2010) **Why do Academics Engage with Industry? The Entrepreneurial University and Individual Motivations**, http://www.aimresearch.org/uploads/file/Working%20Papers/Full-Working-Paper-Perkmann.pdf [Accessed 20.02.2013.]

EU, **Summaries of EU Legislation**, http://europa.eu/legislation_summaries/employment_and_social_policy/eu2020/growth_and_jobs/i23035_en.htm [Accessed 20.02.2013.])

Gibb, A. and Hannon, P., (2006): **Towards the Entrepreneurial University?** ***International Journal of Entrepreneurship Education***

Jaschik, S. (2010) **Commodification of Academic Research**, http://www.insidehighered.com/news/2010/10/25/radder [Accessed 26.05.2011.]

Husić, M. and Kubinska, E., (2005): **Primjena AHP metode prilikom izbora najboljeg univerzitetskog profesora.** ***Zbornik radova Ekonomskog fakulteta u Sarajevu,*** 25: 345-363.

Kesić, T. Previšić, J., (1996): **Zadovoljstvo poslom i alokacija vremena nastavnika na zagrebačkom Sveučilištu.** ***Društvena istraživanja Zagreb***, 1(21): 147-159.

Loukkola, T. and Zhang, T., (2010): ***Examing Quality Culture: Part 1 – Quality Assurance Processes in Higher Education Institutions.*** Brussels: European University Association, http://www.eua.be/pubs/Examining_Quality_Culture_Part_1.pdf [Accessed 25.07. 2012.]

McInnis, C., (2001): **Promoting Academic Expertise and Authority in an Entrepreneurial Culture**, ***Journal of the Programme of Institutional Management in Higher Education***, 2: 45 - 55

Mora, J. and Villarreal, E., (2001): **Breaking Down Structural Barriers to Innovation in Traditional Universities**, ***Journal of the Programme of Institutional Management in Higher Education***, 2: 57 - 66

Moodie, G., (2009): **Australia: the Emergence of Dual Sector Universities**, http://www.academia.edu/359619/Australia_the_emergence_of_dual_sector_universities [Accessed 7.03.2013.]

Morgan, B. and Lydon, J., (2009): **Bologna: Some Thoughts on its Effect in the Internationalization of Higher Education**, ***Journal of Applied Research in Higher Education***, 1: 64 - 72

Pisuke, H. and Kelli, A., (2007): **Some Issues Regarding Entrepreneurial Universities and Intellectual Property**, ***Juridica International***, http://www.juridicainternational.eu/index.php?id=12675, pp 161 – 172 [Accessed 19.02.2013.]

Pratt, J. (2001): **Changing Patterns of Diversity in Europe: Lessons from an OECD Study Tour,** ***Journal of the Programme of Institutional Management in Higher Education***, 2: 93 - 103

Redmond, R., Curtis, E., Noone, T. and Keenan, P., (2008): **Quality in Higher Education**, ***International Journal of Educational Management***, 5: 432 - 441

Roberts, G. W., (2010): **Advancing New Approaches to Learning and Teaching – Introducing Appreciative Inquiry to a Problem-Based Learning Curriculum**, ***Journal of Applied Research in Higher Education***, 1: 16 - 24

Salmi, J., (2001): **Tertiary Education in the 21st Century: Challenges and Opportunities**, ***Journal of the Programme of Institutional Management in Higher Education***, 2: 105 - 128

Skinner, H. and Blackey, H.: **Globalization of Business Education – A British Course or a British Educational Experience? Comparisons from a UK University**, ***Journal of Applied Research in Higher Education***, 2: 22 - 32

Subotzky, G., (1999): **Alternatives to the Entrepreneurial University: New Modes of Knowledge Production in Community Service Programs**, Higher Education, Kluwer Academic Publishers, Netherlands

Thorp, H. and Goldstein, B. (2010) **The Entrepreneurial University**, http://www.insidehighered.com/views/2010/09/27/thorp [Accessed 26.05.2011.]

Welter, F., (2011): **Contextualizing Entrepreneurship – Conceptual Challenges and Ways Forward**, ***Entrepreneurship Theory and Practice***, 1: 165 – 184

Agency for Science and Higher Education (2007), **Instructions for Assembling the Self Analysis of Higher Education Institutions Within the University**, https://www.azvo.hr/index.php/hr/vrednovanja/postupci-vrednovanja-u-visokom-obrazovanju/arhiva-provedenih-vrednovanja [Accessed 05.03.2013]

Agency for Science and Higher Education (2007), **Instructions for Assembling Self-Analysis Tables of Higher Education Institutions Within the University**, https://www.azvo.hr/index.php/hr/vrednovanja/postupci-vrednovanja-u-visokom-obrazovanju/arhiva-provedenih-vrednovanja [Accessed 05.03.2013]

Agency for Science and Higher Education (2011), **Expert Commission Final Report on the Re-accreditation of the Faculty of Organization and Informatics Varaždin, University of Zagreb** https://www.azvo.hr/images/stories/Akreditacija/izvjestaj_foi_verzija_finalna_verzija.pdf pp 10 [Accessed 22.02.2013]

Agency for Science and Higher Education (2011), **Expert Commission Report on the Re-accreditation of the Department of Economics and Tourism „Dr. Mijo Mirković" of the University of Juraj Dobrila in Pula**, https://www.azvo.hr/images/stories/Akreditacija/Izvjee_Odjel_za_ekonomiju.pdf [Accessed 22.02.2013]

Agency for Science and Higher Education (2011), **Expert Commission Report on the Re-accreditation of the Department of Economics of the University of Zadar**, https://www.azvo.hr/images/stories/Akreditacija/ZD-Izvjee_reakreditacija_Zadar_5-2011-final.pdf pp 5 [Accessed 22.02.2013]

Agency for Science and Higher Education (2011), **Expert Commission Report on the Re-accreditation of the Department of Economics and Business of the University of Dubrovnik**, https://www.azvo.hr/images/stories/Akreditacija/DU__Izvjee_reakreditacija__Dubrovnik_5-2011.pdf, pp 5-6 [Accessed 22.02.2013]

Agency for Science and Higher Education (2011), **Faculty of Economics at Josip Juraj Strossmayer University of Osijek**, https://www.azvo.hr/images/stories/Akreditacija/Osijek_izvješće.pdf, pp 6 [Accessed 22.02.2013]

Agency for Science and Higher Education (2011), **Faculty of Economics at University of Rijeka**, https://www.azvo.hr/images/stories/Akreditacija/izvjee_rijeka_final.pdf pp 6-7, 11-12 [Accessed 22.02.2013]

Agency for Science and Higher Education (2011), **Re-accreditation of the Faculty of Economics of the University of Split, Expert Commission Report**, https://www.azvo.hr/images/stories/Akreditacija/Zavrno_izvjee_EFST_FINAL.pdf pp 11-12 [Accessed 22.02.2013]

Agency for Science and Higher Education (2011), **Re-accreditation of the Faculty of Economics and Business of the University of Zagreb, Expert Commission Report**, https://www.azvo.hr/images/stories/Akreditacija/Zavrno_izvjee_EFZG_HRV_FINAL.pdf pp 10-12 [Accessed 22.02.2013]

Agency for Science and Higher Education (2011), **Re-accreditation of the Faculty of Tourism and Hospitality Management in Opatija, the University of Rijeka**, https://www.azvo.hr/images/stories/Akreditacija/Opatija_HRV.pdf pp 11 [Accessed 22.02.2013]

Croatian Bureau of Statistics (2010), **Higher Education, 2009**, Statistical Reports 1415, www.dzs.hr pp 12, 75-95 [Accessed 24.02.2013]

Croatian Bureau of Statistics (2011), **Higher Education, 2010**, Statistical Reports 1444, www.dzs.hr, pp 10, 71-86 [Accessed 24.02.2013]

Croatian Bureau of Statistics (2011), **Students, 2009/2010 Academic Year**, Statistical Reports 1416, www.dzs.hr, pp 23-41 [Accessed 24.02.2013]

Croatian Bureau of Statistics (2012), **Higher Education, 2011**, Statistical Reports 1472, www.dzs.hr, pp 12, 75-89 [Accessed 24.02.2013]

Croatian Bureau of Statistics (2012), **Students, 2010/2011 Academic Year**, Statistical Reports 1445, www.dzs.hr, pp 24-39 [Accessed 24.02.2013]

Croatian Bureau of Statistics (2012), **Students, 2011/2012 Academic Year**, Statistical Reports 1473, www.dzs.hr, pp 23-24, 29-38 [Accessed 24.02.2013]

Faculty of Economics at Josip Juraj Strossmayer University of Osijek (2011), **The Strategy of Josip Juraj Strossmayer University of Osijek 2011-2020**, http://www.unios.hr/uploads/50STRATEGIJA%20SVEUČILIŠTA%20HR.pdf, pp 123 [Accessed 25.02.2013]

FOISA: Faculty of Organization and Informatics Varaždin, University of Zagreb (2010), **Self-Analysis Report 2010**, http://www.foi.unizg.hr/fakultet/kvaliteta/Reakreditacijska-prosudba-kvalitete-FOI/Izvjestaj-Samoanaliza-2010/(language)/cro-HR, pp 61-62, 66-67 [Accessed 22. 02.2013]

GSCA: Government of the Republic of Croatia and Independent Syndicate of Science and Higher Education (2010), **Collective Agreement on Science and Higher Education**, Official Gazette No. 142/10, http://narodne-novine.nn.hr/clanci/sluzbeni/2010_12_142_3607.html, articles 18-21, 23, 27-29, 33-34, 43[Accessed 15.02.2013]

Juraj Dobrila University of Pula (2011), **The Development Strategy of the Juraj Dobrila University of Pula**, http://www.unipu.hr/uploads/media/Razvojna_strategija2010-2015. pdf, pp 61 [Accessed 25.02.2013]

MSES: Ministry of Science, Education and Sports of the Republic of Croatia (2010), **Regulation on the Re-accreditation of Higher Education Programs and Institutions**, Official Gazette No. 24/10, http://narodne-novine.nn.hr/clanci/sluzbeni/2010_02_24_575.html, article 6, paragraph 3-5, article 17, paragraph 3 [Accessed 15.02.2013]

NCN: National Committee for Higher Education (2011), **The Network of Higher Education Institutions and Study Programs in Republic of Croatia**, https://www.azvo.hr/images/stories/visoko/Mre%C5%BEa_visokih_u%C4%8Dili%C5%A1ta_i%20studijskih_programa_u_RH_final.pdf, pp 14-15 [Accessed 15.02.2013]

University of Rijeka (2009), **Report on the Implementation of the Strategy in 2009**, http://www.uniri.hr/files/staticki_dio/propisi_i_dokumenti/Izvjestaj%20o%20provedbi%20Strategije%20za%202009_%20-%20konacna.pdf, pp 17 [Accessed 23.02.2013]

University of Rijeka (2010), **Summary Report on the Implementation of the Strategy in 2010**, http://www.uniri.hr/files/staticki_dio/propisi_i_dokumenti/Izvjestaj%20o%20provedbi%20Strategije%20za%202010_%20KONACNA%20VERZIJA%20160611.pdf, pp 23 [Accessed 23.02.2013]

University of Rijeka (2011), **Summary Report on the Implementation of the Strategy in 2011**, http://www.uniri.hr/files/staticki_dio/propisi_i_dokumenti/Izvjestaj%20o%20provedbi%20Strategije%20SuRi%20u%202011.pdf, pp 21 [Accessed 23.02.2013]

University of Zagreb (2012), **Report on the Work of the University of Zagreb in the Academic Year 2009/2010**, University Herald Vol. LVII., http://www.unizg.hr/fileadmin/rektorat/dokumenti/obavijesti_nastava/Izvjesce_o_radu_2009_2010.pdf, pp 532, 551 [Accessed 23.02.2013]

University of Zagreb (2012), **Self-Analysis and Documentation for the Process of Independent External Quality Assurance Audit at the University of Zagreb**, http://www.unizg.hr/fileadmin/upravljanjekvalitetom/Samoanliza_i_dokumentacija_za_vanjsku_neovisnu_prosudbu.pdf, pp 40 [Accessed 23.02.2013]

7 APPENDIX.

Table 1. The ratio of academic staff to students in academic years 2009/2010, 2010/2011 and 2011/2012

	Academic year 2009/2010					Academic year 2010/2011					Academic year 2011/2012				
	Number of students[1)]	Number of academic staff[1)]	The ratio of academic staff to students (CBS)	The ratio of academic staff to students (ASHE)	The ratio of academic staff to students (universities websites)	Number of students[1)]	Number of academic staff[1)]	The ratio of academic staff to students (CBS)	The ratio of academic staff to students (ASHE)	The ratio of academic staff to students (universities websites)	Number of students[1)]	Number of academic staff[1)]	The ratio of academic staff to students (CBS)	The ratio of academic staff to students (ASHE)	The ratio of academic staff to students (universities websites)
Faculty of Economics at J.J. Strossmayer University of Osijek	3259,5	54	60,36	N/A	N/A	3118	56	55,68	N/A[2)]	88,00[3)]	3064	75	40,85	N/A	N/A
Faculty of Economics at University of Rijeka	3313,5	63	52,6	N/A	52,62[4)]	3341	65	51,40	55,30	62,97[5)]	3058	63	48,54	N/A	60,00[6)]
Faculty of Economics at University of Split	3777	102,5	36,85	N/A	N/A	3570,5	105	34,00	58,44	N/A	3346,5	95,5	35,04	N/A	N/A
Faculty of Economics and Business at University of Zagreb	8073,5	192	42,05	N/A	47,96[7)]	7384,5	196,5	37,58	55,72[8)]	N/A	6905,5	189	36,54	N/A	62,26[9)]
Department of Economics and Tourism at Juraj Dobrila University of Pula	N/A[10)]	N/A[10)]	N/A	33,43	29,74[11)]	N/A[10)]	N/A[10)]	N/A	N/A	N/A	N/A[10)]	N/A[10)]	N/A	N/A	N/A
Department of Economics at University of Zadar	N/A[10)]	N/A[10)]	N/A	N/A	N/A	N/A[10)]	N/A[10)]	N/A	20,30	N/A	N/A[10)]	N/A[10)]	N/A	N/A	N/A
Department of Economics and Business Economics at University of Dubrovnik	N/A[10)]	N/A[10)]	N/A	N/A	N/A	N/A[10)]	N/A[10)]	N/A	18,00	N/A	N/A[10)]	N/A[10)]	N/A	N/A	N/A
Faculty of Tourism and Hospitality Management in Opatija, University of Rijeka	3226,5	54	59,75	N/A	80,06[12)]	3088,5	58,5	52,79	50,00[13)]	57,00[14)]	2842	61	46,59	N/A	50,00[15)]
Faculty of Organization and Informatics in Varaždin, University of Zagreb	1565,5	63,5	24,65	N/A	29,57[16)]	1101	64	17,20	N/A[17)]	N/A	1624	65,5	24,79	N/A	28,00[18)]
Aritmetic Mean			46,04					41,44					38,73		
Standard Deviation			12,87					13,47					7,91		

Note:
1) Number of full-time students is included in the total number of students with a coefficient of 1, and the number of part-time students with coefficient 0.5. It is assumed that all post-graduate and doctoral studies are full-time students. Number of acaemic staff in scientific-educational and educational titles is included in the total number of academic staff with a coefficient of 1, and the number of academic staff in associate titles with a coefficient of 0.5.
2) Report states only that the ratio of academic staff to students is greater than 1:30. Agency for Science and Higher Education (2011), **Faculty of Economics at Josip Juraj Strossmayer University of Osijek**, https://www.azvo.hr/images/stories/Akreditacija/Osijek_izvješće.pdf, pp 6 [Accessed 22.02.2013]
3) Faculty of Economics at Josip Juraj Strossmayer University of Osijek (2011), **The Strategy of Josip Juraj Strossmayer University of Osijek 2011-2020.**, http://www.unios.hr/uploads/50STRATEGIJA%20SVEUČILIŠTA%20HR.pdf, pp 123 [25.02.2013]

4) University of Rijeka (2009), **Report on the Implementation of the Strategy in 2009**, http://www.uniri.hr/files/staticki_dio/propisi_i_dokumenti/Izvjestaj%20o%20provedbi%20Strategije%20za%202009_%20-%20konacna.pdf, pp 17 [Accessed 23.02.2013]
5) University of Rijeka (2010), **Summary Report on the Implementation of the Strategy in 2010**,
http://www.uniri.hr/files/staticki_dio/propisi_i_dokumenti/Izvjestaj%20o%20provedbi%20Strategije%20za%202010_%20KONACNA%20VERZIJA%20160611.pdf, pp 23 [Accessed 23.02.2013]
6) University of Rijeka (2011), **Summary Report on the Implementation of the Strategy in 2011,**,
http://www.uniri.hr/files/staticki_dio/propisi_i_dokumenti/Izvjestaj%20o%20provedbi%20Strategije%20SuRi%20u%202011.pdf, pp 21 (read out from the graph) [Accessed 23.02.2013]
7) Ratio is calculated based on data from **Report on the Work of the University of Zagreb in the Academic Year 2009/2010,**
http://www.unizg.hr/fileadmin/rektorat/dokumenti/obavijesti_nastava/Izvjesce_o_radu_2009_2010.pdf, pp 532, 551 [Accessed 23.02.2013]. When calculating the total number of academic staff, associates and academic staff elected in scientific-educational titles with working hours of less than full-time are involved with a coefficient of 0,5.
8) Report states that the Faculty of Economics at Universitiy of Zagreb in its self-analysis states a different ratio (1:40,33). Agency for Science and Higher Education (2011), **Re-accreditation of the Faculty of Economics and Business of the University of Zagreb, Expert Commission Report**, https://www.azvo.hr/images/stories/Akreditacija/Zavrno_izvjee_EFZG_HRV_FINAL.pdf, pp 10 [Accessed 22.02.2013]
9) University of Zagreb (2012), **Self-Analysis and Documentation for the Process of Independent External Quality Assurance Audit at the University of Zagreb**,
http://www.unizg.hr/fileadmin/upravljanjekvalitetom/Samoanliza_i_dokumentacija_za_vanjsku_neovisnu_prosudbu.pdf, pp 40 [Accessed 23.02.2013]
10) CBS publishes only summary data on the number of students enrolled and the number of academic staff in all departments of universities.
11) Juraj Dobrila University of Pula (2011), **The Development Strategy of the Juraj Dobrila University of Pula**, http://www.unipu.hr/uploads/media/Razvojna_strategija2010-2015.pdf, pp 61 [Accessed 25.02.2013]
12) University of Rijeka (2011), **Report on the Implementation of the Strategy in 2009**, http://www.uniri.hr/files/staticki_dio/propisi_i_dokumenti/Izvjestaj%20o%20provedbi%20Strategije%20za%202009_%20-%20konacna.pdf, pp 17 [Accessed 23.02.2013]
13) The accuracy of this data is questionable, because in the same report, p. 4 states that the ratio is about 1:55. Agency for Science and Higher Education (2011), **Re-accreditation of the Faculty of Tourism and Hospitality Management in Opatija, the University of Rijeka**, https://www.azvo.hr/images/stories/Akreditacija/Opatija_HRV.pdf, pp 11 [Accessed 22.02.2013]
14) University of Rijeka (2010), **Summary Report on the Implementation of the Strategy in 2010**,
http://www.uniri.hr/files/staticki_dio/propisi_i_dokumenti/Izvjestaj%20o%20provedbi%20Strategije%20za%202010_%20KONACNA%20VERZIJA%20160611.pdf, pp 22-23 [Accessed 23.02.2013]
15) University of Rijeka (2011), **Summary Report on the Implementation of the Strategy in 2011**,
http://www.uniri.hr/files/staticki_dio/propisi_i_dokumenti/Izvjestaj%20o%20provedbi%20Strategije%20SuRi%20u%202011.pdf, pp 21 (read out from the graph) [Accessed 23.02.2013]
16) Faculty of Organization and Informatics Varaždin, University of Rijeka (2010), **Self-Analysis Report 2010**, http://www.foi.unizg.hr/fakultet/kvaliteta/Reakreditacijska-prosudba-kvalitete-FOI/Izvjestaj-Samoanaliza-2010/(language)/cro-HR, pp 61-62 [Accessed 22.02.2013]
17) Report states only that the ratio of academic staff to students is satisfactory, implying that it is less than 1:30.; Agency for Science and Higher Education (2011), **Expert Commission Final Report on the Re-accreditation of the Faculty of Organization and Informatics Varaždin, University of Zagreb,** https://www.azvo.hr/images/stories/Akreditacija/izvjestaj_foi_verzija_finalna_verzija.pdf, pp 10 [Accessed 22.02.2013]
18) University of Zagreb (2012), **Self-Analysis and Documentation for the Process of Independent External Quality Assurance Audit at the University of Zagreb**,
http://www.unizg.hr/fileadmin/upravljanjekvalitetom/Samoanliza_i_dokumentacija_za_vanjsku_neovisnu_prosudbu.pdf, pp 12 (read out from the graph) [Accessed 23.02.2013]
Source: Croatian Bureau of Statistics (2010), **Higher Education, 2009**, Statistical Reports 1415, www.dzs.hr, pp 12, 74-95 [Accessed 24.02.2013]; Croatian Bureau of Statistics (2011), **Students, 2009/2010 Academic Year**, Statistical Reports 1416, www.dzs.hr, pp 23-41 [Accessed 24.02.2013]; Croatian Bureau of Statistics (2011), **Higher Education, 2010**, Statistical Reports 1444, www.dzs.hr, pp 10, 71-86 [Accessed 24.02.2013]; Croatian Bureau of Statistics (2012), **Students, 2010/2011 Academic Year**, Statistical Reports 1445, www.dzs.hr, pp 24-39 [Accessed 24.02.2013]; Croatian Bureau of Statistics (2012), **Higher Education, 2011**, Statistical Reports 1472, www.dzs.hr, pp 12, 75-89 [Accessed 24.02.2013]; Croatian Bureau of Statistics (2012), **Students, 2011/2012 Academic Year**, Statistical Reports 1473, www.dzs.hr, pp 23-24, 29-38 [Accessed 24.02.2013]; Agency for Science and Higher Education (2011), **Expert Commission Final Report on the Re-accreditation of the Faculty of Organization and Informatics Varaždin, University of Zagreb** https://www.azvo.hr/images/stories/Akreditacija/izvjestaj_foi_verzija_finalna_verzija.pdf pp 10 [Accessed 22.02.2013]; Agency for Science and Higher Education (2011), **Expert Commission Report on the Re-accreditation of the Department of Economics and Tourism „Dr. Mijo Mirković" of the University of Juraj Dobrila in Pula**,
https://www.azvo.hr/images/stories/Akreditacija/Izvjee_Odjel_za_ekonomiju.pdf [Accessed 22.02.2013]; Agency for Science and Higher Education (2011), **Expert Commission Report on the Re-accreditation of the Department of Economics of the University of Zadar**, https://www.azvo.hr/images/stories/Akreditacija/ZD-Izvjee_reakreditacija_Zadar_5-2011-final.pdf pp 5[Accessed 22.02.2013]; Agency for Science and Higher Education (2011), **Expert Commission Report on the Re-accreditation of the Department of Economics and Business of the University of Dubrovnik**,
https://www.azvo.hr/images/stories/Akreditacija/DU__Izvjee_reakreditacija__Dubrovnik_5-2011.pdf, pp 5-6 [Accessed 22.02.2013]; Agency for Science and Higher Education (2011), **Faculty of Economics at Josip Juraj Strossmayer University of Osijek**, https://www.azvo.hr/images/stories/Akreditacija/Osijek_izvješće.pdf, pp 6 [Accessed 22.02.2013]; Agency for Science and Higher Education (2011), **Faculty of Economics at University of Rijeka**, https://www.azvo.hr/images/stories/Akreditacija/izvjee_rijeka_final.pdf pp 6-7, 11-12 [Accessed 22.02.2013]; Agency for Science and Higher Education (2011), **Re-accreditation of the Faculty of Economics of the University of Split, Expert Commission Report**, https://www.azvo.hr/images/stories/Akreditacija/Zavrno_izvjee_EFST_FINAL.pdf pp 11-12 [Accessed 22.02.2013]; Agency for Science and Higher Education (2011), **Re-accreditation of the Faculty of Economics and Business of the University of Zagreb, Expert Commission Report**,
https://www.azvo.hr/images/stories/Akreditacija/Zavrno_izvjee_EFZG_HRV_FINAL.pdf pp 10-12 [Accessed 22.02.2013]; Agency for Science and Higher Education (2011), **Re-accreditation of the Faculty of Tourism and Hospitality Management in Opatija, the University of Rijeka**, https://www.azvo.hr/images/stories/Akreditacija/Opatija_HRV.pdf pp 11 [Accessed 22.02.2013]

ARE THERE ANY IMPROVEMENTS IN GOVERNANCE AFTER A DECADE OF REGIONAL STRATEGIC PLANNING IN CROATIA?

Marijana Sumpor
The Institute of Economics, Zagreb
Department for regional economics, sustainability and governance
Trg J. F. Kennedyja 7, 10000 Zagreb, Croatia
Phone: + 385 1 23 62 200; Fax: + 385 1 23 35 165
E-mail: msumpor@eizg.hr

Irena Đokić
The Institute of Economics, Zagreb
Department for regional economics, sustainability and governance
Trg J. F. Kennedyja 7, 10000 Zagreb, Croatia
Phone: + 385 1 23 62 200; Fax: + 385 1 23 35 165
E-mail: idokic@eizg.hr

Key words: *EU Cohesion Policy, National Regional Policy, Strategic Planning, New Public Management, Regional Governance*

ABSTRACT

European cohesion policy has been inspiring Croatian policy makers for a decade in the attempt to prepare institutional structures for new ways of designing and implementing modern regional development policy. Emphasis has been put on the design of strategic development documents, while their implementation represents still a challenge.

The authors assess a decade of modern strategic planning processes on regional level in Croatia based to a large extent on the new public management and top-down bottom-up policy discourse of the 1990ties, and the more recent advancements in regional governance theory. The attempt to introduce more advanced policy processes enriched the complexity of regional governance. Consequently, formation of national regional policy in Croatia took eight years ending with the adoption of the legal and strategic framework in May 2010. The main intention was to prepare the regional institutional structures on time for EU accession and structural and cohesion funds. All counties (NUTS 3 level) formulated and adopted three year strategic programmes based on the methodology prescribed by the Croatian ministry in charge of regional development. However, most of the regions were engaged in programming long before, either supported by EU or other international donors, or through the former Croatian Regional Development Fund. As the planning process is based on the EU partnership principle, partnership councils are established in all regions.

Though the regional strategic planning documents will serve as the basis of analysis, the primary focus of research is on the planning processes on one side, and the outcomes of the implementation processes on the other. The authors question the effectiveness of the new planning approaches using quantitative development indicators and qualitative insights. The paper concludes with positive and negative aspects of the new public management culture in strategic planning processes on regional level.

1 INTRODUCTION

The Republic of Croatia (member of the EU, 1st July 2013) has worked out its regional development policy throughout the past decade in compliance with the main principles and practices of the European Union. It is clear that the institutional structures and administrative practices inherited from the former socialist system cannot respond to the dramatic changes in the national economy due to internal as well as external pressures and changes. So, a major step forward in enabling economic development in the country is the adaptation of existing and newly evolving institutional structures to comply with the needs of its people and firms (being at the same time the users of public services and tax-payers). Strategic planning and programming are at the heart of this policy as well as strengthening the institutional structures at the national and regional levels. Here, we present a snapshot of the current Croatian strategic planning reality.

It is already a well-known fact that implementation of development strategies is weak – at any level – national, regional or local. Already a classic statement that "even the best elaborated development strategies with the nicest ideas are useless, if left on a bookshelf or even worse at the bottom of a drawer" is frequently given by academics, public sector practitioners, as well as politicians. In this line of thought, it is assumed that a development strategy (or "magic" plan) exists but somewhere hidden and its non-implementation remains the standard fault of the political elite in power. This is also commonly interpreted as "the lack of political will" to initiate necessary changes in governance implying also all-encompassing government reforms and restructuring of the public sector. These in turn show the document every once in a while, when confronted by the media (upon friendly indications of opposition parties) or rioting groups of newly unemployed or farmers after subsidy cuts. Again, popular commentators on the state of the economy appear in the media with statements that "our government lacks strategy" misinforming *the people* that (figuratively speaking) "a king on a white horse might appear with the right strategy and bring salvation to all". There is no such thing. But again, we engage in strategic planning processes, adopt laws prescribing strategic planning, and eagerly dive into the obligatory programming processes linked to the European Cohesion Policy process. So, the main research question might be: *To plan or not to plan or something in between?* Yes, we talk about participatory and interdisciplinary and comprehensive planning approaches in a multi-level governance context. And, we think there is a lot of room for improvement in the way how governments govern the state's development in all its dimensions (economic, social, cultural, environmental, spatial, and institutional).

Simply stated, every country, region or locality strives for economic development to ensure better quality of life for the inhabitants. This however is a complex task of enabling or creating positive trends in the economy throughout a certain period of time. Through the acknowledgment of the propositions of collaborative development models (e.g. triple or quadruple helix) it is clear that economic development can hardly occur without positive interactions between the state, the firms and the society. These processes cannot be managed in traditional ways, as government administrations or profit oriented companies do. At the same time, citizens cannot influence development without being organised (civil society organisations) and without having the chance to do so. Therefore, participatory approaches within contemporary strategic planning processes, based on the policy cycle management concept, try to provide the respective room for engaged and collaborative planning. In regional economic development research, we witness an intertwined process of continuous interactions between science and practice that try to work-out new solutions for the complex world of wicked problems so vividly visible at the regional level.

In this research paper we present a synthesis of the current trends in literature on the aspects of strategic planning methods, the new public management and multilevel governance discourse. Key principles and theoretical foundation for the regional governance approach will be discussed in the context of the practices and experiences in the European Union. The second chapter deals with the regional strategic planning approaches in Croatia, namely the new regional policy in the period 2003-2012. The regional strategic planning experiences and impacts of the new regional governance approaches in Croatia are presented in the third chapter, where after the research paper ends with conclusions.

2 REGIONAL STRATEGIC PLANNING AND GOVERNANCE

2.1 Anything new in regional strategic planning theory?

Strategic planning as a common approach is an integrated procedural part of the European Cohesion Policy related programming process and a standard requirement for the entire structural funds disbursement mechanism (operational programmes, project proposals). The policy cycle is the basis for the entire planning process starting with the standard situational analysis using commonly the SWOT analysis tool, the strategy formulation, the budgetary planning process linking the strategic objectives with the funds, and the implementation process that needs to be monitored, audited, supervised and finally evaluated (ex-ante, on-going/interim, and ex-post). This process has been an integral part of the past EU programming frameworks and will be kept alive in the coming one (2014-2020). On national and regional level, this policy planning process is frequently applied to accommodate for eventual funding requirements inevitably linked to the project funding mechanisms applied all over Europe and wider, when dealing with EU co-funded development projects on regional and local level. In this sense, theorising the applicability of strategic planning approaches in regional development policy is not really the question anymore, but what remains is the question of their true implementability and effectiveness. This might bring the researcher back to the first step in the development management process, namely, is the strategy or strategic approach right? And in this sense, each step in the strategic planning process might be reanalysed again and again, each time in a new socio-economic, historic and cultural context. So, the main research strands related to the complexity of the strategic planning process in a regional development context are the interdisciplinary and participatory or collaborative approaches in strategic planning, multi-level governance, institutional and spatial or territorial development.

The *interdisciplinary approach* in the strategic planning process is inevitably linked to the sustainable development discourse within which it is made obvious that certain policies and actions do have positive as well as negative impacts on the other development aspects. This broader understanding of development is also opposing the mainstream growth oriented economic development that dominated economic policy from the mid 1980ties till nowadays the world economy. The new understanding of development was regularly presented in a triangle comprised of economic growth, social inclusion and environmental equity. However, this development concept can rightly be expanded even further by other equally important aspects, such as cultural, institutional and the spatial or territorial development aspects. (Dräger et al. 2004, Sumpor and Đokić, 2011, Moulaert et al. 2012)

Participatory planning and the collaborative approach are not just about one time "informative" consultations with the public at the end of the planning process. It is about their valuable involvement in the entire planning and later in the programme implementation process. (Healey, 1995, Sumpor, 2006, Đokic, Starc and Stubbs, 2009) Another important

strand of collaborative approaches in the economic development research can be seen in the works of Etzkowitz and Leydesdorf (1998) on the *Triple Helix Model,* which stresses the importance of interactions between science, industry and government. A fourth group to enrich the model is mentioned in more recent research, namely the civil society organisations which transform the model into the Quadruple Helix Model (Carayannis and Campbell, 2012). Further work on *collaborative advantage* by Huxham and Vangen (2005) has enriched the research agenda on the need to cooperate and join forces in order to enable economic development. Many researchers found their interest in trying to understand and establish links between the different players in innovation and knowledge based economic development. This model stresses the importance of social and institutional aspects as additional key elements of the new economy that has to deal with the growing complexities of globalisation.

Multi-level governance (MLG) has been a popular research topic within the political sciences, but has inspired also other researchers dealing with the complexities of regional and local development. The most prominent researchers are Hooghe and Marks (2001), while their focus remains on the complex relations across levels of governance between the local, regional, national and supranational authorities and institutions. The decentralisation research can also be linked with new considerations of multi-level governance contributing also to the complex analysis of the relations between local, regional and national level capacities to govern development. (Pike et al., 2006, p.143-146) Further research by Hooghe and Marks (2010) has identified two types of multi-level governance, which is further discussed by Faludi (2012):

1. *Type 1 MLG* – Authority is dispersed across a limited number of governance levels/jurisdictions i.e. international, national, regional, meso, local, and the boundaries of these levels do not intersect. In this form of governance, every citizen is located in a Russian Doll set of nested jurisdictions, where there is one and only one relevant jurisdiction at any particular territorial scale. Territorial jurisdictions are intended to be, and usually are, stable for several decades or more, though the allocation of policy competencies across levels is flexible.

2. *Type 2 MLG* – There are specialized jurisdictions that can provide a particular local service, solve a common pool resource problem, select a product standard, monitor water quality in a particular river or adjudicate international trade disputes. The number of such jurisdictions is potentially huge, and the scales at which they operate vary finely. And there is no great fixity in their existence. They tend to be lean and flexible – they come and go as demands for governance change. This type of governance refers to sectors, like transport, education or health care, and the relevant arrangements, like a highway authority, a school district or a hospital administration. Following functional requirements, these arrangements cut across jurisdictions. Water catchment areas referred to by the two authors are good examples, and so are commuter sheds, but note that not all functional areas are covered by adequate arrangements.

With regard to the considerations of the necessity of interdisciplinary approaches in regional development planning as well as the need for intersectoral and inter-institutional collaboration, than the elaboration of the MLG type II comes as a natural explanation of what form of governance and institutional relations are necessary to deal with contemporary developmental complexities and crises. The outcomes of old fashioned governmental behaviour in narrowly focussed development planning can still be seen in many countries in the world. To step out of old modes of governing requires overall governmental reforms that can only be initiated if external pressures are strong enough to push political elites to decide

against its' own inertia embedded in old and often autistic administrative behaviours. The EU accession process for the new EU member states has been used to a large extent to initiate institutional changes supported by technical assistance in the area of institutional capacity building across different governmental departments and levels emphasising the need for intersectoral collaboration and public consultations. However, a logical conclusion that might be further researched is that changes and reforms require time and this differs in the various socio-cultural settings. Meaning that some countries are able to initiate and implement reforms more effectively and faster than others. There can be linked to the quality of government (QoG) research briefly addressed later in this paper.

The *concept of territorial or spatial development* has been introduced into the *European Cohesion Policy* that was initially focussing only on socio-economic development, acknowledging the importance of the environment, but not really considering it as an integrated aspect of a development policy. Numerous researchers and research studies undertaken by ESPON[112] have contributed significantly to this final outcome, i.e. the acknowledgment of space or territory as a key development aspect. This perception of policy makers has evolved and with the introduction of territorial cohesion as a new common European development policy objective, the interdisciplinary view on development is entering the regional policy of the EU. So, the new policy framework will not be detached anymore from the spatial or geographic context where development is actually taking place. (Pike et al., 2006, p. 35) However, spatial development remains a policy within the jurisdiction of national politics. But it was commonly agreed to that development, if seen in a broader, sustainable context, does not take place in a spatial vacuum. Therefore, territorial cohesion as the third aspect of cohesion policy, right next to the social and economic, will have to be taken into account, when defining the national policy contexts into which the European policy should be transposed. Territorial development has been the focus of Faludi's research and active role in the transfer of theoretical considerations of spatial development into the overarching European cohesion policy formulation process. He also analyses territorial cohesion in the context of the multi-level governance research and criticizes the limitations of the MLG discourse. There are clear links between the two approaches, in particular when considering territorial development through the vertical governance perspective including the top-down bottom-up development discourse. The horizontal developmental aspects mentioned above within the context of horizontal policy coordination are not necessarily in the focus of the MLG research (Faludi, 2012; Faludi and Peyrony, 2011)

All this can be seen in the context of explaining what is meant by regional governance or regional development coordination *horizontally* between developmental aspects and multi-sector between the public, private, scientific and civil society sectors; and *vertically* between the different layers and institutional representatives of the governments responsible for the different territorial scales that in turn overlap or even define different territorial units for the different fields of responsibility. (Sumpor, 2006) Concretely, the standard governmental responsibilities are usually distinguished between the national government, regional self-government and local self-government. But there are also other divisions ranging from the national government deconcentrated offices directly intervening at the local or regional level (e.g. certain departments, agencies or funds), or national institutions responsible for forestry, energy or water management dividing the country in geographically defined regions.

[112] ESPON – European Spatial Planning Observatory Network, for more information on activities and various territorial including regional and local development related research reports see www.espon.eu.

2.2 Empirical research on regional governance and quality of government in the EU

Within the recent research report on regional governance, Charron et al. (2012) present their research findings in relation to five hypotheses on why some regional governments in Europe have better quality of government. The hypotheses and respective results of the analysis were the following:

- levels of socio-political development will be positively associated with the European quality of government index (EQI) in regions and countries across the EU (according to findings of several cross-national empirical studies QoG is highly correlated with proxies for socio-economic development, such as educational attainment, income levels, technology, or health) – *the analysis confirmed this hypothesis.*

- quality of government (QoG) within and across countries in the EU is systematically related to the size of a region or country (there are mixed results in study that were examining the relationship between the size of the country or region, by population or geographic size, and the QoG) – *the analysis confirmed mixed results.*

- quality of government (QoG) is positively associated with Social Trust within and across countries in the EU (higher levels of generalised trust – i.e. trust in strangers or people who do not belong to 'your group' – is a function of higher QoG) - *the analysis confirmed this hypothesis.*

- greater levels of political decentralisation

    - will be associated with higher levels of within-country variance of quality of government (QoG), and

    - will systematically impact the level of quality of government (QoG) at the country-level (when regions gain more decision-making control, the stronger ones will perform better and weaker ones will sink even deeper, creating larger gaps within decentralised states than in centralised ones; several researchers argue that political decentralisation and/or federalism creates greater problems of collective action and more cumbersome decision-making rules (Gerring and Thacker, 2004), while others such as Lijphart (1977) and Watts (1999) argue that greater vertical power sharing in the form of decentralisation or federalism would lead to better QoG outcome.)

      With regard to political decentralisation, the authors found that federal states (e.g. Germany, Belgium, Austria) show less within country variation of QoG than highly centralised countries (e.g. Romania, Bulgaria); semi-federal states (e.g. Italy and Spain) show a high within country variation of the QoG. Further analyses undertaken by the authors on the basis of other decentralisation indicators (policy scope, representation, law making, and constitutional reform) show mixed results.

The authors conclude that a region with a low QoG in the EU will not be able to use the cohesion policy funds in an efficient and effective manner. They derive from the analysis that a notable amount of variation of the QoG exists both between and within EU Member States (1) Northern European countries tend to show the highest levels of QoG; (2) most Southern-Mediterranean states, Estonia and Slovenia have moderate levels of QoG; (3) most 'new' Member States demonstrate moderate to low levels of QoG; (4) Romania and Bulgaria with

the lowest levels of QoG in the EU. Significant within-country variations (among regions) can be found in federal or semi-federal nations such as Italy, Belgium or Spain, but also, noticeably, in more centralised ones, such as Portugal, Romania or Bulgaria. Other countries, such as Denmark, Poland, Austria or Slovakia show very little variation across regions. Finally, those regions where QoG is perceived to be low by their own citizens are those regions that perform the worst in the standard indicators of human development. A tentative normative conclusion would thus be that – apart from the existing transfer policies – a joint and targeted effort to improve QoG in those regions with lower levels could substantially improve the economic prospects of these regions and the lives of their residents.

Based on the conclusions of Charron et al. (2012) empirical research on regional governance it can be derived, that different regional developmental outcomes, due to different regional government qualities can be expected, regardless of the quality of a national regional policy framework. Herefrom we can formulate the main hypothesis of this research, namely:

> *All regions in a country may have regional development strategies designed on the basis of a common methodology and formally in conformity with the national and EU policies, but the developmental success and effectiveness of implementing these strategies will depend on the quality of its government responsible for regional governance.*

In the next chapter we turn our attention to the regional strategic planning context in Croatia and its evolution throughout the past decade. As the empirical analysis of the quality of government did not encompass the data on Croatia, we will rely on the conclusions found on the existing EU member states. With the intention to identify a possible relationship between the existence of a strategic planning based approach for better regional governance and the real regional economic results are analysed (i.e. gross domestic product and unemployment data for the Croatian NUTS II and III level regions).

3 REGIONAL STRATEGIC PLANNING APPROCHES IN CROATIA 2003-2012

3.1 The grand idea: A modern regional development framework on national level

Hundreds of strategic documents were produced during the lifetime of the young Croatian State, adopted at the levels of ministries, the Croatian Government and Parliament. Their implementation is sometimes followed up by obligatory annual reports, but often not. Results or impacts are not measured in terms of quality of achievement. Without a predefined monitoring system based on a clear indicator system, it is not possible to measure results of the many adopted strategies. (Sumpor and Đokić, 2012)

It has already been a decade of the application of modern strategic planning processes on regional level in Croatia based to a large extent on the new public management and top-down bottom-up policy discourse of the 1990ties, and the more recent advancements in regional governance theory. Regional policy during the 1990ties was rather focused on the reconstruction of the country than on more balanced development of its regions. (Sumpor and Đokić, 2012). The attempt to introduce more advanced policy processes enriched the complexity of regional governance. Consequently, formation of national regional policy in Croatia took eight years ending with the adoption of the legal and strategic framework in May 2010. The main intention was to prepare the regional institutional structures on time for EU accession and structural and cohesion funds.

Soon after adoption of the Act on Regional Development (Official gazette, 156/2009)[113], based on EU methodology, the Regulation on mandatory content, elaboration methodology and ex-ante evaluation procedure of county development strategies (CDS) was also adopted *(Official gazette 53/10).* The Regulation represents the basis for initiation of elaboration and implementation of strategic development documents in Croatia at the county level. Its main purpose is to be a guiding regulatory document and very useful for counties that are responsible for the design of their own development strategies. It contributes to more coherent development planning with an emphasis on socio-economic development and environment referring to the territory of the whole county.

After setting the regulatory framework, all the counties in the Republic of Croatia for the first time become obliged to start the process of strategic planning in compliance with the EU programming principles[114]. Differently from strategic plans of ministries and bodies of state administration elaborated for institutions and their development in general, these development documents (CDSs) refer to integrated territorial development, and not on the development and management of one institution.

Table 1. Advantages and disadvantages of processes of elaboration of strategic development documents in the Republic of Croatia

Advantages of processes of elaboration of strategic development documents in the Republic of Croatia	**Disadvantages of processes of elaboration of strategic development documents in the Republic of Croatia**
Establishment of a systematic approach to development through formalization of the planning procedure in phases	Process of elaboration is very demanding and complex, therefore, it has to be more coordinated requiring clearly assigned mandates and financial sources for the organization and implementation of the process
Wide perspective with clear indication of inter-linkages of development activities and need for coordination of development actors	Inexistence of cooperation culture impedes required team approach and intensive communication with many stakeholders
Development of a tool that enables managing of complex development processes	Competent experts with both strategic and analytical skills are rare
Introduction of new communication mechanisms and cooperation through establishment of informal institutions (coordination bodies, operational structures, partnerships)	Practice of financial planning based on frequent audits in public sector is transposed to the processes of elaboration of strategic documents, which results in non-implementable development strategies
Regular monitoring and control of development activities through monitoring system based on determined indicators	Sources for engagement of experts in developmental processes are limited or not provided, therefore, the coordinators have to rely on existing resources
Opening of space for participation of a greater number of participants in developmental decision-making process	In development processes vertical axis decision-making becomes weaker, whereby development activities are agreed between more stakeholders
Setting up of a framework for constructive and practical solutions of developmental problems	If responsibilities in development decision-making are not in compliance with the procedures, success of implementation is limited

Source: Systemized by authors.

[113] The Act was adopted by the Parliament at the end of 2009

[114] The first CDS for the period 2011-2013 are all elaborated and its compliance with the legal and methodological documents was systematically assessed by the Ministry. (Sumpor, Đokić, 2012)

Up to now, experience in strategic development planning on various levels of government or governance has been gained and can be synthesized as presented in Table 1.

Strategic documents represent the result of a complex planning process and elaboration of the document itself is not a goal of that process, but its efficient and effective implementation (i.e. they represent a means to an end and are not an end in themselves). Therefore, *the grand idea of having a modern regional development framework on national level* and successfully implemented strategic development documents is still to be hardly and continuously worked on in the forthcoming development planning and EU programming period 2014 - 2020.

3.2 The good pupil: Strategic planning response from the Croatian regions

Almost all Croatian counties went through the process of elaboration of Regional operational programmes (ROP), either supported by EU or other international donors, or through the former Croatian Regional Development Fund, prior to elaboration of county development strategies (CDS). For a number of counties, the CDS elaboration is already the third strategic document in one decade. Although in the majority of cases, they were mainly revisions of existing documents. As the planning process is based on the EU partnership principle, in this respect partnership councils are established in all regions. Currently valid CDS[115] have a short-term character, because they refer to three-year period (2011-2013), but they are built on long-term development determinants and consist of a vision, strategic objectives and priorities. Measures, with regard to the period for which they are defined, in many cases get characterized as more concrete activities and even projects.

The recently conducted Study[116], showed that the quality of CDS by its elements (i.e. partnership, content, methodology, ex-ante evaluation, action plan, communication strategy, compliance with the Strategy on Regional Development of the Republic of Croatia) and as a whole varies among counties. All the counties produced CDSs that minimally satisfied criteria determined by the Regulation mentioned above. Based on assessment of compliance with the methodology and ex-ante evaluation reports, CDSs of **Primorje-Gorski-kotar County, Split-Dalmatia County, Varaždin county and Virovitica-Podravina county** are considered to be of better quality compared to other CDSs. Analysis also showed that more experienced counties have not produced significantly better quality strategies than those that were less experienced in this process. CDSs of those counties that *have not* actually received the technical support usually provided by foreign consultants through various donors programmes, demonstrated better quality. There was no CDS that was negatively assessed.

Within the above mentioned Study, a survey was conducted to collect opinions and experiences from various perspectives related to elaboration methodology of CDSs and ex-ante evaluation. With more than 1000 recipients (384 recipients accessed the survey, 134 fully completed), the survey was covered all Croatian counties, including the City of Zagreb in January 2012. The survey consisted of four main themes: *Introduction, Regulation* (content, methodology and evaluation), *Cooperation, consultation and county partnerships* and *Implementation*.

[115] In total there are 20 counties in the Republic of Croatia and 21 CDSs, including the CDS of the City of Zagreb so called ZagrebPlan (Zagreb has a dual status, of the City and the County).
[116] Sumpor et al., (2012), "Assessment of strategic planning system and possibilities of financing of development of counties and local self-government units in the context of implementation of national regional development policy in the Republic of Croatia"

Focus of this paper is on implementation of CDSs and the research tries to look for answers, whether implementation of strategic documents is linked to economic results of respective regions. For this last generation of strategies, adopted for three-year period (2011-2013), the counties have not still had the possibility to implement all the projects and activities indicated in their CDSs in the first year of their implementation. However, a basis for successful future implementation of strategic development documents has to be established already at an early stage of its elaboration, through concrete action and financial plans.

Respondents in the survey reported that they actually had difficulties in elaboration of Action plans (and later in its implementation) and in formulation of indicators. Namely, the difficulties with the Action and Financial plan, implementation, monitoring and reporting of CDS arise from deficiencies found in the Regulation. These elements are not well explained and described, leaving elaborators to their own approach in building these relevant CDS's elements. To enable (successful) implementation, the financial plan should be directly linked to concrete activities indicated in the action plan and to concrete sources. Namely, there should be a clear link with concrete headings in three-year budget plans and plans of development programmes, contracted projects and projects in course, as required by the Budget Act. There should be an adopted budget with a clearly indicated budget heading or project contract. In that sense, it is possible to link the processes of strategic planning prescribed by the Ministry of regional development and EU funds (MRDEUF) with those prescribed by the Ministry of Finance.

Responses also showed that there were no clear instructions for elaboration of the financial plan. This problem is also coupled with the fact that many elaborators have not had the previous experience in preparation of similar documents. It has been acknowledged that there is a missing link between the action plan determining activities (projects), to be financed in a specific period of time, and the financial plan and the headings in budget(s) of the local self-government units in respective county. Standard information on responsibilities for preparation and implementation of activities (and/or projects), the time span for their implementation, relevant indicators etc., are mainly omitted reflecting the lack of instructions from the county and national level on how this should be done and interlinked through various levels of funding sources (i.e. EU, national, regional, local, public-private or private). It also demonstrates to a certain extent the basic inability of the regional self-governments to assign responsibilities to corresponding implementing entity.

The experience gained so far showed that the difference between terms *financial framework, financial plan, costs of implementation of particular activities* and *sources of financing* is still not clear. Implementation will hardly take place, if financing is not secured. The financial framework should be incorporated in the strategic part of development document (objective, priorities), while indicative financial allocations (based on historic information on revenues and forecasts for the next period) should be determined at the level of strategic objectives, priorities and measures for the whole period of implementation. It should also include information on sources of financing (state/county/local budget, EU funding etc.).

On the other hand, the Action plan should contain more realistic and precise amounts for a three year period and it actually represents an implementing document of CDS. Ideally, it should be harmonized with the budget planning process prescribed by the Ministry of Finance and it has clearly indicated numerical link to the budget of a body responsible for implementation, including financial amounts for those activities and projects that are based on signed contracts and agreements with another institutions and organizations.

Whether and to what extent the implementation of the strategy was successful, is possible to assess using performance indicators. In the Regulation, indicators are only stated as a mandatory element of CDS, but no further explanation on how they should be determined, is provided. More than 60% of respondents reported some problems related to indicators. Due to the lack of prescribed regulations or instructions, their correct and simple identification was difficult. Besides this fact, some other obstacles are reported by the survey respondents:

- there is still the lack of knowledge in the field of monitoring of implementation of CDS using indicators;
- the purpose of use of indicators was not clear; and
- analytical background and data used as the basis for identification of indicators were deficient.

With regard to use of indicators, respondents mainly agree on following:

- indicators are not adequately identified, therefore, they are not applicable in monitoring of implementation of CDS;
- the knowledge on monitoring of implementation of CDS based on indicators does not exist;
- it is not clear who is responsible for monitoring of implementation of CDS based on indicators;
- half of the respondents is of opinion that there are no data on starting values of particular indicators, therefore it is not possible to assess and monitor their trends (it is possible only for some indicators).

More than a half of respondents confirmed that the CDSs in their respective counties are implemented, while the 1/5 responded that CDS are rather partly implemented and another 1/5 is not familiar with the implementation status. The latter response can be also treated as a signal that either there is no implementation and nothing to report or that the information flow on implementation should be paid more attention to. In this respect, improvements in information exchange are necessary in the future. CDS are the documents whose implementation aims at the development of one (*direct* measures, projects, activities) or more territories (*indirect* actions beyond the impacts on one county). Problems encountered in implementation refer to no clear assignment of responsibility at the county level for the implementation and/or coordination of all activities indicated in the CDS. Even though, each county is responsible firstly for the adoption and then for implementation of the planned activities that cover the whole territory. In the majority of the cases of elaboration of Croatian CDS, discussion among main stakeholders on "implementability" of actions under responsibility of units of local self-government, NGOs/CSOs or private companies has not taken place. As a consequence, CDS contain a list of numerous activities/projects without a clear link to specific persons/units/bodies responsible for their implementation.

The current structure of CDSs is not compatible with the common organizational structures of the county administrative departments and county institutions (e.g. development agencies and institutes for physical planning). Adequate structure of documents, following organizational structures of respective counties and county institutions, would enable easier assignment of responsibilities by departments, portfolios and/or themes based on experts' competences and

would allow for easier coordination among stakeholders within particular organizational units, while regional coordinators ensure horizontal coherence in implementation of CDSs. All in all, better regional governance would be enabled.

4 ASSESSMENT OF THE EFFECTIVENESS OF NEW PLANNING APPROACHES

Throughout this research, we question the effectiveness of the new planning approaches, which is primarily based on qualitative insights. Here we turn our attention to existing quantitative development indicators. As presented in the Table 2 below, there are 20 counties in Croatia and the City of Zagreb, with a special status, "Capital city and county". In total, there are 556 units of self-government (including the City of Zagreb), 126 of them categorized as cities/towns or urban centres, while the remaining units are municipalities or rural centres. The size of county territory varies from the smallest one, i.e. the City of Zagreb (640 km²) to more than eight times bigger Lika-Senj County (5.350 km ²). In geographical and historical sense, counties are considerably heterogeneous. From primarily continental areas in eastern part of Croatia for centuries dominated by Ottoman empire, to hilly and mountainous for a long time under Austro-Hungarians, stretching from western towards southern part of the country, and finally coastal and maritime territory with numerous islands, influenced by Venice.

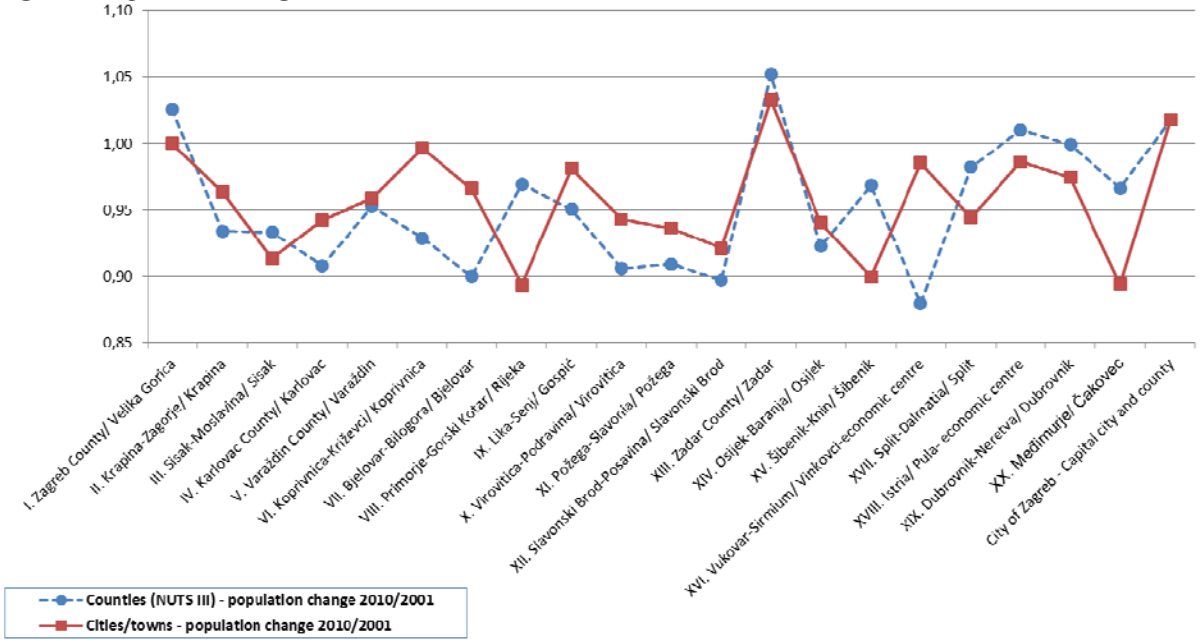
Table 2. Basic statistical data on county and local level in Croatia (2011)

County/ *and County center* (town representing main economic and/ or administrative center)	**County territory** (km^2)	**No. of local self-governments**		**Population (Census 2011)**	
		Cities/Towns *(urban centers)*	**Municipalities** *(rural centers)*	**County**	
				No. of inh.	***Density***
I. County of Zagreb *(Ring)* / ***Velika Gorica*** *-economic centre*	3.078	9	25	317.642	103
II. County of Krapina-Zagorje/ ***Krapina***	1.230	7	25	133.064	108
III. County of Sisak-Moslavina/ ***Sisak***	4.448	6	13	172.977	39
IV. County of Karlovac/ ***Karlovac***	3.622	5	17	128.749	36
V. County of Varaždin/ ***Varaždin***	1.260	6	22	176.046	140
VI. County of Koprivnica-Križevci/ ***Koprivnica***	1.734	3	22	115.582	67
VII. County of Bjelovar-Bilogora/ ***Bjelovar***	2.638	5	18	119.743	45
VIII. County of Primorje-Gorski Kotar/ ***Rijeka***	3.590	14	22	296.123	82
IX. County of Lika-Senj/ ***Gospić***	5.350	4	8	51.022	10
X. County of Virovitica-Podravina/ ***Virovitica***	2.021	3	13	84.586	42
XI. County of Požega-Slavonia/ ***Požega***	1.821	5	5	78.031	43
XII. County of Slavonski Brod-Posavina/ ***Slavonski Brod***	2.027	2	26	158.559	78
XIII. County of Zadar/ ***Zadar***	3.643	6	28	170.398	47
XIV. County of Osijek-Baranja/ ***Osijek***	4.149	7	35	304.899	73
XV. County of Šibenik-Knin/ ***Šibenik***	2.994	5	15	109.320	37
XVI. County of Vukovar-Sirmium/ ***Vinkovci*** *- economic* centre *(Vukovar-administrative county centre)*	2.448	5	26	180.117	74
XVII. County of Split-Dalmatia/ ***Split***	4.524	16	39	455.242	101
XVIII. County of Istria/ ***Pula*** *- economic centre (Pazin-administrative county centre)*	2.813	10	31	208.440	74
XIX. County of Dubrovnik-Neretva/ ***Dubrovnik***	1.782	5	17	122.783	69
XX. County of Međimurje/ ***Čakovec***	730	3	22	114.414	157
City of ***Zagreb*** *- special status - "Capital city and county"*	*640*	*0*	*0*	792.875	*1.239*
TOTAL Republic of Croatia	**56.542**	**126**	**429**	**4.290.612**	**76**

Source: prepared by authors based on Census data (2011), CBS.

Counties considerably differ also by its demographic structure, evident from Table 2. According to the last Census data (2011) the total number of inhabitants in Croatia is 4.290.612, with an average density of 76 inhabitants/km² (from the lowest figure of 10 inhabitants/km² in Lika-Senj county to 1.239 inhabitants/km² recorded in Zagreb). Figure 1 shows population change in Croatian counties and cities/towns in the ten-year period.

Figure 1 Population change in Croatian counties and cities/towns 2001-2010



Source: prepared by authors based on Census data (2011), CBS.

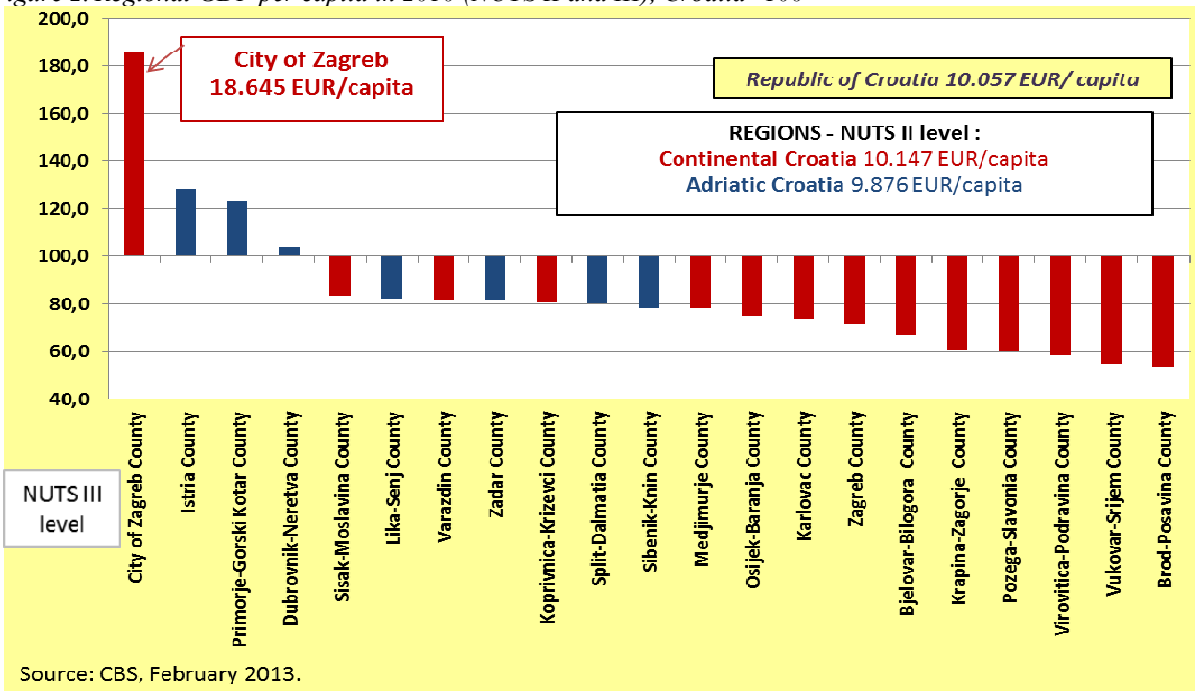
As presented in Figure 1, trends in population change do not considerably differ between counties and cities/towns in 2010, compared to 2001. However, the negative demographic change can be observed in almost all the counties except Zagreb County, Zadar County and the City of Zagreb. At the bottom, with the largest decrease in population, is Vukovar-Sirmium County, mainly due to the war consequences and radical out-migration flow. Only two cities/towns record positive population change, namely Zadar and Zagreb. Zadar can thank this positive trend to an economic boom and numerous investments in and around the city that took place during the last decade (until 2010). Zagreb on the other hand is attractive as it is the capital, centre with more opportunities for jobs, education and use of other services usually provided in bigger urban centres.

Complex structure of the country with a current administrative-territorial organization has put forward quite a challenge for policy decision-makers in the field of regional development in Croatia. It took a few years to elaborate and finally adopt Croatian Strategy for Regional Development that recognized three main strategic objectives of regional development policy that should be achieved:

- Strategic objective 1: development of counties and statistical regions
- Strategic objective 2: development of areas lagging behind
- Strategic objective 3: development of border areas

These objectives are derived also from the fact that there is a big gap in regional GDP/capita and ultimately the idea is to bridge this gap through various measures and using different instruments at the national level of government.

Figure 2. Regional GDP per capita in 2010 (NUTS II and III), Croatia=100



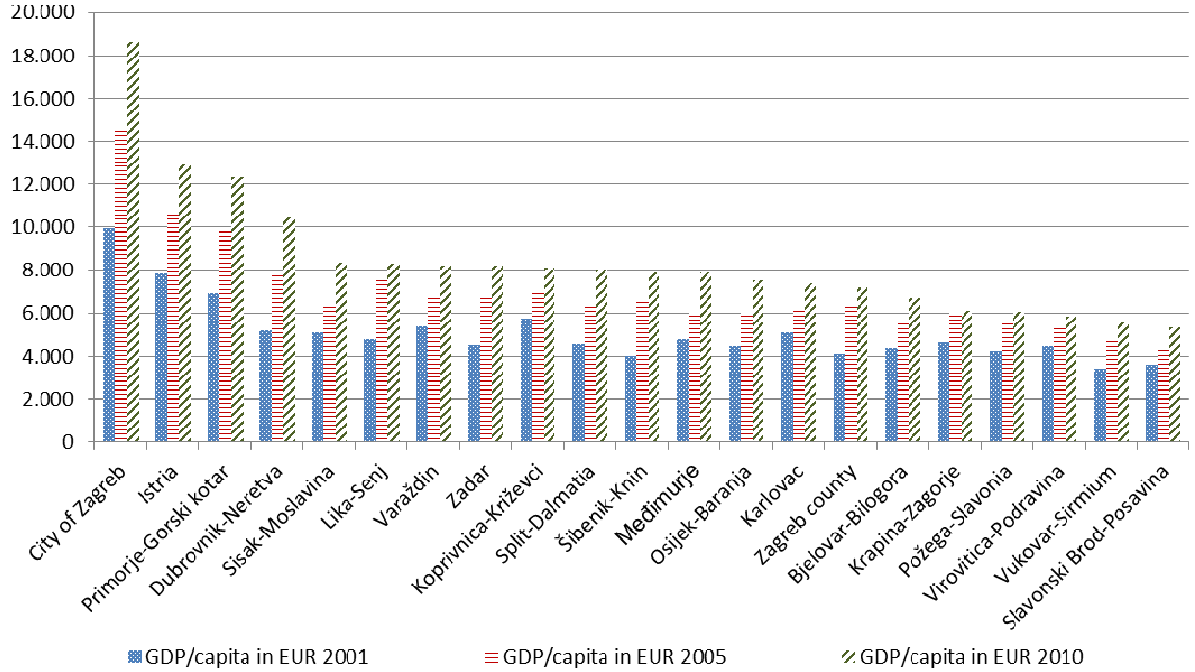
Source: prepared by authors based on CBS data (2013).

Figure 2 shows the latest figures on regional GDP per capita for NUTS II and NUTS III level (for 2010). As expected the capital City of Zagreb is leading with 18.645 EUR/capita, while Brod-Posavina County records the lowest regional GDP. Recently established new statistical division shows that Continental Croatia NUTS II region although at the Croatian average GDP, is far below GDP of City of Zagreb. All counties in this region (except Zagreb) have below average Croatian GDP. This shows a significant dominance of the City of Zagreb in average regional GDP figure valid for Continental Croatia and consequently does not realistically reflect an economic status based on regional GDP value of remaining 13 counties in the same region. Adriatic Croatia NUTS II region consists of seven counties, with regional GDP somewhat lower than average. Nonetheless, the gap between the lowest and highest regional GDP is considerably lower than in Continental Croatia region.

In Figure 3, the data show the trends of regional GDP/capita in 2001, 2005 and 2010 for all the counties. In all the counties through a ten-year period (until 2010) a positive trend is recorded. A few counties grow at a faster pace (City of Zagreb, Istria, Primorje-Gorski kotar county and Dubrovnik-Neretva county), while at least half of the counties record moderate rates in GDP increase.

Previously mentioned objectives of the National Strategy for Regional Development are expected to be achieved through, among others, activities carried out at a lower level of government. Policy of MRRDEUF is to encourage counties in elaboration of their county development strategies and through their implementation cope with the problem of growth and development at the county level.

Figure 3. Regional GDP per capita (NUTS III level) – 2001, 2005 and 2010



Source: prepared by authors based on CBS data (2013).

In Table 3 below it is evident that the gap between the City of Zagreb and remaining Croatia gets wider through the same ten-year period, compared to both NUTS II region, Continental and Adriatic.

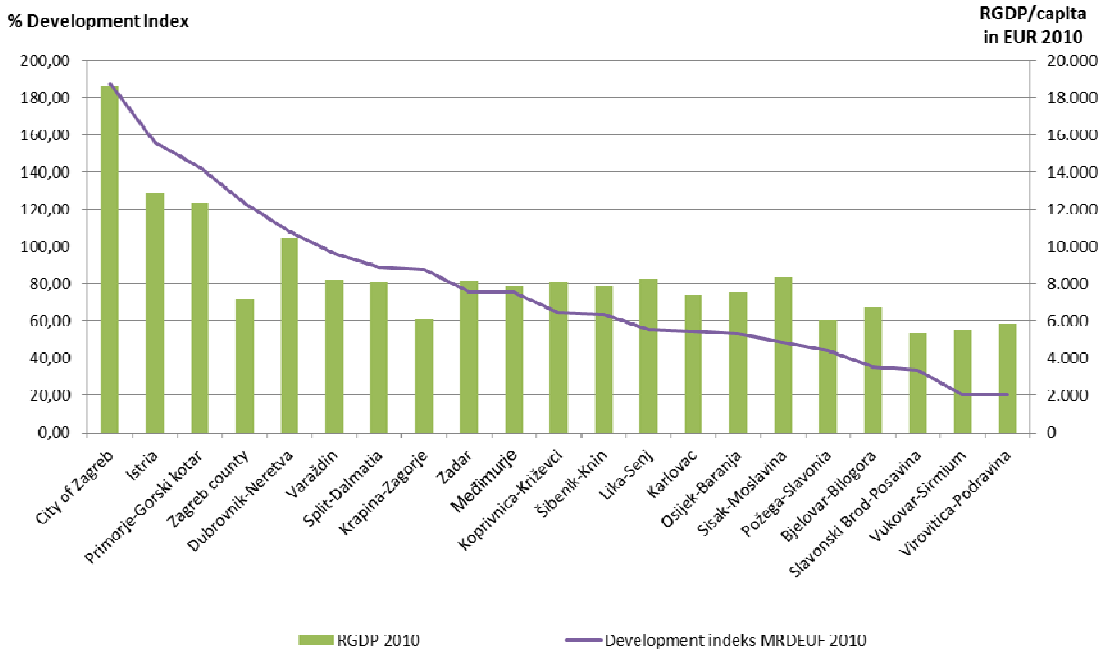
Table 3. The widening gap between the City of Zagreb and remaining Croatia

GDP/capita in EUR	2001	2005	2010
Republic of Croatia	**5.797**	**8.110**	**10.057**
Continental Croatia	**5.914**	**8.170**	**10.147**
Continental Croatia without the city of Zagreb	*4.654*	*6.027*	*7.026*
City of Zagreb	*9.956*	*14.569*	*18.645*
Gap or difference in GDP/capita between Zagreb and remaining continental Croatia (capital city effect)	*5.301*	*8.542*	*11.620*
Adriatic Croatia	**5.551**	**7.985**	**9.876**
Gap or difference in GDP/capita between Zagreb and AdriaticCroatia (capital city effect)	*4.404*	*6.584*	*8.769*

Source: prepared by authors based on CBS data (2013).

For policy makers, the widening gap should serve as a signal that changes in approach to regional development policy are necessary. The regions lagging behind have the tendency to lag even more, if a coherent regional policy framework is not in place. It means that when it comes to the sphere of regional development and formulation of measures and identification of instruments used in one particular NUTS II region, the City of Zagreb can be hardly put in the same basket with other counties, as envisaged impacts will fail to manifest throughout the whole territory. In simple terms, the capital City of Zagreb is the only metropolitan area in Croatia and it needs a tailor-made approach to its further development, without compromising the development of other Croatian counties, but complementing their developmental efforts.

Figure 4. Counties (NUTS III) by Development Index and Regional GDP per capita 2010



Source: prepared by authors based on CBS data (2013) and Development Index of the MRDFEU (2010).

In Figure 4, the difference between counties (NUTS III) by Development Index and Regional GDP/capita, both in 2010 is presented. There is a constant time lag between the data. Standard regional GDP shows the achievements of the economy in one particular year and it is only one *static* indicator of economic activity in a selected administrative-territorial unit. In parallel with the Act on Regional Development, the MRDEUF has introduced the Development Index. The Development Index is composed from the following indicators collected at the county level:

- Average revenue/capita
- Average original revenue/capita
- Average unemployment rate
- Population change
- Ratio of educated population in population from 16 to 65 years.

This composite index refers to a certain period of time and as such has a *dynamic* nature. Its main purpose is to serve for steering future development policy.

Cross-cut of Development Index and regional GDP as presented in Figure 4 clearly demonstrates that regional GDP is an insufficient indicator for measuring economic development. In case of Zagreb county and Krapina-Zagorje county, one might conclude that their development levels are generally lower than of many other Croatian counties. However, in both cases, the Development Index would classify the same counties in the top 10 Croatian counties. Contrary examples are those found in Lika-Senj or Sisak-Moslavina, whereby their regional GDPs are among the first six in Croatia for 2010. But, the development indices for the same counties in 2010 would classify them among the last 10 counties. The closest values of regional GDPs and development indices, both for 2010, are found in the City of Zagreb, Dubrovnik-Neretva, Zadar and Međimurje Counties. The results of this analysis show that figures that will serve as the basis for future policy actions have to be carefully taken into consideration, since the time and content dimension of data is crucial in determining the most adequate development measures to achieve planned objectives in the long-run.

5 CONCLUSIONS

From our research, we can draw the following conclusions:

- A strategic plan is an instrument for systemic management and/or better governance of many complex and intertwined development issues and an important basis for informed decision making. As long as strategies are viewed as documents (as ends and not means), they will hardly become process based management instruments. If persons engaged in management, such as politicians, do not have the adequate knowledge and experience in managing large systems, they will probably be not aware of this tool and all the advantages it gives. It requires also the ability for strategic thinking;

- Politicians on executive positions have to learn how the practical work of public administration functions in order to be able to better manage such systems;

- Key stakeholders in the process should strive to understand flexible planning and adaptive management;

- Only the science and practice of evaluation can give answers about the efficiency of the public administration in the implementation of public policies (to reach objectives at the least cost) and about the effectiveness of what public servants do when implementing policy. This makes policy making and implementation more and more complex and time consuming having a direct influence on efficiency.

- Although still at its evolution stage, CDS proves to be a good instrument for managing regional and local development (broadly confirmed through the survey). Even though, it still requires certain improvements, responses provided in this respect are encouraging for the MRDEUF as the body responsible for implementation of regional policy and development, as well as for the other stakeholders in this process.

6 BIBLIOGRAPHY

Arnstein, Sherry R., (1969): **A ladder of citizen participation,** ***Journal of the American Institute of Planners***, 35(4): 216-224

Carayannis, Elias G. and Campbell, David F. J. (2012) **Mode 3 Knowledge Production in Quadruple Helix Innovation Systems: 21st Century Democracy, Innovation, and Entrepreneurship for Development,** Springer Briefs in Business 7.

Central Bureau for Statistics (CBS) (2013) **Gross Domestic Product for Republic of Croatia and for Spatial Units for statistics of 2nd and 3rd level, 2000 – 2010**, Number 12.1.2. ISSN 1330-0350.

Charron, Nicholas, Lapuente, Victor and Lewis Dijkstra (2012): **Regional Governance Matters: A Study on Regional Variation in Quality of Government within the EU**;

Đokić, I. Starc, N. and Stubbs, P., (2009), **Participation in Transition: Problems and Opportunities for Participatory Approaches in Strategic Development Management in Croatia – 3 Case Studies** (orig. Participacija u tranziciji: problemi i mogućnosti participativnih pristupa upravljanju strateškim razvojem u Hrvatskoj – 3 analize slučaja), ch. 9, in Kordej-De Villa, Ž., Stubbs, P. and M. Sumpor, eds, (2009), ***Participatory Governance for Sustainable Development*** (orig. Participativno upravljanje za održivi razvoj), The Institute of Economics, Zagreb.

Đokić, Irena and Sumpor, Marijana, (2012): **Strategic planning as a tool for better public policy governance – the case of Croatia**, in: ***6th International Conference 'An Enterprise Odyssey: Corporate governance and public policy – path to sustainable future', Proceedings***, Galetić, Lovorka, et al. (eds.), Faculty of Economics and Business, University of Zagreb, Šibenik, June 13-16, 2012, pp. 1027-1038. http://bib.irb.hr/datoteka/586312.75SumporDokic.pdf [Accessed 6.2.2013]

Đokić, Irena and Sumpor, Marijana (2011) **Cross-border Cooperation in Central and South-East Europe: A Croatian Perspective**, Conference Proceedings - Planning's Future - Futures Planning: Planning in an Era of Global (Un)Certainty and Transformation. Perth: The University of Western Australia.

Dräger, S., Sumpor, M., Starc, N., Horvat, Ž., (2004), **Basic guidelines for the elaboration of strategic development programs at the local level**, Ministry of Sea, Tourism, Transport and Development; Deutsche Gesellschaft for Technische Zusammenarbeit (GTZ) GmbH; The Institute of Economics, Zagreb: Zagreb.

Faludi, Andreas (2012) **Multi-Level (Territorial) Governance: Three Criticisms, *Planning Theory & Practice***, Vol. 13, Iss. 2, 2012.

Faludi, Andreas and Jean Peyrony (2011) **Cohesion Policy Contributing to Territorial Cohesion – Future Scenarios**, ***European Journal of Spatial Development.*** Refereed article No. 43, September, 2011. http://www.nordregio.se/Global/EJSD /Refereed% 20articles/refereed43.pdf [Accessed 6.2.2013]

Hooghe, Liesbet and Marks, Gary (2001) **Multilevel Governance and European Integration**, Lanham/Oxford, Rowman & Littlefield Publishers.

Hooghe, Liesbet and Marks, Gary (2010) **Types of multi-level governance**, in: H. Enderlein, S. Wälti, M. Zürn (eds.) **Types of Multilevel Governance**, Edward Elgar, Cheltenham, 17-31.
http://ec.europa.eu/regional_policy/sources/docgener/work/2012_02_governance.pdf [Accessed 6.2.2013]

Huxham, Chris and Siv Vangen (2005) **Managing to Collaborate: The Theory and Practice of Collaborative Advantage**, Abingdon: Routledge.

Leydesdorff, Loet and Etzkowitz, Henry (1998) **The Triple Helix as a Model for Innovation Studies (Conference Report), *Science & Public Policy,*** Vol. 25(3) (1998) 195-203.

Ministry of Regional Development and EU Funds (former Ministry of Regional Development, Forestry and Water Management) (2010), **Ocjenjivanje i razvrstavanje županija prema razvijenosti** (Assessment and sorting of counties in accordance with its development). Available at: http://www.mrrfeu.hr/default .aspx?id =405 [Accessed 7.2.2013]

Pike, Andy, Rodriguez-Pose, Andres, Tomaney, John (2006) **Local and Regional Development**, London, New York: Routledge.

Republic of Croatia (2009) **Act on Regional Development of the Republic of Croatia, *Official gazette,*** 156/2009.

Republic of Croatia, Ministry of Regional Development, Forestry and Watermanagement (2010) **The Regulation on mandatory content, elaboration methodology and ex-ante evaluation procedure of county development strategies, *Official gazette,*** 53/2010.

Sumpor, Marijana, (2006), **Creating Collaborative Advantages Through Coordination of Regional Development Activities**, ERSA conference papers, European Regional Science Association, http://EconPapers.repec.org/RePEc:wiw:wiwrsa:ersa06p280. [Accessed 6.2.2013]

Sumpor, Marijana, Jurlina Alibegović, Dubravka, Đokić, Irena, Vojnović, Franka, Franov Beoković, Ines, Hajduković, Davorka, and Tonković, Zrinka (2012): **"Evaluation Study on the Strategic Planning System and Financing Possibilities of County and Local Development in the Context of Regional Development Policy in the Republic of Croatia"** (original document in Croatian language), Zagreb: The Institute of Economics, Zagreb, http://www.eizg.hr/Download.ashx?FileID=7b5eb00e-0b31-4b7d-9240-9013c998fce4 [Accessed 6.2.2013]

III

BUSINESS SOPHISTICATION

SERVICE QUALITY IN BUSINESS SCHOOLS: ROLE OF FACULTY AND ADMINISTRATIVE STAFF IN QUALITY PERCEPTIONS

Maja Arslanagić
School of Economics and Business Sarajevo / Marketing Department
Trg oslobođenja - Alija Izetbegović, Sarajevo, Bosnia and Herzegovina
Phone: + 387 33 564 398; Fax: + 387 33 275 994
E-mail: maja.arslanagic@efsa.unsa.ba

Selma Kadić-Maglajlić
School of Economics and Business Sarajevo / Marketing Department
Trg oslobođenja - Alija Izetbegović, Sarajevo, Bosnia and Herzegovina
Phone: + 387 33 275 947; Fax: + 387 33 275 994
E-mail address: selma.kadic@efsa.unsa.ba

Muris Čičić
School of Economics and Business Sarajevo / Marketing Department
Trg oslobođenja - Alija Izetbegović, Sarajevo, Bosnia and Herzegovina
Phone: + 387 33 275 902; Fax: + 387 33 275 994
E-mail: muris.cicic@efsa.unsa.ba

Key words: *Service quality, SERVQUAL, Higher education, Faculty members, Administrative staff*

ABSTRACT

Highly educated population improves human capital pool, which in turn increases labour productivity and leads to the economic growth in specific regions and worldwide. Recently, quality of the business higher education is brought into question, mainly because of the inconsistency of the measures used to assess service quality. Focus of our research is on quality of services in business schools. In this research, we propose an adapted SERVQUAL measure of expected and perceived quality, where employees at business schools are split into two groups: faculty and administrative staff, and assessed separately. This measure represents a tool for comparable service quality assessment at business schools.

Empirical data were collected among undergraduate students in Bosnia and Herzegovina. Total of 282 observations were used to assess overall fit of the proposed model and to test differences between observed and perceived dimensions of service quality in a business school. The results support usability of the proposed adapted SERVQUAL measure. Therefore, the study contributes to the existing literature reporting the findings on quality in an educational context, with evidence from South Eastern Europe. Implications of the results are discussed, and recommendations for future research are made.

1 INTRODUCTION

Important variable in human capital development is system of higher education (HE) applied in one country. It becomes even more important if we know that decision of what and where to study is one of the first big decisions in the life of young adult. Although higher education is free in most of the SEE countries, places in public universities are limited. Therefore some parents choose to send their children to private institutions. However, while governments are introducing study fees to deal with higher spending requirements, Euromonitor International report (2009) states that paying for student accommodation and living away from home is a heavy burden on households too.

On the other hand, competition is growing on the side of the universities and schools. It is extremely evident in the business schools segment, which is in the focus of our research. Namely, business schools became "big business" themselves (Pfeffer, Jeffery & Fong, 2002), and they dominate in the number compared to other schools. Logically, quality becomes the main differentiating attribute, yet as in most of the services, clients (current and future students) are having difficulties in assessing it (Zeithaml, 1981, 1988), hence they rely on different cues (word of mouth, guarantees etc.). One of the best ways for differentiating a business school is through obtaining the accreditation from one or more different national and/or international accreditation institutions (Haug, 2003). In other words, accreditation became signal of the quality (Trapnell, 2007) for business schools.

Simultaneously, it is obvious that global competition for students is increasing, and the key challenge for schools is to determine how to attract and satisfy students in order to keep them in all cycles of education and through lifelong learning programs. Identifying and then satisfying students' expectations is a key in competing against other institutions (Coccari & Javalgi, 1995). For these reasons, question what service quality means to students has emerged as a key consideration in how universities in SEE should develop their offering (Durvasula, et al., 2011). Knowledge on this issue is not only needed by policy makers, firms and students, but also by broader community interested in improvement of the human capital pool.

Therefore the aim of this paper is to offer new insights on how to improve the quality of higher education, by adding up the knowledge about ways of measurements of students' perception of HE service quality. We highlight importance of usage of pre-tested and pre-developed instruments (i.e. SERVQUAL) adapted to higher education context by introducing faculty members and administrative staff instead of the overall "employees" items that exist in the general model. The main purpose of this study is to empirically investigate relationships between observed and perceived service quality (using adapted SERVQUAL methodology), taking into account satisfaction with faculty and administrative staff, and to further validate this measure.

Contributions of the research are in 1) adding to the theoretical substance of service quality measurement, on the specific field of higher education, 2) adapting the SERVQUAL measure to measure students' perceptions of service quality in business schools and 3) understanding the perceptions of service quality through empirical evidences. Paper will be outlined through literature review, pointing out on the main dimensions of higher education services quality and on trends in higher education, with reference on the role of staff. Then the methodology of research will be presented together with results and discussion. Finally, conclusions and recommendations will be made.

2 LITERATURE REVIEW

2.1 Higher education services quality

As international competition for students intensifies, differentiating the service offerings through quality management and building strong relationships with students has become imperative for providers of higher education service (Durvasula, et al., 2011). Sohail and Shaikh (2004) acknowledged that, due to the increased competition between universities, higher quality in HE services became one of the rare possessions for differentiation and gaining competitive advantage. Several scholars link students' satisfaction with service quality at universities and schools (Mizikaci, 2006; Gapp & Fisher, 2006; Koslowski, 2006). Satisfied students provide positive referrals to future students and this is what keeps the targeted students load in schools (Elliot & Shin, 2002; Temtime & Mmereki, 2011). However, higher education institutions (HEI) are involved in much more than sole delivering course materials to students, which additionally complicate measuring of HE service quality.

Quality in education is a multidimensional concept (Sahney et al., 2006) that could be conceptualized in many different ways. Definitions vary from excellence in education to meeting or exceeding students' expectations of service. This tells us that system intended to lead to student satisfaction with HE service cannot be 'copy-pasted' from manufacturing or other sectors to services. Characteristics of higher education are the main reason for this situation.

One of the mostly cited definitions of service quality is the comparison customers make between their expectations and perceptions of service experience (Grönroos, 1982; Parasuraman et al., 1988). According to Parasuraman et al. (1988), service quality is conceptualized as five-dimensional concept and includes following dimensions: tangibles, reliability, responsiveness, assurance, and empathy. Tangibles refer to the appearance of personnel, equipment, physical facilities, and materials used to communicate with customers. Reliability refers to the ability of the service provider to perform the service accurately and dependably. Responsiveness means providing prompt service and willingness to help customers. Assurance is defined as employees' knowledge and their ability to convey confidence and trust. Empathy refers to the level of individualized attention the service provider gives to its customers. These five dimensions represent the extensively used instrument for measuring service quality the SERVQUAL (Parasuraman et al., 1985, 1988). It is important to stress that SERVQUAL is directly comparing perception to the expectations.

Higher education is typical high-contact service that as such is characterized by intangibility, perishability, heterogeneity, inseparability of service delivery and service consumption process, customer presence during service delivery, and lack of ownership. These characteristics underline the importance of people (faculty and administrative staff), processes (whose development and strengthening influence standardization and flexibility of institution) and physical evidence as three additional elements of marketing mix in services (Babić-Hodović, 2010). In addition Sohail and Shaikh (2004) show that "contact personnel" (interpreted as faculty and administrative staff) represent the factor of highest influence at students' evaluation of service quality. This factor is followed by physical evidence or the environment service is being delivered at.

Built on service characteristics foundations, a large amount of studies explore different aspects of higher education and its quality assurance. The focus has been on service quality in terms of learning and teaching, and other attributes that influence higher education processes

(Harrop & Douglas, 1996; Narasimhan, 1997; Shank et al., 1995; Barnes, 2007), where most of the studies analyze students' quality evaluations (Barnes, 2007). This is also a consequence of specificities in services, where quality is assessed by consumers, in HEI's case by students. In the research Barnes (2007) conducted, focus was put on international students and their expectations within business universities, with implementing SERVQUAL (Parasuraman et al., 1988). This research underlines the coherence of five dimensions SERVQUAL measure, which will be analyzed in more details in further text.

Service quality in higher education can be evaluated from different perspectives (e.g., students, faculty staff members, governments). However, authors such as Hill (1995) and Sander et al. (2000) regard students as primary customers of higher education services, thus assessing service quality from their perspective is important. In accordance with general definition of service quality, O'Neill and Palmer (2004) defined service quality in higher education as the difference between what a student expects to receive and his/her perceptions of actual delivery.

For the purpose of this study, higher education service quality is defined as an attitude resulting from students' beliefs and perceptions of faculty members' performance and performance of administrative staff, regarding the main SERVQUAL dimensions.

2.2 Role of faculty members and administrative staff in the new HE trends

Recently, international accreditations (e.g. AACSB, EPAS, EQUIS, AMBA…) became a substitute for guarantee of HEI quality. For business schools this means living up to the different set of standards that assure service quality. Kelley et al. (2010) recognized that assessment of student learning is an important part of higher education for the foreseeable future. Views on influence of accepting accreditation standards on school's strategy are sometimes contrasting. There are views that these processes influence faculty shortage, increased competition, reductions in funding and moreover reduction in flexibility of the institution. On the other hand, some authors claimed totally opposite – that accreditation standards increase flexibility and that they have positive impact on strategic performance of the school (Romero, 2008). Other studies show that, up to some extent, faculty compensation, research productivity, and teaching loads differ at accredited schools compared to non-accredited ones (Hedrick et al., 2010).

For explanation purposes we will focus more on AACSB accreditation in this study. Romero (2008) argued that the Association to Advance Collegiate Schools of Business (AACSB) accreditation provides value to numerous stakeholders and promotes advancements in business education. The AACSB Accreditation evaluates schools based on criteria defined in 21 standards. Standards were first adopted in 1919, but have been continually revised through the years in order to ensure quality and continuous improvement in collegiate business education. To become AACSB-accredited, an institution must satisfy requirements of all accreditation standards. Standards are divided into three key areas: (1) strategic management, (2) business school participants such as faculty, staff and students, (3) assurance of learning (Trapnell, 2007). Probably the most important part of AACSB standards are standards listed in the part two: business school participants such as faculty, administrative staff and students. Therefore 7 standards (out of 21 in total) are dealing directly with the quality of faculty members and administrative staff in business school. These standards refer to all instruction-related faculty members, including tenured, non-tenured, full-time, part-time, clinical, etc., as appropriate. AACSB strongly stands on the point that quality of the HEI is strongly dependent on the quality of instruction offered to them. Faculty members and administrators jointly

share responsibility for ensuring instructional quality through continuous improvement and innovation. This means that if standards are adhered by business schools, there is a higher possibility to improve students' perception of quality than if they are not present nor followed.

AACSB (2013) estimated that there are 13.000 business schools worldwide, while less than 5% of those earned AACSB Accreditation. Therefore, AACSB-accredited schools have introduced procedures for measuring business schools' service quality with special focus on faculty members and administrative staff. However, the question is what is happening with rest of 95% of the world business schools? How they measure HE service quality? We suggest utilizing the adapted SERVQUAL instrument, with introduced items that are dealing with faculty members and administrative staff.

Additional question that preoccupied practical and research agendas should not be neglected. That is possibility of trust to students when it comes to the quality assessment (Chatterjee et al., 2009) regarding reliability and validity of their measures of teaching effectiveness and usefulness of those assessments in improving the effectiveness of teaching. However, Durvasula et al. (2011) stressed out the importance of students' expectations when it comes to service quality in higher education.

3 METHODOLOGY

The main purpose of this study is to empirically investigate SERVQUAL dimensions in the business HE context. We propose that expected and perceived service quality in higher education services differ from the same in the general service framework. As this is the exploratory research, we did not pose hypotheses, we rather aim to explore SERVQUAL dimensions and their behaviour with new specific items introduced.

Field research was conducted at University of Sarajevo, School of Economics and Business (Bosnia and Herzegovina) and the convenience sampling method was used. Undergraduate students were asked for their e-mail in order to fill out highly structured questionnaire. To ones that did not provide their e-mail addresses printed questionnaires were distributed. In total 282 questionnaires was collected.

The original SERVQUAL instrument consists out of two sections, each containing 22 items. First 22 items relate to respondents' expectations of excellent service, while other 22 items measure actual performance of provided service. The level of service quality is represented by the gap between expected and perceived service. The 22 items represent the five service quality dimensions that have been specified as SERVQUAL dimensions: tangibles, reliability, responsiveness, assurance, and empathy. Our questionnaire was designed to gather empirical data from undergraduate students and it was consisted of two parts. First, perceived service quality was measured with modified SERVQUAL scale (Parasuraman et al., 1985; 1988), using 30 items instead of original 22 items. Namely, the items referring to the staff quality were doubled, in order to separately evaluate quality of teaching and non-teaching staff. We used 7-point Likert-type scale, anchored with "strongly disagree" and "strongly agree" for SERVQUAL measures. Second part of the questionnaire presented respondents' demographic information and included items such as gender, age, type of school finished, monthly income, place of stay, year of study, type of study, average grade. Missing data imputed by linear interpolation method.

4 RESULTS AND DISCUSSION

Before going into further analysis, non-response bias was assessed. Anonymity was guaranteed to all respondents, which is a tool that minimizes potential bias related to confidentiality issues according to Hair et al (2009). However, at the same time, it wasn't possible to identify non-respondents and to contact them in order to ask for a reason of their non-response because of their anonymity. Therefore, time trend extrapolation test offered by Armstrong and Overton (1977) was used to examine non-response bias. The test is conducted by comparing the first and the last quartile (according to their time of response) of respondents. Results showed that no significant differences were identified; suggesting non-response bias was not a problem in our sample.

As presented in a Table 1, majority of our research sample were females, who have mostly finished gymnasium schools. We may note from the characteristics of the sample that different age groups study School of Economics and Business's programmes, however, most frequent birth year is 1990 (21,6%) which is the average age of student in school 2011/12 year (22 years old). When comparing the other demographic data from the sample with the total population (available from official enrolment data) we see that they correspond, and hence we conclude that our sample is representative.

Table 1. Demographic characteristics of the sample

Characteristics			
Sex	%	Previous education	%
Female	62.4	Gymnasium	55.5
Male	37.6	Vocational school	44.1
		Arts school	0.4
Age	Year	Monthly household income	%
Lowest value	1966*	Below 1.000,00 KM	31,4
Highest value	1992	From 1.000,00 to 2.000,00 KM	44,6
		More than 2.000,00 KM	24,0

Notes: *Due to the fact that distance learning type of studying exists, age is not limited to regular students of certain generation.
Source: Authors' analysis

The data analysis was conducted in two stages. First, factor analysis was performed on expected and perceived service quality items to identify the main dimensions of the concept. Afterwards we compared students' expectations and perceptions using t-test.

In first stage of analysis, theory driven, Confirmatory Factor Analysis (CFA) with the maximum likelihood estimation procedure, in LISREL 8.71 program, was conducted. In addition we wanted to examine reliability and validity of constructs.

All items loaded significantly on their respective constructs, and there was no evidence of cross-loading. This is taken as evidence of convergent validity. Further composite reliability for all measures ranged between 0.772 and 0.903, which are all above the recommended cut-off criteria of 0.60 (Fornell & Larcker, 1981). As a further proof of reliability of our measures, we demonstrated that Average Variance Extracted for most of the scales was above .50 cut-off threshold (Fornell & Larcker, 1981).

In the case of the model that was assessed for five dimensions of the students expectations the model achieved acceptable fit to the data: Normed chi-square (χ^2)/degrees of freedom (d.f.) = 412.1/125; root mean square error of approximation (RMSEA) = 0.09; non-normed fit index (NNFI) = 0.923; comparative fit index (CFI) = 0.937; standardized root mean square

Table 2. Comparing students' expectations and perceptions

#	CODE	SERVQAL (adapted) ITEM	Expectations		Perception		Gap	t-value
			Mean	SD	Mean	SD		
Tangibles								
1	TAN1	School has up-to-date equipment.	6.57	0.87	5.71	1.17	-0.87	10.44 ***
2	TAN2	School's physical facilities are visually appealing.	5.67	1.23	5.38	1.32	-0.29	2.96 ***
3	TAN3	School's faculty are well dressed and appear neat. (A)	6.56	0.87	6.06	0.98	-0.49	6.97 ***
4	TAN4	School's staff are well dressed and appear neat. (A)	6.51	0.87	5.91	1.17	-0.60	7.08 ***
5	TAN5	The appearance of the physical facilities of School is in keeping with the type of services provided.	5.75	1.35	5.21	1.40	-0.54	4.74 ***
Reliability								
6	REL1	When School promises to do something by a certain time, it does so.	6.72	0.71	4.37	1.63	-2.35	21.45 ***
7	REL2	When you have problems, School is sympathetic and reassuring.	6.42	0.95	4.26	1.74	-2.16	17.96 ***
8	REL3	School is dependable.	6.66	0.71	5.18	1.48	-1.48	15.74 ***
9	REL4	School provides its services at the time it promises to do so.	6.42	0.94	6.00	1.13	-0.41	5.47 ***
10	REL5	School keeps its records accurately.	6.49	1.01	5.40	1.47	-1.09	10.79 ***
Responsiveness								
11	RES1	School doesn't tell students exactly when services will be performed. (-)	4.02	2.17	3.43	2.05	-0.59	4.36 ***
12	RES2	You don't receive prompt service from School's faculty. (-)(A)	4.09	2.04	3.54	1.85	-0.54	3.58 ***
13	RES3	You don't receive prompt service from School's staff. (-) (A)	4.02	2.04	3.72	1.79	-0.30	1.98 **
14	RES4	School faculty are not always willing to help students. (-) (A)	3.04	2.22	3.95	1.74	0.91	-5.85 ***
15	RES5	School staff are not always willing to help students. (-) (A)	2.83	2.19	4.35	1.80	1.51	-9.73 ***
16	RES6	Employees of School are too busy to respond to students requests promptly.(-)	4.23	1.88	4.30	1.73	0.07	-0.50
Assurance								
17	ASS1	You can trust School faculty. (A)	6.30	1.08	5.28	1.39	-1.02	10.20 ***
18	ASS2	You can trust School staff. (A)	6.05	1.23	4.71	1.65	-1.33	11.14 ***
19	ASS3	You feel safe in your transactions with School's employees.	6.29	1.03	4.53	1.68	-1.77	15.46 ***
20	ASS4	School faculty are polite.	6.58	0.89	5.35	1.27	-1.23	14.23 ***
21	ASS5	School staff is polite.	6.65	0.83	3.95	1.85	-2.70	22.14 ***
22	ASS6	Faculty gets adequate support from School to do their jobs well.	6.50	0.84	4.99	1.43	-1.51	16.71 ***
23	ASS7	Staff gets adequate support from School to do their jobs well.	6.44	0.89	4.76	1.47	-1.68	17.68 ***
Empathy								
24	EMP1	School does not give you individual attention. (-)	4.18	1.86	4.41	1.77	0.24	-1.61 *
25	EMP2	Faculty of School do not give you personal attention. (-)(A)	3.88	1.92	4.07	1.78	0.19	-1.37
26	EMP3	School staff do not give you personal attention. (-)(A)	3.89	1.99	4.40	1.85	0.51	-3.44 ***
27	EMP4	Faculty of School do not know what your needs are. (-)(A)	4.18	1.99	3.92	1.79	-0.26	1.61 *
28	EMP5	School staff do not know what your needs are. (-)(A)	4.06	1.99	4.21	1.85	0.15	-0.95
29	EMP6	School does not have your best interest at heart. (-)	2.74	1.99	4.27	1.86	1.53	-10.21 ***
30	EMP7	School does not have operating hours convenient to all their students. (-)	3.98	2.07	3.68	1.93	-0.30	1.76 *

Notes: (A) Adapted item – due to the classification of employees to faculty and administrative staff; (-) Reverse item; t-test (2-tailed Sig.), *** $p < 0.001$., ** $p<0.05$, *$p<0.1$

Source: Authors' analysis

residual= 0.071. We also achieved model fit for perceived quality of HE service: Normed chi-square (χ^2)/degrees of freedom (d.f.) = 424.8/125; RMSEA = 0.092; NNFI = 0.909; CFI = 0.926; SRMR = 0.066. Therefore, we concluded that our measures exhibited appropriate validity and reliability for further test.

Perceived-expected service quality gap was explored using paired sample t-test. Items are sorted according to the already established dimensions, having in mind that two items (one for faculty and one for staff) are added (A) instead of one in original measure (employees).

We proceed with the analysis and discussion of gaps between expectations and perceptions for each of the five adapted SERVQUAL dimensions, and then for the instrument overall. First element that is analyzed is tangibles. Intangibility of services represents one of the main managerial problems (Babić-Hodović, 2010), yet by managing tangible dimensions of the offer, these problems could be prevailed. We observe that all gaps in this dimension are statistically significant and negative. This shows us that perceptions related to the tangible offer of the school are lower than expectations. We may also see that tangibles may be divided into ones concerning physical environment (TAN1, TAN2, and TAN5) and ones concerning employees (TAN3 and TAN4). Interestingly, we see differences in gaps for faculty and staff – where faculty is managing to better deliver upon the expectation than contact staff is. Highest discrepancy between expectations and perception is concerning the equipment and average gap for this dimension is -0.56.

Second dimension explains the reliability of the school. This dimension is not changed, due to the fact that items are not related to the concrete first line employees, than to the school overall. All gaps in this construct are also statistically significant and negative, which again points out to the fact that students' expectations are not satisfied. The biggest problem in this concrete assessment is with the gap concerning delivery of promised. It is -2.35 and it represents second highest gap in the instrument. Average gap for the reliability is -1.49.

Responsiveness is the third dimension observed in the model. Here we have a mix of results regarding the significance and sign of the gaps. Namely, for the item RES6 - Employees of School are too busy to respond to students' requests promptly, perceptions are equal to the expectations. It is important to note that all items in this dimension are reverse items. Hence, negative sign actually represents the prevalence of the perceived over the expected impression. This is true for the RES1, RES2, RES3 related to the overall impression of the timing and prompt service from faculty and from staff. Basically, observed school is having better position in these items, as opposed to the general expectations. However, this is not true for helpfulness of both – staff and faculty. Additionally, we still may see that there are differences in observations of faculty and staff. Interestingly, administrative staff is assessed to be more prompt but less willing to help than faculty. This dimension has the lowest average gap of 0.17.

Fourth dimension of the SERVQUAL model is assurance. Trust, politeness, safety and perception of the relation between management and first line employees are observed in this dimension. All gaps are statistically significant and negative which again points out that delivery to the expectations failed. Highest gap in the whole instrument is concerning the politeness of the administrative staff. This points out to the weakest link in the whole quality system of the observed institution. We also may see that gap for the faculty on this same issue is not that big – it is below the average for this dimension (-1.61).

Finally, we discuss the fifth dimension of the instrument – empathy. This construct is consisted out of the reverse items, and there is a mix of results when it comes to significance and sign of the gaps. Here we also observe that there are differences in gaps for faculty and for administrative staff. In example, when it comes to knowing the needs of students, faculty exceeded the expectations, while staff is still below them. Average gap for the dimension of empathy is 0.29.

Overall, we may say that for the concrete observed case, expectations are seldomly reached. Also, we see that differences between perceptions of administrative staff and faculty exist and that they differ when it comes to service delivery. This justifies the need for adjusting the SERVQUAL scale according to the type of first line employees. Overall average gap for the whole measure is -0.61.

5 CONCLUSION

The present study has significant implications when it comes to area of service quality in business schools and in higher education institutions. Namely, the results may broaden the knowledge on the importance of quality measurements in services and in business education, and on the importance of differentiation between the types of first line employees. This means that strict difference should be made between services offered by faculty (who are delivering the core service) and ones offered by administrative staff (who are facilitating the process). Both are contributing to the perception of quality in different ways, they should be aligned and managed, however, they may not be observed as one when employing a concrete measure and/or standard.

We found that our proposed adapted SERVQUAL scale has good measurement model fit, which confirmed its validity and reliability. This makes it a dependable instrument for further research on service quality and gaps in expectation and perceptions as well as for research on interdependences between quality of services in business schools and other higher educational institutions and other related constructs (such as value, satisfaction, loyalty and behavioral intentions). Our empirical findings gained us more understanding when it comes to the new items in the model. We confirmed that there are differences between assessments of two types of staff.

This research has treated perceived service quality from students' perspective. Future research could be directed to investigate perceived service quality from perspective of business environment or other stakeholders. This would allow a comparison of the expectations coming from different stakeholders groups. Additionally, future research should relate quality perceptions with other variables of interest, such as value, loyalty and behavioral intentions. Also, it would be interestingly to consider more higher education institutions, and to compare ones with accreditation with ones in the accreditation process and/or ones that are not in the processes at all.

Limitation of the study is in a fact that generalization of the results is questionable, especially because it is context limited to the country where research has been conducted. In addition to that in research respondents were local students. In order to enchase generalizibility it would advisable to expand the present study involving international students but also to expend research to other countries and study destinations in order to validate the results.

6 BIBLIOGRAPHY

AACSB (2013): **AACSB Accredited**, http://www.aacsb.edu/aacsb-accredited/, [Accessed 26. 02. 2013].

Anderson, J. C., & Gerbing, D. W., (1988): **Structural equation modelling in practice: A review and recommended two-step approach.** ***Psychological Bulletin****, 103*(3), 411-423.

Babić-Hodović, V., (2010): ***Marketing usluga: koncept, strategije i implementacija.*** Sarajevo: Ekonomski fakultet u Sarajevu.

Barnes, B. R., (2007): **Analysing service quality: the case of post-graduate Chinese students.** ***Total Quality Management \& Business Excellence***, 18(3), 313–331.

Chatterjee, A., Ghosh, C. & Bandyopadhayay, S., (2009): **Assessing students' rating in higher education: A SERVQUAL approach.** ***Total Quality Management,*** 20(10), 1095-1109.

Coccari, R. & Javalgi, R., (1995): **Analysis of students' needs in selecting a college or university in a changing environment.** ***Journal of Marketing for Higher Education***, 6(2), 27–40.

Diamantopoulos, A., & Siguaw, J., (2000): ***Introducing LISREL***. London: SAGE publications.

Durvasula, S., Lysonski, S. & Madhavi, A.D., (2011): **Beyond service attributes: do personal values matter?** ***Journal of Services Marketing***, 25(1), 33–46.

Edwards, J. R., (2001): **Multidimensional constructs in organizational behavior research: An integrative analytical framework.** ***Organizational Research Methods,*** *4*(2), 144-192.

Elliott, K. M. & Shin, D., (2002): **Student satisfaction: An alternative approach to assessing this important concept.** ***Journal of Higher Education Policy and Management***, 24(2), 197–209

Euromonitor International (2009): ***Balkan higher education in need of modernization***, 22, June 2009.

Fornell, C., & Larcker, D. F., (1981): **Structural equation models with unobservable variables and measurement error: Algebra and statistics.** ***Journal of Marketing Research***, 18, 382–388.

Gapp, R. & Fisher, R., (2006): **Achieving excellence through innovative approaches to student involvement in course evaluation within the tertiary education sector.** ***Quality Assurance in Education*****,** 14(2), 156-66.

Grönroos, C., (1982): ***Strategic Management and Marketing in the Service Sector*****.** Cambridge: Marketing Science Institute.

Harrop, A. & Douglas, A., (1996). **Do staff and students see eye to eye?,** ***New Academic***, 5, 8–9.

Haug, G., (2003): **Quality Assurance/Accreditation in the Emerging European Higher Education Area: a possible scenario for the future.** ***European Journal of Education***, *38*(3), 229–240.

Hedrick, D. W., Henson, S. E., Krieg, J. M. & Wassell Jr, C.S., (2010): **The effects of AACSB accreditation on faculty salaries and productivity,** ***Journal of Education for Business***, 85 (5), 284–291.

Hill, F., (1995): **Managing service quality in higher education: the role of the student as primary consumer.** ***Quality Assurance in Education***, 3 (3), 10-21.

Kelley, C., Tong, P. & Choi, B. J., (2010): **A Review of Assesment of Student Learning Programs at AACSB Schools: A Dean's Perspective.** ***Journal of Education for Business,*** 85, 299-306.

Koslowski, F.A. III, (2006): **Quality and assessment in context: a brief review.** ***Quality Assurance in Education*****,** 14(3), 277-88.

MacKenzie, S. B., Podsakoff, P. M., & Podsakoff, N. P., (2011): **Construct measurement and validation procedures in MIS and behavioral research: Integrating new and existing techniques.** ***MIS Quarterly,*** *35*(2), 293-334.

Mizikaci, F., (2006): **A systems approach to program evaluation model for quality in higher education.** ***Quality Assurance in Education***, 14(1), 37-53.

Narasimhan, K., (1997): **Improving teaching and learning: perceptions minus expecta tions gap analysis approach,** ***Training for Quality*****,** 5, 121–125.

O'Neill, M. A. & Palmer, A., (2004): **Importance-performance analysis: a useful tool for directing continuous quality improvement in higher education.** ***Quality Assurance in Education***, 1(1), 39-52.

Parasuraman, A., Berry, L. L. & Zeithaml, V. A., (1985): **A conceptual model of service quality and its implications for future research.** ***Journal of Marketing,*** 49, 41-50.

Parasuraman, A., Zeithaml, V. A. & Berry, L. L., (1988): **SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality.** ***Journal of Retailing*****,** 64(1), 12–40.

Pfeffer, J. & Fong, C. T., (2002): **The end of business schools? Less success than meets the eye.** ***Academy of Management Learning \& Education*****,** 1(1), 78-95.

Romero, E. J., (2008): **AACSB accreditation: Addressing faculty concerns.** ***The Academy of Management Learning and Education,*** 7(2), 245-255.

Sahney, S., Banwet, D. K. & Karunes, S., (2006): **An integrated framework for quality in education: Application of quality function deployment, interpretive structural modelling and path analysis.** ***Total Quality Management & Business Excellence***, 17(2), 265 – 285.

Sander, P., Stevenson, K., King, M. & Coates, D., (2000): **University students' expectations of teaching.** ***Studies in Higher Education*****,** 25 (3), 309-323.

Shank, M. D., Walker, M. & Hayes, T., (1995): **Understanding professional service expectations: do we know what our students expect in a quality education?,** ***Journal of Professional Services Marketing*****,** 13, 71–89.

Sohail, M. S. & Shaikh, N. M., (2004): **Quest for excellence in business education: a study of student impressions of service quality.** ***International Journal of Educational Management,*** 18(1), 58–65.

Temtime, Z. T. & Mmereki, R. N., (2011): **Challenges faced by graduate business education in Southern Africa: perceptions of MBA participants.** ***Quality Assurance in Education*****,** 19(2), 110–129.

Trapnell, J. E., (2007): **AACSB International accreditation: The value proposition and a look to the future.** ***Journal of Management Development*****,** 26(1), 67–72.

Zeithaml, V. A., (1981): **How consumer evaluation processes differ between goods and services.** ***Marketing of services***, 9(1), 25-32.

Zeithaml, V. A., (1988): **Customer perceptions of price, quality and value: a means-end model and synthesis of evidence.** ***Journal of Marketing***, 52(3), 2-22.

IMPACT OF INTERNAL AND EXTERNAL FACTORS ON PERFORMANCE OF FAST-GROWING SMALL AND MEDIUM BUSINESSES

Daša Dragnić
University of Split - Faculty of Economics
Cvite Fiskovića 5, Split
Phone: + 385 98 360 772
E-mail: ddragnic@efst.hr

Key words: *Performance/effectiveness, internal and external factors/environment, Small and medium businesses (SMBs)*

ABSTRACT

This study aims at broadening understanding about small and medium businesses[117] (SMBs), as a significant driver of economic development, and in particular finding out about their market performance, as a result of their competitiveness, as well as the impact of the internal and external environment on it.

The study was conducted on Croatian fast-growing SMBs ("gazelles"). However, the scientific and practical contribution of the research transcends national borders, due to the insufficiency of similar research in transitional or small countries as well as in the field of fast-growing businesses.

The dynamic nature of the research has enabled creating a more realistic picture of variability of environmental factors as well as of variability of SMBs performance/effectiveness. The added value of this research lies in the fact that it also includes the period of crisis as a specific economic condition that jeopardises not only the performance, but also the very survival of businesses in general.

This study confirmed that all of the eight internal factors (business entity size, life cycle stages, technology and product innovation, organizational features of autonomy, centralization and formalization, market roles and type/importance of goals) and three out of the five external factors (general state of the economy, sector and type of customers), depending on the period (life cycle stage and general state of the economy), exercise a more or less significant impact on the performance/effectiveness (sales growth and achievement of goals) of SMBs.

[117] The common term "small and medium enterprises" (SMEs) has been replaced with "small and medium businesses" (SMBs) to emphasise inclusion of trade/crafts in the category of entrepreneurship (which is consistent with the statutory definition of the category).

1 INTRODUCTION

The fundamental problem that led to this study[118] is still insufficient empirical knowledge about SMBs in Croatia and worldwide, which makes the development of adapted theories and their successful implementation difficult. The paper addresses two specific problems: market performance of SMBs as a direct result of their competitiveness, and the impact of internal and external factors to it. The subject of this dynamic research are the fast-growing SMBs in Croatia, as successful representatives of this important segment of the economy, and the impact of 13 factors (8 internal and 5 external) on their performance/effectiveness, shown through objective indicators of sales growth and subjective evaluation of goals achievement.

1.1 Small and medium businesses - concepts and relevance

SMBs are best determined by the "economic" and "statistical" definition of the Bolton Committee (1971). While the statistical criteria for quantitative determination of the business entity size (micro, small and medium) vary from country to country, the economic criteria - ownership and managerial independence ((co)owners are also the managers and the small market share of these business entities) - can be considered generally applicable.

According to the Small and Medium Entrepreneurship Incentives Act (NN 29/2002, 63/2007) SMBs in Croatia are all natural and legal entities independent in permanent undertaking of business activities to gain profit, i.e. income on the market, which meet two of the three (statistical) criteria required. One of the obligatory criteria is the number of employees (up to 250 employees) and the other can include either the annual turnover (up to 216 m kunas) or (long-term) assets value (up to 108 m kunas).

Contrary to their name, SMBs play a significant role in the economic and social development of each community. According to data provided by the Incentive Program for Small and Medium Entrepreneurship in Croatia in the period from 2008 to 2012 (Ministry of Economy, Labour and Entrepreneurship, 2008), the indicators of SMBs in Croatia do not show large deviations from those for the EU and OECD countries (99.4% of the total number of registered businesses, 64.7% of all employees, 44% of GDP).

Of particular interest to scientists, practitioners and government policies is the category of fast-growing businesses (and/or "gazelles"). The main characteristic of this category is surely fast and above average growth (revenue/sales) achieved in a three-year period (the percentages vary from country to country dependent on the national economy growth rate), and closely related increase of employment, while any additional categorization features vary depending on the circumstances and the priorities of national economies.

According to the definition recommended by the OECD (The OECD-Eurostat Manual on Business Demography Statistics, 2007), fast-growing businesses are those with an average annual growth greater than 20% in the three-year period, where growth is measured in terms of revenue and number of employees (businesses entities with less than 10 employees in the start up period are excluded from this category). The OECD definition distinguishes between the fast-growing business entities and "gazelles", where “gazelles” are "young" fast-growing entities (not operating for more than 5 years).

[118] This paper is part of a comprehensive research presented in the doctoral dissertation "Modelling effective marketing strategies of SMBs“ (Dragnić, 2012)

In Croatia there is no official, unified definition of fast-growing businesses/"gazelles". However, what can be derived from the national incentive and promotional projects of the "gazelles" carried out by the Ministry of Economy, is that these are SMBs who have operated for at least three full calendar years and have achieved a revenue growth of at least 30%, increased the number of employees and achieved at least 25% of total income from exports in the three-year period observed [119].

Fast-growing businesses make up a small share in the total number of business entities, but at the same time, make up a disproportionately significant share in new job, revenue and profit creation and are, therefore, the engine of economic development in general (Birch, 1979). Thus, in the OECD on average the fast- growing businesses make 3-6% (according to the number of employees) and 8-12% (according to the revenue) of total number of business entities. The difference between these two indicators is higher in manufacturing than in service sector. On average, "Gazelles" account for only 1/5 of fast-growing companies.

According to the Business.hr data[120] (2007-2008), the "gazelles" (fast-growing businesses), which make up less than 2% of the total number of businesses in Croatia, account for about 12% of the revenue of the entire economy and 9.4% of total number of employees. They also make up around 1/4 of the newly generated revenue/net income and 1/4 of new jobs in the overall Croatian economy. In addition, the income and the employment growth rate of "gazelles" is significantly higher than the average growth rate of all entrepreneurs (67.7% vs. 24.4%, 30% vs. 9.6%).

Unfortunately, all the data stipulated on the fast-growing businesses are related to all businesses, SMBs and large businesses (in OECD "micro" are excluded), thus it is impossible to assess the actual significance of fast-growing SMBs per se.

1.2 Literature review

Besides its importance for economic and social development, small and medium businesses (SMBs) are the subject of scientific interest also because of their specific business characteristics and behaviour, aiming to adapt economic theory and create applicable models and tools for their better performance (Lesák, 2009; Dragnić, 2009; Grbac and Meier, 2007; Buble and Kružić, 2006; Dana et al, 2006; Leburić and Krneta, 2004; Bygrave, 2003; Timmons, 2003, Gilmore et al, 2001; Hudson, Smart and Bourne, 2001; Carson and Gilmore, 2000; Avlonitis and Gounaris, 1999; Beaver and Ross, 1999; Stokes and Blackburn, 1999; Grubišić, 1999; Appiah-Adu and Singh, 1998; Ghobadian and Gallear, 1997; Dulčić, 1996; Siropolis, 1995; Hills and Narayana, 1989, Robinson and Pearce, 1984; Sexton and VanAuken, 1982).

The common conclusion is that the most important characteristics of SMBs derive primarily from their limitations: a personalized management (owner = manager), constraints in resources (management/organization, human resources, finance), limited market impact and greater sensitivity to the external environment influences. These characteristics are also held responsible for a particular business conduct. It can be said that the SMBs are more inclined

[119] definition derived from the description of the beneficiaries of the project "Gazelles" (Incentive Program for Small and Medium Enterprises in Croatia, Ministry of Economy, 2009 and 2010); note: the distinction between fast-growing businesses and "gazelles" is not made

[120] criteria for "gazelles" categorisation according to Business.hr are set out in the description of the empirical research sample and they are slightly different from those of the Ministry

to risk-taking, informal and unstructured way of doing business (shallow and flexible structure, informal and dynamic strategy), pragmatic, spontaneous and intuitive operation (though often reactive). However, this actually creates the potential for flexibility, fast response time/adaptation and innovation in business.

Even though most studies confirm the expected specific SMBs' features, others question some of the common beliefs about SMBs market approach. It has been confirmed that, due to the aforementioned limitations, SMBs rely on a small number of customers and operate in limited markets - only 8% of SMBs in the EU reported income from exports. The percentages vary from one country to another dependent on the respective national markets size (in Estonia this percentage is 23%, in Slovenia 21%, in Finland 19%, in Denmark 17%). On the other hand, in contrast to the potential for innovation, only slightly less than 1/3 of SMBs offer new or significantly enhanced products/services, i.e. only 12% of the total income of SMBs in the EU is generated by innovative products (the share is greater in the old than in the new member states, which can be explained by stronger competition and more demanding and saturated market). Established theories on SMBs' strategic performance are perhaps the most significantly challenged by those research results that show that SMBs can be as successful outside "niches", i.e. they can, in line with their limitations, secure success in the market by means of playing the "followers" or entering into alliances with the "big players" (Lee, Lim and Tan, 1999, Gomes-Casseres, 1997).

To date, studies of fast-growing small businesses paid most attention to defining of their growth factors. Their effects, however, as well as their specific characteristics and conduct have not yet been clearly determined (Mateev and Anastasov, 2010; Zhang, Yang and Ma, 2008; Henrekson and Johansson, 2008; Swee Lin, 2007; Smymios and Tan, 2006; Barringer et al, 2005; Jeffcoate, Chappel and Feindt, 2002; Hills and Hultman 1999; Delmar and Davidsson, 1998; Wiklund, 1998). Identified factors affecting the rapid growth can be grouped into four categories - entrepreneur's personality, business strategy, resources and capabilities of the business entity and the external environment.

Success/performance is the resultant of activities of a business entity as a whole (Laitinen, 2000; Porter, 1996; Miller, 1988): its strategy and operational activities, management of all segments of business (human resources, finance, production, marketing), or, as per Kotler (1991) - the business performance in a given period is affected by many factors, including luck! This ought to be remembered when examining the impact of particular variables on the performance. In other words, this is one of the main reasons for which such studies sometimes obtain different results in terms of the strength but also the direction of impact of the same variable (Woodside, Sullivan and Trapey III, 1999).

Most authors measure performance by combining conventional indicators of effectiveness and/or efficiency: most often sales growth/market share increase and profitability (derived indicators of rate of return) and less commonly, liquidity/solvency, employment, reputation/image (Koksal and Ozgul, 2007; Gonzales - Benito, 2005; Brooksbank and Taylor, 2002; Laitinen, 2000; Pelham, 1999, Beaver and Ross, 1999; Grinyer et al, 1990; Covin and Slevin, 1989; Hambrick, 1983).

However, given that a business, i.e. its performance, is considered successful if it meets the set of strategic (inclusive of tactical and operational) goals, it is advisable to harmonize measuring/indicators for performance with the strategic goals of the specific business entity (Hudson, Smart and Bourne, 2001, Gregory, 1993, Eccles 1991, Kaplan 1983). The subjective assessment of goal achievement of a business entity, which would make this possible through

individualization of success, is unjustly neglected in measuring performance (Laitinen, 2000; Bititci, 1994).

The sales growth (and/or market share) is one of those conventional indicators that most directly indicate the ability of a business entity to maintain/reduce/increase the level of their market competitiveness, and at the same time it is considered to be the result and the measure of entrepreneurial orientation (Covin, Green and Slevin, 2006, El - Ansary, 2006; Palmer and Pels, 2004; Davidsson, Delmar and Wiklund, 2002; Timmons, 1998; Lumpkin and Dess, 1996; Alrek and Settle, 1995, Walker and Ruekert, 1987).

Performance measuring is usually carried out by subjective evaluation of the business entities themselves, either by evaluating their satisfaction with the achieved indicators of effectiveness and efficiency (meeting expectations/plans), or by benchmarking themselves against their competition (Padmore, Taylor and Frecknall - Hughes, 2006; Covin, Green and Slevin, 2006, Tse and Son, 2004; Deshpande and Farley, 1998; Appiah - Adu, 1998; Avlonitis and Gounaris, 1997; Pelham and Wilson, 1996; Greenley, 1995; Slater and Narver 1994, Jaworski and Kohli, 1993; Fiorito and LaForge, 1986; Cooper, 1979). However, despite the strong ties established, i.e. compatibility of subjective evaluation with objective performance indicators (Ward and Lewandowska, 2008; Cano, Carrillas and Jaramillo, 2004, Ellis, 2002; Dawls, 1999; Jaworski and Kohli, 1993; Geringer and Herbert, 1991; Robinson and Pearce, 1988; Venkatraman and Ramanujan, 1986), the inclusion of objective indicators increases the reliability of research results.

Managing the internal environment is usually connected to the degree of performance achievement of a business entity (Albert, 1981; Stegall, Steinmetz and Kline, 1976). However, rare are studies that examine the impact of an internal environment as a whole (combination of all/most of the internal factors) on business strategy and performance (Cyert and March 1992; Daft and Weick 1984).

„Entrepreneur's personality" (owner's and/or manager's) is a specific internal factor. All studies have shown it has a significant impact on existence and operation of businesses, particularly SMBs (Zhang, Yang and Ma, 2008; Barringer, 2005; Nicholls-Nixon, 2005; Tan and Smyrnios, 2005; Leburić and Krneta, 2004, Mullins, 1996). Specifically, its strong influence on the business strategic framework has been established (vision, mission, business orientation, culture and goals), which (indirectly and implicitly) affects all components of the internal environment, strategy and performance. The problem of analyzing of this factor is reflected in the complexity of deeper analysis (of motives, attitudes, personality traits ...), that would require an expert psychological approach. Therefore, the analysis is usually reduced to demographic characteristics that certainly cannot give a complete and thorough insight into personality of the entrepreneur.

The "business entity size" factor, most commonly defined by the number of employees, is encountered in almost every research, most often as a structural sample feature (Foreman, 2008; Ward and Lewandowska, 2008; Covin, Green and Slevin, 2006; Desphande and Farley, 2004; Tse and Sin, 2004; Avlonitis and Gounaris, 1999). Scientifically speaking, this feature and its categorization has its purpose given the specific characteristic which are brought into the business by differences in size – from strength and availability of resources, through organizational structure, to flexibility/ability to adapt.

In the literature the stages in the life cycle are classified in accordance with their features and particularities which condition different actions, i.e. business strategies (Kotler, 2006; Taylor,

1999; Siu and Kirby, 1998; Aaker, 1995; Wasson 1978; Doyle 1976; Ansoff, 1957.). Besides the inception stage state, "life cycle stage" can be viewed as a state one aspires to achieve, therefore, as goals (and success indicator) of a business entity. Although it could and should have been implied, the concept of a life cycle is rarely perceived as a cyclic reoccurrence of life cycle stages throughout the existence of a business entity.

Innovation is often referred to as a fundamental feature of entrepreneurship and growth (GEM's[121] research; Ridderstrale and Nordstrom, 2004; Mansfield et al, 1971; Schumpeter, 1934). Innovations (of products, equipment and processes), and technological development, as a related concept, are certainly an integral part of a business strategy (Dulčić and Bakotic, 2004; Taylor, 1999; Sharfman and Dean, 1997; Damanpour, 1991; West and Farr, 1990; Miles et al, 1978). Furthermore, innovation and technological levels can also be seen as part of or the result of the condition of resources[122] (material, financial, human, knowledge, competencies, culture/orientation), which determine the development of strategy and business performance (Atuahene-Gima and Murray, 2004; Desphande and Farley, 2004; Greenley, Hooley and Saunders, 2004; Matsuno, Mentzer and Ozsomer, 2002; Grant, 1996; Milgrom and Roberts, 1990; Drucker, 1985).

The theory and empirical research deal with organization or "organizational features" primarily from the management point of view, or differences between large enterprises and SMBs. Some of them explore the relationship between business orientation/strategies, organizational features/structure and performance (Covin, Green and Slevin, 2006; Avlonitis and Gounaris, 1999; Dulčić 1993; Fiegenbaum and Karnan, 1991; Covin and Slevin 1989; Shapiro, 1988; MacMillan, McCaffery and VanWijk 1982; Miles and Snow, 1978). Organizational features affect the process of defining/ implementation and strategy content, business culture (they are part of it), and they reflect the personality of the entrepreneur/owner and manager. The most often analysed features are "autonomy" (Wennekers et al, 2007; White, 1986), "centralization" (Foreman, 2008; Covin, Green and Slevin, 2006; Buble and Kružić, 2006; Kirk, Jayachandran, and Bearden, 2005; Atuahene-Gima and Murray, 2004; Matsuno, Mentzer and Ozsomer 2002; Sikavica, Novak, 1998; Pelham and Wilson, 1996; Deshpande and Zaltman, 1982; Mintzberg, 1973) and "formalization" (Foreman, 2008; Kirk, Jayachandran, and Bearden, 2005; Moncrieff, 1999; Moorman, 1995; Menon and Varadarajan, 1993; Day, 1991; John and Martin, 1984; Hall et al, 1967) of a business entity.

The "market role" of a business entity (Tse and Son, 2004; Ishaq, 2002; Kotler 1992; Dolan, 1981) can be observed as entity's current position/state which determines the choice of the strategy, but also as its set target/result. Market roles result from the strength of businesses on the market (share size and competitiveness position), and are characterized by the level of innovation and business pro-activeness necessary to achieve and maintain a certain position. Accordingly, in the established division of market roles (Kotler and Keller, 2008; Porter, 1980) two drawbacks can be identified: the role of "nicher" is defined by the criterion of where/in what market segment certain business operates, and not by its position in relation to its competition; there is a lack of the "monopolist" role for situations when an entity is the only one in the market/market segment.

[121] Global Entrepreneurship Monitor – international research project for monitoring entrepreneurial activities implemented since 1999 (Croatia joined in 2002)

[122] Resources can be seen as tangible and intangible assets which allow a business entity to effectively and efficiently create its values/market offer, (Hunt and Derozier, 2004; Woodside, Sullivan and Trappey, 1999; Hunt and Morgan, 1996;).

To date, researches mainly observe "goals" as a dependent variable, measuring strategies and other elements' impact on conventional performance indicators, as controlling indicators of common business goals. However, if the choice of strategy is the function of the environmental requirements and types of objectives that a business entity wants to achieve (Hambrick, 1983), the initial role of goals as an independent variable that affects the strategy and performance is then unquestionable. Specifically, the goals largely reflect and result from motivation and entrepreneur's value system, SMB's vision, mission, and business culture and orientation. Therefore, businesses can differ in the importance they give to different goals from different business areas.

The feasibility and efficiency of a business strategy derives from optimal use of internal strengths and external opportunities as well as from reduction of internal weaknesses and external threats. That is, the strategy can be viewed as a mechanism of adjustment, the method of aligning business/internal environment with the external environment while the interaction between the internal and external environment/factors is crucial for the success of a business entity (Kotler and Keller, 2008; Buble et al, 2005; Pelham, 1999; Walker and Ruekert, 1987; Hitt and Ireland, 1985; Hambrick, 1983; Porter, 1980; Andrews, 1971). Hence a distinct position of "strategy" as the dependent variable in relation to internal and external environment factors on one hand, and the independent variable that (in a possible correlation with environmental factors) affects the performance of a business entity on the other.

Since the external environment primarily affects the survival and the growth of business entities (Covin and Slevin, 1989), researches deal with the issue of efficiency of certain business orientations/strategies in a particular environment, i.e., how the external environment affects the strategy and performance of businesses (Ward and Lewandowska, 2008; Ellis, 2006; Morgan and Hunt, 2002; Pelham, 1999; Avlonitis and Gounaris, 1999; Siu and Kirby, 1998; Sebora et al, 1994; Slater and Narver, 1994; Diamantopoulos and Hart 1993; Day, 1990; Porter, 1985; Hambrick, 1983; Kotler, 1977; Levitt, 1960). While the theory usually approaches the analysis of the external environment through the analysis of the macro environment (PESTE[123] analysis) and micro environment (analysis of suppliers, competitors, intermediaries and customers), empirical studies most often create constructs that are combination of the forehead mentioned categories. However, as it was the case with internal environment, very few studies examine the external environment impact as a whole (combination of all/most of the external factors) on strategy and performance.

Under the construct of the "general state of the economy" the following are analysed: dynamics, intensity and impact of the general economic and fiscal factors, legislation, social and business culture, general prosperity (Ward and Lewandowska, 2008; Ellis, 2006; Ang, 2001; Mavondo, 1999; Deshpande, Farley and Webster, 1993; Chilton, 1984). Previous studies have identified and analyzed the general state of the economy in terms of the continuity of economic-political orientation and the dynamics of macroeconomic indicators (Foreman, 2008; Dwajir et al, 2007; Palmer and Pels, 2004; Desphande and Farley, 2004; Singh, 2003; Grbac and Martin, 2001; Hooley et al, 2000; Renko, Pavičić and Pecotich, 1999; Appiah - Adu, 1998; Slater and Narver, 1994); in terms of the direction of macroeconomic indicators (Gonzales - Benito and Munoz - Gallego, 2009; Koksal and Ozgul, 2007; Laitinen, 2000; Beaver and Ross, 1999; Shama, 1992; Kim and Lim, 1988; Miller and Toulouse, 1986); and in terms of ease and security of "doing business" (Foreman, 2008; Palmer and Pels, 2004;

[123] analysis of political, economic, social, technological and geo-climatic factors; other variations/acronyms are also used depending on the factors included and their order

Homburg and Pflesser, 2000; Pelham and Wilson, 1996; Diamantopoulos and Hart, 1993; Covin and Slevin, 1989; Porter, 1985; Scherer, 1980).

Similar to "business size" factor, the "sector" variable is present in almost all studies, at least as a structural characteristic of a sample. As an independent variable of impact on business orientations/strategies and business performance, sector is addressed in the specific sectoral (Deshpande and Farley, 2004; Laitinen, 2000; Pelham, 1999; Montgomery and Porter, 1991; Kohli and Jaworski, 1990; Covin and Slevin, 1989; Narver and Slater, 1989; Sandberg, Keats and Hitt, 1988; Miller and Toulouse, 1986; Porter, 1985; Dess and Beard, 1984; Hambrick, 1983) and multi-sectoral research (Ward and Lewandowska, 2008; Foreman 2008; Ozgul and Koksal, 2007; Cano, Carrillat and Jaramillo, 2004; Brooksbank and Taylor, 2002; Avlonitis and Gounaris, 1999). The influence of this variable can be observed in terms of its dynamics, and though it is rather feasible in the specific sectoral studies, it is hampered in the multi-sectoral research by numerous limitations. Accordingly, the impact of this variable primarily results from the principal differences/specific characteristics[124] of the defined categories of sectors (most often manufacturing, services and trade).

"Market type/size" and "customer type/size" are often found in empirical research as structural characteristics of the sample, but they should primarily be regarded as an independent variable of the external environment. Namely, with their specific features different types and sizes of markets and customers influence the selection of target markets/segments (marketing strategy) and the performance of a business entity.

The most common categorization of market types, in theory, research and practice, is reduced to local - regional, national and international market (Miočević and Crnjak - Karanović, 2009; Ward and Lewandowska, 2008; Ozgul and Koksal, 2007; Sabol, 2007; Ellis, 2006; Ruzzier, Hisrich and Antoncic, 2006; Palmer and Pels, 2004; Mtigwe, 2004). The fundamental features and differences[125] between categories of this construct are derived from the possible implications on the marketing strategy conditioned by the complexity of market type - size, proximity/accessibility, familiarity and homogeneity.

The most common customer types comes down to the individual/consumers (B2C) and business customers (B2B), within which there is a further division (Dragnić, 2009; Ward and Lewandowska, 2008; Kotler, 2006; Hawkins, Best and Coney, 2004; Deshpande and Farley, 2003; Mavondo and Farrell, 2000).

The fundamental features and differences[126] between categories of this construct are derived from the possible implications on the marketing strategy which is conditioned by the complexity of customer type - market/demand, decision-making and purchasing process structure.

[124] Recognized specific characteristics are significant to the extent that a special field of services marketing has been developed in the marketing theory, and within the field, marketing in tourism, banking, trade...

[125] In the theory of marketing a special field of international and global marketing has been developed.

[126] In the theory of marketing special fields of business to business (B2B) marketing and non-profit organisations marketing have been developed.

2 RESEARCH OBJECTIVES AND METHODOLOGY

2.1 Objectives and the contribution

The main goal and the contribution of this research is derived from the insufficient knowledge about SMBs (compared to what we know about large enterprises), and the discrepancy between the findings about SMBs in the developed/traditional market economies/big countries and those in developing/transitional economies/small countries. By increasing the quantity and quality of knowledge about SMBs, preconditions are created for increasing the level of adaptation of the existing theory and the usefulness of scientific knowledge for development of successful SMB practice, which is indeed the ultimate goal and purpose of this research.

The specific goals and contributions of the research include the following:

- increase awareness of the fast-growing SMBs, as a successful and propulsive part of the economy;
- analysis of the impact of a comprehensive combination of factors in order to thoroughly and accurately define the impact of internal and external environment on the performance;
- measuring performance/effectiveness by a combination of conventional indicator and goals achievement, and a combination of subjective assessment and objective data, which increases the reliability of the results;
- dynamic dimension - analysis of business performance and the impact of environmental factors over a longer period of time (from 1990s to 2010, including the period of crisis), which provides more complete and more realistic results.

2.2 Methodology and research instruments

The research is of a dynamic and multisectoral structure and was conducted on the target sample based on the longitudinal study of "gazelles" conducted by Business.hr and FINA[127]. The defined independent and dependent variables are examined and analyzed in the period from 1990s[128] to year 2010, largely based on primary data, collected by means of surveying, but research has also encompassed some secondary data from official sources (FINA - the Croatian Central Bureau of Statistics, the National Bank, the Croatian Chamber of Economy, the National Council for competitiveness, GEM and others).

Primary data were collected using the structured questionnaire[129], designed for key person (one source), in this case the entrepreneur (owner and/or manager), which is, considering their role, the most common practice in the study of SMBs (Foreman, 2008; Ward and Lewandowska, 2008; Cano, Carrillas, Jaramillo, 2004, Ellis, 2002).

[127] The Gazelles project has started in 2006, in order to identify and rank fast-growing businesses in Croatia. Four published lists of gazelles (2006, 2007, 2008 and 2009; covering period from 2003 to 2008) have been used as starting database for defining the sample of this survey.

[128] the exact year depends on the initial period of each SMB; for more detailed explanation see chapter 3.2 (variable "general state of the economy")

[129] Since the survey was conducted for the purpose of the doctoral dissertation, the original questionnaire contains also the questions that are not relevant for the subject of this paper and are therefore not discussed here.

Having analysed a number of existing questionnaires used in similar studies Koksal and Ozgul, 2007; Covin, Green and Slevin, 2006; Simpson et al, 2006; Desphande and Farley, 2004; Brooksbank and Taylor, 2002; Ang, 2001; Matsuno and Mentzer, 2000; Avlonitis and Gounaris, 1999; Pelham and Wilson, 1996) a completely new questionnaire was constructed as a new methodological tool adapted, among other things, to measuring the internal and external factors and their impact on the effectiveness of SMBs, taking into account the guidelines provided in the questionnaire testing phase both by experts (in the field of marketing, psychology and statistics) and by entrepreneurs themselves.

The first part of the questionnaire (questions from 1 to 5) addresses the sector in which SMBs dominantly operate, the year in which business was set up or privatized/restructured, ownership structure, operation and business growth. For these questions categorized responses are offered (except for the open question about the start/change of operations).

The following question (in tabular form) determines the dynamics of achieving business results by means of categorization of growth/decline rate: sales (revenues), the number of employees and the financial results in the period from 2006 to 2010, in order to supplement the secondary data obtained from the Business.hr & FINA database. At the same time this approach enabled the reliability of responses check, allowing for at least a partial comparison of subjective and objective data.

The reminder of the questionnaire was structured in such a way that the same questions (33 questions + 3 sub-questions) examine the elements of the variables in the following periods: initial business stage, stage of rapid growth ("gazelles"), post “gazelles" operations stage and a period of economic crisis (2009/2010). The questions were formulated in the following way: four questions require a score on the scale 1 to 5 to be given to a specific element, while 32 questions offer a set of categorized answers - 18 questions require one answer and 14 allow the selection of more than one.

The collected data were further verified in order to remove the "measurement error". After encoding and pre-processing in MS Excel program, a statistical analysis in SPSS[130] 17.0 was carried out. Quantitative and qualitative methods were used, univariate and multivariate analyses, descriptive statistics, regression and the relevant tests of significance for the dependent and independent variables. Because of the specific needs of the research, the PHStat2 program was also used (Z-test for small samples, scattered frequencies).

2.3 Defining the research sample

The research was conducted on a target sample of Croatian SMBs - fast-growing entities ("gazelles"), i.e. on the sample of effective SMBs. This ensured a greater homogeneity of the sample, i.e., prevented additional frequency dispersion, which increased the likelihood of obtaining statistically significant research results and deriving substantiated conclusions. The applied combination of judgment and quota sampling method is considered to be the closest to random sampling (Parasuraman, Grewal and Krishnan, 2007).

The target sample of fast-growing SMBs is defined based on the database Business.hr, which, in cooperation with FINA, has been implementing the "Gazelles" project since 2006 in line with business entities’ features as it follows:

[130] Statistical Package for Social Science is IBM Corporation software package (the authors are Norman H. Nie and C. Hadlai Hull)

- above-average sales growth during three year period - at least 20% for the period between 2003 and 2005 and 30% for three-year periods between 2004 and 2008,
- profits throughout the three-year period,
- 6 employees at minimum and not exceeding 1,000 at the end of the three-year period,
- annual income of at least 6 million kunas, but not exceeding 500 million kunas at the end of the three-year period,
- market orientation – the utility companies and institutions, as well as financial institutions are excluded from the sample (due to different reporting obligations),
- legality of business operations - there can be no reasonable doubt, there should be neither investigations against the company and/or management or sentences for economic or other serious offences in business.

The "Gazelles" project database has provided a dynamic overview of the fast-growing businesses in three-year intervals in the period from 2003 to 2008.

The analysis of the total population of the fast-growing entities from the Business.hr database identified some deficiencies. These were largely eliminated during creation of the research database. Consequently, the following were excluded from the database: large and state-owned enterprises and legal entities not relevant for the study; business entities with a growth of less than 30% (given that the selection criterion was a sales growth of 20% or more for the period 2003-2005); recurring business entities (those that realized a rapid growth for more than three years and kept appearing on two and more lists). This way, the actual ("net") total population of 3,875 fast-growing SMBs in Croatia was established for the period from 2003 to 2008.

The target sample size was determined to include 1/3 of "net" population of SMBs "gazelles" (1,386 business entities). The sample included all the fast-growing entities from the consolidated 2006-list (947) to enable the research of such respondents who had the longest period of business operations (thus more life cycle stages and different general states of the economy included). This also allowed a significant representation of "recurring gazelles" who achieved fast growth in the period longer than three years, thus improving the quality of the successful SMBs sample. The remaining sample "gazelles" were selected from consolidated lists for years 2007 (128), 2008 (155) and 2009 (156), i.e. 15% "gazelles" per a list were extracted by means of sector and region quota sampling. This ensured that specific features of SMBs who had just and/or only in these specific periods had achieved above-average growth are incorporated in the research. This brought an added value to the representativeness and reliability of both the sample and the research as a whole. In the final stage of preparation for surveying, the sample size was reduced to 1,118 due to problems with identification of contact e-mail addresses and/or inactive status of some businesses entities (deleted/bankrupt /under investigation).

The structured questionnaire accompanied by the cover letter to the entrepreneur (owner and/or manager) was emailed to sample list of respondents during November of 2010 and end of January 2011. A total of 126 questionnaires were collected (return rate of 11%), out of which 12 were incomplete/unusable, which reduced the final sample size to 114 respondents (representing the net rate of return of 10%).

Table 1. Sample structure and deviation in terms of sector[131]

SECTOR	sample		population		deviation		
	Number	%	%	expected number	number	%	
Agriculture, fisheries and mining	3	3.3	4.0	4	-1	0.7	
manufacturing	20	21.7	18.0	17	3	3.7	
construction industry	16	17.4	18.0	17	-1	0.6	
tourism and hospitality	4	4.3	2.0	2	2	2.3	
Trade	26	28.3	34.0	31	-5	5.7	
other	23	25.0	24.0	22	1	1.0	on average
TOTAL	92	100	100	92	0	14.2	**2.36%**

Source: Authors research

Table 2. Structure and deviation of the sample in terms of region

REGION	sample		population		deviation		
	Number	%	%	expected number	number	%	
Northwestern Croatia	9	7.9	10.8	12	-3	2.9	
Central Croatia	11	9.6	13.8	16	-5	4.1	
Eastern Croatia (Slavonia)	10	8.8	11.2	13	-3	2.4	
The city of Zagreb	30	26.3	37.1	42	-12	10.7	
Istria, Primorje and Lika	19	16.7	11.7	13	6	5.0	
Southern Croatia (Dalmatia)	35	30.7	15.5	18	17	15.2	on average
TOTAL	114	100.0	100.0	114	0	40.4	**6.74%**

Source: Authors research

Through application of the criterion of sector and region (*Tables 1 and 2*), analysis and comparison of the sample structure and the "gazelles" population showed a deviation of less than 10% (average deviation by sector of 2.36%, and 6.74% by region), based on which it could be concluded that the sample is representative (Tabachnick and Fidell, 2001).

Given the purpose and the subject matter of the research, the quality of the sample is further increased by the significant share of "recurring gazelles" (76%) and the average sales growth rate in three-year periods (from 78% to 108%, dependent on the period) that are larger than the average rate in the population. This means that, according to the primary criterion of effectiveness – the above-average sales growth rate - the sample unquestionably represents successful SMBs.

[131] The structure of the sample in terms of sector does not include 22 business entities (19% of the sample). These are assigned to a special category of combined sectors. Namely, in course of data processing it was noticed and recognised (as potentially interesting to explore) that there were businesses that operate in different (most commonly vertically related) sectors: production and trade, services and trade, and combinations of sectors without trade.

3 RESEARCH RESULTS AND DISCUSSION

The dependent variable of performance/effectiveness is defined by a combination of primary (subjective rating and objective data) and secondary/objective data. In line with the theoretical elaboration provided, two sub-variables are defined for each period and life cycle stage:

a) goals achievement - measured based on the subjective questionnaire assessments: 1 = very little, 2 = partial, 3 = mostly, 4 = completely, 5 = more than planned/desired;

b) sales growth[132] (annual rate) - measured based on the objective data from secondary sources and questionnaires: 1 = fall > 10%, 2 = fall < 10%, 3 = same level, the growth of 0%, 4 = growth < 10%, 5 = growth >10%.

The average annual sales growth (*Table 3*) in the "gazelles" period shows the expected growth rate of >10%. However, the fact that even in the period of rapid/above-average growth the average rate is not 5.0 indicates that SMBs do not achieve steady growth. The average annual sales growth rate in the post "gazelles" period, although slightly higher, falls in the growth category of 0%. The average annual sales growth rate in the period of crisis falls in the same growth category, but with the slightly lower average.

In the initial and the "gazelles" period, the average grade of goals achievement belongs to the category of "completely", whereas the average grade of goals achievement in the post "gazelles" period falls in the category of "mostly", which is also the category of the goals achievement in the crisis period, although the average grade is lower in this case.

Table 3. Performance – sales growth and goals achievement

PERFORMANCE/ EFFECTIVENESS BY PERIOD	**sales growth** (mean)	**goals achievement** (mean)
initial period	–	3.79
"gazelles" period	4.94	4.00
post "gazelles" period	3.32	3.18
period of crisis	2.72	2.73

Source: Authors research

Although two different indicators of effectiveness are considered, the consistency of trend/rank of effectiveness for different periods for both indicators confirms reliability of both indicators (and removes any possible doubt regarding the use of subjective ratings as valid data for analysis and conclusion making). However, although the results *(Table 3)* seem to be relatively homogeneous, only a weak correlation between performance indicators through the periods has been determined ($\hat{r} < 0.5$, with a significance of $\alpha < 1\%$ to $\alpha < 5\%$). In other words, the analysis (T-test) of both indicators of effectiveness showed a statistically significant difference in sales growth and achievement of goals between periods, with the significance of $\alpha < 1\%$ (except for the difference in the goal achievement in the initial and in the "gazelles" period, where the significance is $\alpha = 2.3\%, < 5\%$) – *Appenix 1*.

[132] Although the intention had been to introduce net growth/decline rate in sales, i.e. reduce the realized growth/decline rate of an individual business by the average sectoral rate in order to obtain as objective indicator of its business performance as possible, the net rate has not been introduced due to numerous restrictions.

The analysis of the impact of independent internal and external environment variables on the effectiveness of the fast-growing SMBs (*Table 4*) has determined a statistically significant impact of 11 out of 13 analysed environmental factors.

Table 4. An overview of statistically significant impacts of independent variables on performance

		performance/effectiveness	
		sales growth	goals achievement
internal factors	business entity size	α < 10% (period of crisis)	-
	life cycle stage	α < 1% (period of crisis)	α < 5% (initial period) α < 1% (period of crisis)
	innovation – technologies	α < 10% (period of crisis)	α < 5% (period of crisis)
	innovation – products	-	α < 10% (initial period and period of crisis)
	organisational feature – autonomy	α < 5% (period of crisis)	α < 5% (period of crisis)
	organisational feature – centralisation & formalisation	α < 5% (period of crisis)	α < 1% (period of crisis)
	market role	-	α < 10% (period of crisis)
	types/importance of the goals	α < 5% (all periods)	α < 5% do α < 10% ("gazelles" period and period of crisis)
external factors	general state of the economy	α < 1% (period of crisis)	α < 5% (period of crisis)
	sector	-	α < 10% (period of crisis)
	type/size of the market	-	-
	customers – type	α < 10% (period of crisis)	α < 5% ("gazelles" period and period of crisis)
	customers – size	-	-

Source: Authors research

3.1 Measuring the independent variables of the internal environment and their impact

Independent variable "business entity size" is determined by the number of employees. For identification and definition of this variable, the secondary data from the Business.hr database (source: FINA) were used and supplemented by public data (Internet) and primary data about the employee turnover from the questionnaire. Given the dynamic nature of the research, it

was estimated desirable to give this variable a dimension as well so that includes data on the employee turnover from the beginning to the end of the observed period. To avoid too large a measuring scale, i.e. the frequency dispersion, the following scale was developed:

- 1 = "micro-small" – a grade defining the group of those who either remain in the micro group or are crossing into the category of small (up to 19 employees); this grade represents 22% of the sample;

- 2 = "small" – the group of those crossing from micro or remaining in the category of small (20 - 49); this grade represents 41% of the sample;

- 3 = "medium" – the group of those crossing from small or remaining in the medium category (50 - 249); this grade represents 37% of the sample.

Analysis of variance (F tests - ANOVA) has not established any significant impact of size on performance/effectiveness of SMBs, with an exception in the period of the crisis when it can influence the sales growth indicators, but only on the sample of the successful entities with a significance of $\alpha = 5.9\%$ (<10 %). In other words, the analysis shows that, if the SMB performs well in the period of crisis, the bigger it is the more successful it is, i.e. it achieves better sales growth results (average effectiveness ranges from 3.23 for micro-small, 3.80 for small, and up to 4.08 for medium entities) – *Appendix 2.*

The variable "life cycle stage" of a business entity is defined in accordance with the concept of life cycle as a continuous, cyclical "repetition" of different stages in business. Having taken into account the duration of the observed period (from 1990s to 2010), the identification and measurement of this variable, was conducted based on data from questionnaires in the following manner:

- 1 = "introductory stage" - in case the business was established in the observed period (64.91% of the sample, in the initial period), 5 = "revival/turnaround stage" – in case of starting the business after privatization, "*spin-off*" or significant reorganisation of previous operations (35.09% of the sample, in the initial stage);

- 2 = "growth phases" - follows stage 1, encompasses the "gazelles" period and the period following the "gazelles", provided that sales growth indicates growth of > 10%, and at least one additional of the remaining performance indicators (the number of employees and/or financial results) also shows growth (64.91% of the sample, in the "gazelles" period); 6 = "growth stage" - follows stage 5, including the "gazelles" period and also the period following it under the above explained conditions (35.09% of the sample, in the "gazelles" period); (the share of entities in stages 2 and 6, in the post "gazelles" period is 17.74%, and 12.28% during the crisis);

- 3 = "maturity stage" - follows stage 2, depending on whether it is about the beginning, mid-term or the end of the stage, sales may range from the slow growth (< 10%), over the same level to slightly declining (<10%); the number of employees from (continuing) growth over the same level to a fall; financial results can range from growth over the same level to the fall of profit (37.1% of entities in the post "gazelles" period, 21.93% in the period of crisis); 7 = "maturity stage"- follows stage 6, under the above explained conditions (22.58% of entities in the post "gazelles" period, 16.67% in the period of crisis);

- 4 = "decline stage" - follows either stage 2 or 3, provided that at least two of three performance indicators (sales is obligatory) record a decrease (30.7% of subjects in the period of crisis); 8 = "decline stage" - following either stage 6 or 7, under the above explained conditions (21.93% of entities in the period of crisis); (proportion of entities in phases 4 and 8, in the post "gazelles" period is 22.58%);

- 5 = "revival/turnaround stage" – follows either stage 3 or 4, provided that there was a positive turnaround compared to the previous stage; 9 = "revival/turnaround stage" - follows either phase 7 or 8, under the above explained conditions (proportion of entities in stages 5 and 9 in the period of crisis is 6.14%).

It is evident from the way the life cycle stages are identified and measured, that the anticipated sub-cycles differ primarily in the initial stage, which enables the connection of corresponding pairs (1, 5, and 9; 2 and 6; 3 and 7; 4 and 8) for the purpose of analysis without significant loss of characteristics and differences between the life cycle stages. It should be noted that, even though length and the shape of the life cycle indicate the business efficacy, and the transition from one stage to another or remaining at a certain stage can be viewed as a strategic goal/result of a business entity, in this research "life cycle stage" is treated as an independent variable, i.e. as an operating condition of a business entity.

Analysis of variance (F tests - ANOVA) has found, except for the period of "gazelles", that there is a significant impact of life cycle stages on the performance/effectiveness of SMBs – with the significance of $\alpha = 3.9\%$ for the goals achievement in the initial period, $\alpha < 1\%$ for sales growth in the post "gazelles" period, and $\alpha < 1\%$ for sales growth and the goals achievement in the period of crisis – *Appendix 3*. The results indicate the following:

- in the initial period the level of goals achievement is higher in the introductory stage (1) than in the turnaround stage (5), which can be interpreted with lower expectations at the early stages of business, or higher expectations in the turnaround stage;

- considering the type of sample the level of performance in the period of "gazelles" is expectedly high; this makes it difficult to identify the differences and co-relate them with the impact of various factors;

- in the post "gazelles" and crisis period, the sales growth and the goals achievement confirm, as the matter of fact, the sequence of success of the life cycle stages. Accordingly, the most successful are the growth stages; they are followed by stages of revival and maturity, while the least successful are the stages of decline.

Innovation variable is also treated as an independent variable in this study despite the duality of its role. Both in theory and in the empirical approach, innovation of business entities is most often studied as a feature of technology and product. This is why these two sub-variables are defined for each period and each life cycle stage. Their identification and measurement is taken from the GEM research methodology.

a) "innovativeness of technology" of a business entity is determined by considering how contemporary (age) the prevailing processes and/or equipment are:
   – 1 = "outdated" - more than 5 years of age;
   – 2 = "modern" - 1 to 5 years of age;
   – 3 = "to date" - up to 1 year of age.

b) "innovativeness of products" of a business entity is determined by the most contemporary (age) and innovative product in the product range:
   – 1 = "outdated" - older than 3 years, not new (to anyone);
   – 2 = "modern" - younger than 3 years, partially new (to some);
   – 3 = "innovative" - younger than 3 years, a complete novelty (to everyone)

Table 5. Level of innovativeness of technology and products (%)

LEVEL OF INNOVATIVENESS		initial period	"gazelles" period	period of crisis
technology	> 5 years	23.68	17.54	28.07
	1 – 5 years	50.88	73.68	64.03
	< 1 year	25.44	8.77	7.89
product	> 3 years not a novelty	41.23	33.33	34.21
	< 3 years partial novelty	38.60	47.37	42.10
	< 3 years complete novelty	20.17	1930	23.68

Source: Authors research

The analysis of variance (F tests - ANOVA) has established a significant impact of innovation on the performance/effectiveness of SMBs – with the significance of $\alpha = 8.2\%$ (<10%) for product innovation and goals achievement in the initial period and $\alpha = 5.7\%$ (<10%) in perio of crisis; in the period of crisis with $\alpha = 1.3\%$ (<5%) and $\alpha = 9.3\%$ (<10%) for the level of technology and both, goals achievement and sales growth. The results of this analysis confirm previous findings - advanced technologies and more innovative product lines improve the performance i.e. increase the effectiveness of business entities – *Appendix 4*.

The independent variable "organizational features" of a business entity is also defined through two sub-variables, and the identification and measurement of these are based on the survey data as it follows:

a) "autonomy" of a business entity (as an indicator of business independence: autonomy in decision making on one hand and exposure to risk on the other) is unique for the whole period observed. This sub-variable is defined as a combination of autonomy in ownership and in business management. Scale of autonomy of ownership complies with the statutory criteria of independence: 1 = "dependent" (more than 25% ownership of large companies and government) and 2 = "independent" (up to 25% ownership of large companies and government). To measure the business independence the following scale was created: 1 = "limited independence" (franchise, exclusive representation, and formal associations), 2 = "supported independence" (informal associations, networking) and 3 = "complete independence".

   Based on the previously defined elements, the measuring scale of the autonomy of a business entity variable is set as following:

- 1 = "low autonomy" - when both the independence of ownership and the autonomy of business management are assigned the lowest value (1) - reported by 5.26% of entities;

- 2 = "partial autonomy" - when one of the elements (independence of ownership or autonomy of business management) is assigned the lowest value (1) – reported by 21.93% of entities;

- 3 = "complete autonomy" - when none of the elements (neither the independence of ownership nor the autonomy of business management) is assigned the lowest value (1) – reported by 72.81% of entities.

Table 6. Sample structure in terms of centralisation & formalisation (%)

LEVEL OF CENTRALISATION AND FORMALISATION	initial period	"gazelles" period	period of crisis
NO (weaker) centralisation and formalisation	14.04	8.77	10.53
YES (stronger) centralisation, NO (weaker) formalisation	26.32		
NO (weaker) centralisation, YES (stronger) formalisation	35.09	72.81	71.93
YES (stronger) centralisation and formalisation	24.56	18.42	17.54

Source: Authors research

b) ”centralization & formalization” is resultant of these two organizational features of business entities, whose definition for each period/life cycle stage is based on the questionnaire data. To measure the centralization, the following scale was set: 1 = "NO/weak centralization" (participation is present, with or without a formal division of responsibilities/authority,) and 2 = "YES/strong centralization" (mainly one person in the role of a decision maker). Measurement of formalization is based on the existence of organizational units, task distribution and planning: 1 = "NO/weaker formalization" (if out of three elements there are two or less present) and 2 = "YES/stronger formalization" (if all three elements are present). Accordingly, the categories of this organizational sub-variable are defined:

   – 1 = "NO/weaker centralization and formalization" ("project organization");
   – 2 = "YES/stronger centralization, NE/weaker formalization" ("small organization");
   – 3 = "NO/weaker centralization, YES/stronger formalization" ("large organization");
   – 4 = "YES/stronger centralization and formalization" ("bureaucratic organization”).

The analysis of variance (F tests - ANOVA) has found that there is a significant impact of autonomy on performance/effectiveness of SMBs - in times of crisis with the significance of $\alpha = 4.7\%$ (<5%) in terms of sales growth and $\alpha = 3.2\ \%$ (<5%) in terms of achieving goals. The results suggest that with an increased level of autonomy performance/effectiveness levels of SMBs are also improved, at least in the crisis period.

Analysis of variance (F tests - ANOVA) has indicated a significant impact of centralization & formalizing on the performance/effectiveness of SMBs - in the crisis period with the

significance of α = 2.8% (<5%) in terms of sales growth and α <1 % in terms of goals achievement. The results suggest that, at least in the crisis period, the most successful entities are in the "YES formalization, NO centralization" category, and the least successful in the "YES formalization, YES centralization" category. Apparently, both features hamper flexibility, which is not only one of the key advantages of SMBs, but also a very desirable feature in a crisis period – *Appendix 5*.

The variable "market role" of a business entity is defined in accordance with the theoretical analysis of the market roles which has argued against the concept of the role of "nicher" in favour of the need to introduce the role of "monopolist" in the current theoretical and empirical approach to the problem. The variable of market role in this study represents the state of the internal environment (not a possible marketing strategy goal of a business entity). To identify the variable, the questionnaire data for each period and life cycle stage are used:

- 1 = "follower" (usually following the leader) - in the initial period account for 47% of the sample, in the "gazelles" period 24%, in the crisis period 28%;
- 2 = "challenger" (competing for the top position) - in the initial period make up 57% of the sample, in the "gazelles" period 65%, in the crisis period 59%;
- 3 = "leader" (they have the lead position) - in the initial period represent 10% of the sample, in the "gazelles" period 25%, in the crisis period 27%;
- 4 = "monopolist" (can be said to be the only one on the market) - as expected they are not represented in the sample.

The analysis of variance (F tests - ANOVA) has indicated that there is a significant impact of the market role on the performance/effectiveness of SMBs - in times of crisis (and previously in the post "gazelles" period) with the significance of α = 7.6% (<10%) in terms of the goals achievement. The results confirm a logical sequence - the best average grade in the goals achievement (in the crisis period) is scored by "leaders" (2.93), followed by "challengers" (2.80) and finally "followers" (2.39) with the remark that, when this indicator is in question, their differences are greater than differences that occur with the sales growth – *Appendix 6*.

The variable "types / importance of goals" of a business entity is the last variable of the internal environment in this study. Although part of the strategy in the broad sense of the term, goals can be seen as a reflection of the vision, mission and culture of a business entity. Since most businesses set more goals at the same time, or rather they set them in different business areas, the most appropriate way of measuring this variable is by evaluating the importance of all defined goals, for each period and life cycle stage. In the questionnaire the given categories of goals are assessed by five grades indicating their importance: 1 = lowest to 5 = highest.

Table 7. Survey of the types and importance of the business goals

IMPORTANCE OF GOALS (grades 1-5)	initial period		"gazelles" period		post "gazelles" period		period of crisis	
	grade	rank	grade	rank	grade	rank	grade	rank
financial - profit, return of capital …	2.35	4	2.24	4	2.30	5	2.01	5
marketing I – sales/market share growth …	3.34	1	3.52	1	3.16	2	2.37	4
marketing II – customer satisfaction/loyalty …	3.33	2	3.50	2	3.27	1	3.29	2
marketing III – image, market position…	2.75	3	2.68	3	2.55	4	2.60	3
operational –cost optimization, productivity ...	2.17	5	2.21	5	2.77	3	3.55	1

Source: Authors research

Rank correlation (using the Spearman coefficient - r_s) has found only a slight impact of certain types of goals on performance/effectiveness of SMBs – *Appendix 7*:

- on the goals achievement - in the "gazelles" period there has been only a slight positive correlation with the objective - image/market position of rs = 0.227, with α = 1.5% (<5%), and in the crisis period with the goals – customer satisfaction/loyalty, with r = 0.178 and α = 5.8% (<10%) and the image/market positions, with r = 0.20 and α = 3.3% (<5%);

- on the sales growth – in the "gazelles" period there has been a slight negative correlation with the objective - image/market position of rs = 0.233, with α = 1.2% (<5%), whereas in the post "gazelles" period a slight positive correlation with the same goal has been found, with r = 0.266, and α = 3.7% (<5%).

3.2 Measuring the independent variables of the external environment and their impact

The variable "general state of the economy" is the most complex factor that incorporates economic, political, legal and social aspects of the macro environment in which businesses operate. Defining (identification and measurement) of this variable is based solely on secondary data, primarily public data from official sources (Central Bureau of Statistics, Croatian National Bank, FINA, Croatian Chamber of Economy), complemented by the available analyses of the state of the economy and the environment (Ministry of Economy, Labour and Entrepreneurship, the National competitiveness Council and GEM Croatia). In accordance with the dynamic approach of this research, the empirical analysis of this variable covers the period from 1995 to 2010 (keeping in mind that the first half of the 1990s is a specific/war period). Measuring this variable is based on the dynamics and intensity of the key indicators of the state of economy[133] (Butorac, 2009, Samuelson, Nordhaus, 2007; Babić 2007): gross domestic product (GDP), investment (domestic and foreign investment) and employment, i.e. unemployment. However, additional indicators are also used to describe the

[133] Frequent methodological changes in the measurement/calculation of most indicators, and the lack of a systematic approach to monitoring of some economic indicators and social phenomena, result in a lack of continuity and uniformity of public data, which is a limiting factor for the empirical treatment of this variable.

characteristics of this variable (exports - imports, inflation, interest rates, loans, internal/external debt, liquidity/money supply, arrears/insolvency ...), and assessment of the existing situation and environment analysis (changes in the political-economic orientation, investment and business climate, competitiveness...). General states of economy have been defined as relatively homogeneous periods based on various combinations and intensity of theoretically described features.

Table 8. Overview of general state of economy in relationship with research periods (in Croatia for the period from 1990 to 2010)

GENERAL STATE	(1990-1994)	**1st** (1995-1999/2000)	**2nd** (2000/1- 2008)			**3rd** (2009[134]-2010)
periods / **features**	initial period	initial period	initial period	"gazelles" period	post "gazelles" period	period of crisis
tradition/change in the political-economic orientation	war period	transitional	transitional			transitional
stability/variability of macro indicators		very turbulent	moderately turbulent			very turbulent
direction of macro indicators		mildly developmental	mildly developmental			recession
ease and security of doing business		discouraging	mildly encouraging			mildly encouraging

Source: Authors research

73.68% of businesses spent their initial period in the 1st general state of the economy (transitional, very turbulent, mildly developmental, non-supportive), and 26.32% in the 2nd general state of the economy (transitional, moderately turbulent, mildly developmental, mildly supportive). All the business entities included in the sample spent their "gazelles" and post "gazelles" periods in this general state of the economy, while they all spent crisis period in the 3rd general state of the economy (transitional, very turbulent, recession, mildly supportive).

As expected, the analysis (T-test) of both indicators of effectiveness showed a statistically significant difference in the sales growth and in the goals achievement with the transition from 2nd to 3rd general state of the economy, with a significance of $\alpha < 1\%$ - *Appendix 8*.

Independent variable "sector" was also used as a structural feature, i.e. as the criterion of sample representativeness, but this study focuses on its role/relevance as one of the variables of the external environment. Since it is important for a meaningful analysis to determine the exact sector that a business entity predominantly performs (and not the one it is registered for), the questionnaire rather than the secondary data were used to identify this variable.

Despite the detailed identification of sectors, due to the highly likely frequency dispersion, the following categorization of this variable was established in the end:

[134] the crisis officially began in October 2008

- 1 = "production" - includes primary production (agriculture, fishing, mining ...) and manufacturing - the main activity performed by 20.18% of the sample entities;

- 2 = "services" - includes construction industry, tourism and hospitality, business (accounting, legal, IT, consulting ...) and other services - the main activity performed by 37.72% of the sample entities;

- 3 = "trade" - includes trade and related services (e.g. maintenance) - represents the main activity performed by 22.81% of the sample entities;

- 4 = "combined" - includes a combination of different (usually vertically related) activities (production and trade, services and trade, and other combinations, excluding trade) - represents the main activity performed by 19.30% of the sample entities.

Theoretical elaboration of this variable revealed that differences between sectors are not only the result of their specific features, but also appear because of different conditions in particular sectors. However, due to the numerous and significant restrictions (limited secondary data, i.e. absence of a significant amount of data in the official statistical records, and the limitations imposed by the research sample, i.e. grouping in basic categories, (for which determining their condition loses its purpose) empirical analysis of the "sector" variable in this study does not include the implications of the situation in individual industries, but only those that arise from the specific features of the defined categories of this variable. Therefore, in processing this variable there was no need to apply the dynamic approach.

The analysis of variance (F tests - ANOVA) determined the impact of "sector" on SMBs performance/effectiveness, or precisely, on the goals achievement in the period of crisis, with the significance of $\alpha = 8.8\%$ (<10%). It may be noted that the combined activities experienced the biggest drop in the goals achievement rating - from 4.09 in the period of "gazelles" (which is also the highest score of achievements in this period), over 3.12 in the post "gazelles" period, to 2.32 in the crisis (which is also the lowest score of achievements in this period). Such a trend could be explained by the fact that operating in a number of related activities provides greater opportunities in the growth phase, but becomes a burden in the crisis period when the range of products/services should be rationalized and adjusted to changing conditions, attitudes and consumers' behaviour – *Appendix 9*.

Although the choice of market is part of the marketing strategy, in this study the variable "market type/size" represents the characteristics of different market types and sizes and is therefore considered as an independent variable, i.e. a significant factor of the external environment. Identifying this variable for each period and stage of life cycle is based on the questionnaire data.

Table 9. Sample structure in terms of market type/size (%)

MARKET TYPE/SIZE	initial period	"gazelles" period	*post "gazelles" period*	period of crisis
local/regional	57.9	29.8	*25.8*	26.3
national	21.1	36.0	*48.4*	39.5
exports	21.1	34.2	*25.8*	34.2

Source: Authors research

In scrutinizing the possible implications of different types of markets, the fundamental/ "symbolic" features were identified, and the following categories for this variable have been defined accordingly (*Table 9*):

- 1 = "local/regional market" (the smallest, the closest, the most familiar, the most homogeneous => "least complex");
- 2 = "national market" (bigger, farther, less familiar, less homogeneous => "complex");
- 3 = "foreign market" (the biggest, the farthest, least familiar, least homogeneous => "most complex").

Market type/size of a business is determined in relation to the market of the largest size or complexity, in which a business entity achieved more than 25% of sales.

The analysis has not revealed any statistically significant impact of the market type/size on the performance/effectiveness of SMBs.

The variable "customer type/size" is observed as an important element of the external environment in this study - characteristics of different customer types and sizes, although the choice of customers (target segment) itself is an integral part of the marketing strategy of a business entity. Identifying this variable, for each period and life cycle stage, is based on the questionnaire data on the type of customers/consumers[135] who make up more than 25% of the sales of a business entity. To obtain more useful results of the analysis, the variable was divided into two basic features, i.e. two sub-variables:

a) "type of customers" is defined, in view of their implications, by the following categories:
   - 1 = "only B2B" (business customers only, with a possible subdivision into private and public/non-profit and their combination);
   - 2 = "only B2C" (only individual customers/consumers);
   - 3 = 'B2B & B2C "(both business and individual customers).

Due to low frequencies, categories 2 and 3 were merged in this study, which reduced the number of categories to 1 = only B2B and 2 = B2C (exclusively and combined).

[135] The question is accompanied by a reminder that distributors are not regarded customers in order to get a clear picture of the actually intended customers, regardless of the distribution channels that are surveyed as part of the marketing mix.

Table 10. Sample structure in terms of customer type/size (%)

CUSTOMER FEATURE		initial period	"gazelles" period	*post "gazelles" period*	crisis
type	only B2B	54.4	56.1	*54.8*	57.9
	B2C (combined or exclusively)	45.6	43.9	*45.2*	42.1
size	exclusively small	32.5	13.2	*11.3*	17.5
	exclusively large	24.6	26.3	*32.3*	28.1
	small and large	43.0	60.5	*56.5*	54.4

Source: Authors research

b) "customer size", due to the possible implication of this customer feature, is defined by the following categories:

- 1 = "only small" - considering the size of an individual customer it includes individual consumers and small business customers (private, non-profit);
- 2 = "only large" - applies only to business customers (large private and public);
- 3 = "small and large" - a combination that includes all sizes (and all kinds) of customers.

The analysis of variance (F tests - ANOVA) has established the impact of the customer type/size on the performance/effectiveness of SMBs. A statistically significant impact of the type of customers on the achievement of goals was established in the "gazelles period" (α = 1.4%) and in the period of crisis (α = 2.6%), while the sales growth was influenced by the type of customers in the period of crisis (α = 7%) and by the customer size post "gazelles" period (α = 3.8%). Interestingly, the types and sizes of customers show contrasting effect on these two indicators of effectiveness - while business "B2B only" category shows better performance in terms of the goals achievement, they perform less effectively than B2C category (exclusively or in combination) in terms of sales growth. In terms of sales growth, the "small and large" category has proved to be the most successful – *Appendix 10*.

4 CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS FOR FUTURE STUDIES

The scientific contribution of this research, i.e. its scientific and practical implications, is certainly derived from the fact that the research, with its dynamic approach, has covered a broad and diverse range of internal and external factors and their influence on the performance of SMBs.

It should be noted that the study does not include two internal factors (entrepreneur's personality and strategy), which are a common subject matter of scientific analysis, and most certainly impact upon business performance. However, even though the "personality" factor is not directly included in the study (because of its complexity and the line of expertise required for its comprehensive study and elaboration), its undeniable influence on other internal factors of SMBs ensures its implicit presence. Thus, the implied presence of this variable, especially

in "goals", "organizational features" and "innovation", impacts upon strategy defining and the performance of a business entity.

The issue of strategy impact, in particular of the marketing strategy in terms of competitiveness and market performance, is an issue that requires a comprehensive and detailed analysis. Firstly, marketing strategy has the role of an intermediary between the environmental and performance factors because it is the way of how business entity adjusts/responds to the environment. Secondly, the issue of strategy involves a number of ambiguities and different approaches to marketing strategy defining and classifying, as well as to methodology of its identification and measuring its impact on performance. [136]

So, even though "personality" and "strategy" are not formally included in this study, it can be concluded that, those environmental factors that are, together with the dynamic nature of the research do ensure a comprehensive overview and insight in the perplexed and simultaneous influence of all factors on SMBs life and performance.

This study confirmed that all internal factors (business entity size, life cycle stages, technology and product innovation, organizational features of autonomy, centralization and formalization, market roles and type/importance of goals) and most external (general state of the economy, sector and customer type), depending on the period (life cycle stage and general state of the economy), exercise a more or less significant impact on the SMBs performance. It should be emphasized that in this case it is primarily about the market effectiveness, that is, at the same time, indicator of the SMBs' competitiveness.

These results are also the guidelines for both the scientists and entrepreneurs, to pay a proper attention to internal and external factors, keeping in mind their dynamism and variability. It is recommended to further verify the results obtained in this study on different samples, less successful or unsuccessful SMBs included.

The study has also provided additional information about the structure and performance of fast-growing SMBs, which is useful for the scientific analysis of these propulsive businesses. Moreover, it is equally useful for SMBs that can use the results obtained in the study to increase their competitiveness, i.e. improve market performance. For this issue, too, further research would contribute to the reliability of the results obtained, as well as to their usefulness for generalising scientific comprehension and its practical application.

5 BIBLIOGRAPHY (a part from the complete list of references)

Acs, Z. J., Mueller P.: **Employment effects of business dynamics: mice, gazelles and elephants**, Small Business Economics, 30, 2008, 85-100.

Acs, Z. J., Kallas, K.: **State of literature on small to medium-size enterprises and entrepreneurship in low-income communities** (discussion paper), ***The Papers on Entrepreneurship***, Growth and Public Policy, MPI Jena, March, 2007

Appiah-Adu, K.: **Market orientation and performance: empirical tests in a transition economy**, ***Journal of Strategic Marketing***, 6, 1998, 25-45.

[136] This issue has been approached comprehensively and in detail in the doctoral thesis on "Modelling effective marketing strategies of SMBs" (Dragnić, 2012). The thorough analysis that was carried out showed that marketing strategies types influence on the performance/effectiveness significantly. Moreover, it has been confirmed that internal (three of them) and external (all five of them) factors significantly affect the type of marketing strategy.

Autio, E.: GEM 2007 - **Global report on high-growth entrepreneurship**, 2007, www.gemconsortium.org

Backhaus, K., Muehlfeld, K.: **Strategy dynamics in industrial marketing: a business types perspective**, ***Management Decision***, 43, 1, 2005, 38-55.

Beaver, G., Ross, C.: **Recessionary consequences on small business management and business development: the abandonment of strategy?**, ***Strategic Change***, 8, 1999, 251-261.

Becker, J.: **Marketing-Oriented Management: A systems-based perspective**, ***Journal of Market Focused Management***, 4, 1991, 17-41.

Beverland, M., Lockshin, L. S.: **Crafting a competitive advantage: tempering entrepreneurial action with positioning-based values**, ***Qualitative Market Research: An International Journal***, 7, 3, 2004, 172-82.

Birch, D. L.: **Who creates jobs?,** ***The Public Interest***, 6, 1981, 3-14.

Bosma, N. i dr. (GERA team): **Global Entrepreneurship Monitor 2006 / 2007 / 2008 / 2009 - Global report**, www. gemconsortium.org

Bradshaw, R., Maycock, C., Oztel, H.: **Exploring SME market orientation: an organisational learning perspective**, ***Education + Training***, 50, 8/9, 2008, 764-777.

Brooksbank, R., Taylor, D.: **The adoption of strategic marketing and its contribution of the competitive success of New Zealand companies**, ***Marketing Intelligence & Planning***, 20, 7, 2002, 452-461.

Brown, R.: **Marketing for small firms**, Holt, Rinehart & Winston, London, 1995

Buble, M., Kružić, D.: **Poduzetništvo - realnost sadašnjosti i izazov budućnosti**, ***RRiF-plus***, Zagreb, 2006

Business.hr: **Gazele 2006 / 2007 / 2008 / 2009**, Zagreb

Bygrave, D. W., Zacharakis, A.: **Portable MBA in entrepreneurship**, John Wiley & Sons, 2003

Cano, C. R., Carillat, F. A., Jaramillo, F.: **A meta-analysis of the relationship between market orientation and business performance: evidence from five continents**, ***International Journal of Research in Marketing***, 21, 2004, 179-200.

Covin, J. G., Green, K. M., Slevin, D. P.: **Strategic Process Effects on the Entrepreneurial Orientation-Sales Growth Rate Relationship**, ***Entrepreneurship Theory and Practice***, 30, January, 2006, 57-81.

Covin, J. G., Slevin, D. P.: **Strategic Management of Small firms in Hostile and Benign Environments**, ***Strategic Management Journal***, 10, 1989, 75- 87.

Crnjak-Karanović, B., Pecotich, A., Renko, N.: **Relationship marketing and its impact on the competitive structure: the case of Croatia**, ***Management***, 10, 2, 2005, 1-20.

Deshpande, R., Farley, J. U.: **Organizational culture, market orientation innovativeness, and firm performance: an international research odyssey**, ***International Journal of Research in Marketing***, 21, 2004, 3-22.

Dess, G. G., Davis, P. S.: Porter´s (1980) **Generic Strategies as Determinants of Strategic Group Membership and Organizational Performance**, ***Academy of Management Journal***, 27, 3, 1984, 467-488.

Dragnić, D.: **Marketing activities of small business entities in Croatia: The case of Splitsko-Dalmatinska County**, ***Management***, 14, 1, 2009, 39-58.

Dulčić, Ž., Bakotić, D.: **Innovation management in SME - the case of Croatian economy**, Proceedings of the 3rd DAAAM International Conference on Advanced technology for developing countries, 3, 2004, 363-368.

Dulčić, Ž.: **Međuovisnost poslovne strategije i modela organizacijske strukture**, ***Računovodstvo i financije***, 39, 10, 1993, 90-97.

Ellis, P. D.: **Market Orientation and performance: A meta-analysis and Cross-National Comparison**, ***Journal of Management Studies***, July, 2006, 1089-1107.

European Commission: **The new SME definition - User guide and model declaration**, ***Enterprise and Industry Publications***, Brussels, 2005

European Commission: **Green Paper - Entrepreneurship in Europe**, ***Enterprise Publications***, COM (2003) 5 Final, Brussels, 2003

Financijska agencija (FINA): **Analiza financijskih rezultata poduzetnika Republike Hrvatske**, Zagreb, 2007 / 2008 / 2009

Gibcus, P., Kemp, R. G. M.: **Strategy and small firm performance (research report)**, ***Scientific Analysis of Entrepreneurship and SMEs***, Zoetermeer, 2003

Gilmore, A., Carson, D., Grant, K.: **SME marketing in practice**, ***Marketing Intelligence & Planning***, 19, 1, 2001, 6-11.

Gonzalez-Benito, O., Gonzalez-Benito, J.: **Role of entrepreneurship and market orientation in firms' success**, ***European Journal of Marketing***, 43, 3/4, 2009, 500-522.

Gonzalez-Benito, O., Gonzalez-Benito, J.: **Cultural vs. Operational and objective vs. Subjective performance: Perspective of production and operations**, ***Industrial Marketing Management***, 34, 2005, 797-829.

Grbac, B., Martin, J. (ur.): **Developing Market Based Resource Strategies for South East Europe**, Ekonomski fakultet, Rijeka & Booler School of Business, Cleveland, 2001

Gummesson, E.: **Practical value of adequate marketing management theory**, ***European Journal of Marketing***, 36, 3, 2002, 325-349.

Hallberg, K.: A **market-oriented strategy for small and medium scale enterprises** (discussion paper), ***IFC Discussion Papers***, Washington, 2000

Hambrick, D. C.: **Some Tests of the Effectiveness and Functional Attributes of Miles and Snow´s Strategic Types**, ***Academy of Management Journal***, 26, 1, 1983, 5-26.

Hamilton-Coplin, L. C.: **Competitive advantages and the SMEs: The role of distinctive competences as determinants of success - are there differences across gender, sector and size?** (dissertation), Universitat Autonma de Barcelona, 2002

Henrekson, M., Johansson, D.: **Gazelles as job creators - A survey and interpretation of the evidence** (working paper), Research Institute of Industrial Economics, IFN 733, 2008

Hill, J.: **A multidimensional study of the key determinants of effective SME marketing activity: Part 1**, ***International Journal of Entrepreneurial Behaviour & Research***, 7, 5, 2001, 171-204.

Hill, J.: **A multidimensional study of the key determinants of effective SME marketing activity: Part 2**, ***International Journal of Entrepreneurial Behaviour & Research***, 7, 6, 2001, 211-235.

Hudston, M., Smart, A., Bourne, M.: **Theory and practice in SME performance measurement systems**, ***International Journal of Operations & Production Management***, 21, 8, 2001, 1096-1115.

Hunt, S. D., Derozier, C.: **The normative imperatives of business and marketing strategy: grounding strategy in resource-advantage theory**, ***Journal of Business & Industrial Marketing***, 19, 1, 2004, 5-22.

Ishak, A.: **Effects of marketing strategy on performance: A study of Indonesian organizations, Curtin University of Technology**, ***School of Marketing***, 2002

Kim, L., Lim, Y.: **Environment, generic strategies, and performance in a rapidly developing country: a taxonomic approach**, ***Academy of Management Journal***, 31, 4, 1988, 802-827.

Kirca, A. H., Jayachandran S., Bearden, W.: **Market Orientation: a Meta-Analytic Review and Assessment of Its Antecedents and Impact on Performance**, ***Journal of Marketing***, April, 2005, 24-41.

Knight, G.: **Entrepreneurship and Marketing Strategy: The SME Under Globalization**, ***Journal of International Marketing***, 8, 2, 2000, 12-32.

Koksal, M. H., Ozgul, E.: **The relationship between marketing strategies and performance in an economic crisis**, ***Marketing Intelligence & Planning***, 25, 4, 2007, 326-342.

Kotey, B., Meredith, G. G.: **Relationships among Owner/Manager Personal Values, Business Strategies and Enterprise Performance**, ***Journal of Small Business Management***, April, 1997, 37-64.

Krasnikov, A., Jayachandran, S.: **The relative impact of marketing, research-and-development and operations capabilities on firm performance**, ***Journal of Marketing***, 72, July, 2008, 1-11.

Lee, K. S., Lim, G. H., Tan, S. J.: **Dealing with Resource Disadvantage: Generic Strategies for SMEs**, ***Small Business Economics***, 12, 1999, 299-311.

Leitner, K.-H., Gueldenberg, S.: **Generic strategies and firm performance: A longitudinal study of Austrian SMEs**, ***Small Business Economics***, 35, 2, 2010, 169-189.

Li, Y. i dr.: **Moderating effects of entrepreneurial orientation on market orientation - performance linkage: evidence from Chinese small firms**, ***Journal of Small Business Management***, 46, 1, 2008, 99-112.

Lin, C. T. S.: **Sources of competitive advantage for emerging fast growth small-to-medium enterprises: The role of business orientation, marketing capabilities, customer value and firm performance** (dissertation), The Royal Melbourne Institute of Technology, 2007

Mateev, M., Anastasov, Y.: **Determinants of small and medium sized fast growing enterprises in Central and Eastern Europe: A panel data analysis**, ***Financial Theory and Practice***, 34, 3, 2010, 269-295.

Meunier-Fitz-Hugh, K. L., Piercy, N. F.: **Exploring collaboration between sales and marketing**, ***European Journal of Marketing***, 41, 7/8, 2007, 939-955.

Miller, D., Friesen, P. H.: **Strategy-making and environment: The third link**, ***Strategic Management Journal***, 4, 1983, 221-235.

Miller, D., Friesen, P. H.: **Innovation in conservative and entrepreneurial firms: Two models of strategic momentum**, ***Strategic Management Journal***, 3, 1982, 1-25.

Miles, R. E. i dr.: **Organizational Strategy, Structure, and Process**, ***Academy of Management Review***, July, 1978, 546-562.

Milgrom, P., Roberts, J.: **The Economics of Modern Manufacturing: Technology, Strategy, and Organization**, ***The American Economic Review***, 80, 3, 1990, 511-528.

Ministarstvo gospodarstva, rada i poduzetništva: **Operativni plan poticanja malog i srednjeg poduzetništva za 2005/ 2006 /2007 /2008 /2009/ 2010**, Zagreb, 2010, www.mingorp.hr

Ministarstvo gospodarstva, rada i poduzetništva: **Program poticanja malog i srednjeg poduzetništva 2004-2008 / 2008-2012**, Zagreb, 2012, www.mingorp.hr

Mtigwe, B.: **The internationalization process of small-to-medium size enterprises (SMEs) in the African context: A comparative study** (dissertation), University of Pretoria, 2004

Nacionalno vijeće za konkurentnost i Institut za međunarodne odnose: **Godišnje izvješće o konkurentnosti Hrvatske 2002./2004. / 2006. /2008.**, Zagreb, www.konkurentnost.hr

Narver, J. C., Slater, S. F.: **The effect of a market orientation on business profitability**, ***Journal of Marketing***, 10, 1, 1990, 20-35.

Olson, E. M., Slater, S. F., Hult, G. T. M.: **The performance implications of fit among business strategy, marketing organization structure and strategic behavior**, ***Journal of Marketing***, 69, July, 2005, 49-65.

OECD: **High-Growth Enterprises: What Governments Can Do to Make a Difference**, ***OECD Studies on SMEs and Entrepreneurship***, OECD Publishing, 2010

OECD: **Enhancing SME Competitiveness**, ***The OECD Bologna Ministerial Conference 2000***, OECD Publishing, 2001

Pecotich, A., Crnjak-Karanović, B., Renko, N.: **The effects of executive marketing orientation, organizational structure, size and age on performance**, ***Proceedings of 7th International Conference on Enterprise in Transition***, Ekonomski fakultet, Split, 2007

Pelham, A. M.: **Market Orientation and Other Potential Influences on Performance in Small and Medium-sized Manufacturing Firms**, ***Journal of Small Business Management***, January, 2000, 48-67.

Pelham, A. M.: **Influence of Environment, Strategy, and Market Orientation on Performance in Small Manufacturing Firms**, ***Journal of Business Research***, 45, 1999, 33-46.

Pelham, A. M.: **A longitudinal Study of the Impact of Market Structure, Firm Structure, Strategy and Market Orientation Culture on Dimensions of Small-Firm Performance**, ***Journal of Academy of Marketing Science***, 24, 1, 1995, 27-43.

Radas, S., Božić, Lj.: **The antecedents of SME innovativeness in an emerging transition economy**, ***Technovation***, 29, 2009, 438-450.

Renko, N., Pavičić, J., Pecotich, A.: **Development of Entrepreneurship in Croatia Environmental Influence**, P***roceedings of 3rd International Conference on Enterprise in Transition***, Ekonomski fakultet, Split, 1999

Rust, R. T. i dr: **Measuring marketing productivity: Current knowledge and future directions**, ***Journal of Marketing***, 68, October, 2004, 76-89.

Ruzzier, M., Hisrich, R. D., Antoncic, B.: S**ME internationalization research: past, present and future**, ***Journal of Small Business Development***, 13, 4, 2006, 476-497.

Shoham, A., Rose, G. M., Kropp, F.: **Market orientation and performance: a meta-analysis**, ***Marketing Intelligence & Planning***, 23, 5, 2005, 435-454.

Singer, S. i dr.: **Što čini Hrvatsku poduzetničkom zemljom - rezultati GEM 2002.-2005./2006./2007-2010. za Hrvatsku**, CEPOR, Zagreb, www.cepor.hr i www. mingorp.hr

Slater, S. F., Narver, J. C.: **The positive Effect of a Market Orientation on Business Profitability: A Balanced Replication**, ***Journal of Business Research***, 48, 2000, 69-73.

Slevin, D. P., Covin, J. G.: **Strategy formation patterns, performance and the significance of context**, ***Journal of Management***, 23, 2, 1997, 189-209.

Srinivasan, S. i dr.: **Product innovations, advertising and stock returns**, ***Journal of Marketing***, 73, January, 2009, 24-43.

Szymanski, D. M, Troy, L. C., Bharadwaj, S. G.: **Order of entry and business performance: An empirical synthesis and reexamination**, ***Journal of Marketing***, 59, October, 1995, 17-33.

Szymanski, D. M, Bharadwaj, S. G., Varadajan, P. R.: **An analysis of the market share - profitability relationship**, ***Journal of Marketing***, 57, July, 1993,1-18.

Timmons, J. A.: **New Venture Creation: Entrepreneurship for the 21st Century**, McGraw-Hill Education, Boston, 2003

Thomas, A., Barton, R.: **Developing an SME based six sigma strategy**, ***Journal of Manufacturing Technology Management***, 17, 4, 2006, 417-434.

Tse, A. C. B., Sin, L- Y. M.: **A firm's role in the marketplace and the relative importance of market orientation and relationship marketing orientation**, ***European Journal of Marketing***, 38, 9/10, 2004., 1158-1172.

Uslay, C., Altintig, Z. ., Winsor, R. D.: **An empirical examination of the "rule of three": Strategy implications for top management, marketers and investors**, ***Journal of Marketing***, 74, March, 2010, 20-39.

Ward, S., Lewandowska, A.: **Is the marketing concept always necessary? The effectiveness of customer, competitor and societal strategies in business environment types**, ***European Journal of Marketing***, 42, 1/2, 2008, 222-237.

White, R. E.: **Generic Business Strategies, Organizational Context and Performance: An Empirical Investigation**, ***Strategic Management Journal***, 7, 1986, 217-231.

Williamson, D., Lynch-Wood, G.: **A new paradigm for SME environmental practice**, ***The TQM Magazine***, 13, 6, 2001, 424-432.

Woodside, A. G., Sullivan, D. P., Trappey III, R. J.: **Assessing Relationship among Strategic Types, Distinctive Marketing Competencies, and Organizational Performance**, ***Journal of Business Research***, 45, 1999, 135-146.

Wu, C-W.: **An empirical study of marketing environment, strategy and performance in the property market** (dissertation), University of Glasgow, 2003

Zhang, Y., Yang, X., Ma, F.: **A quantitative analysis of the characteristic of rapid-growth firms and their entrepreneurs in China**, J***ournal of Small Business and Enterprise Development***, 15, 4, 2008, 675-688.

COMPARISON OF ALTMAN Z SCORE AND BEX INDEX AS PREDICTORS OF STOCK PRICE MOVEMENTS ON THE SAMPLE OF COMPANIES FROM CROATIA

Tea Poklepović
Ekonomski fakultet Split
Cvite Fiskovića 5, Split
Phone: + 385 98 171 16 41; Fax: + 385 21 270 645
E-mail: tea.poklepovic@efst.hr

Boris Peko
Imex banka d.d.
Tolstojeva 6, Split
Phone: + 385 98 173 27 49; Fax: + 385 21 270 645
E-mail: borispeko@gmail.com

Jure Smajo
Zeleno i modro d.o.o.
Braće Radić 1, Kaštel Sućurac
Phone: + 385 98 177 13 69; Fax: + 385 21 270 645
E-mail: jure.smajo@gmail.com

Key words: *Financial ratios, Altman Z score, BEX index, Stock prices, prediction quality*

ABSTRACT

Modern finance is constantly discovering different tools and methods for prediction of future business results of companies and stock price movements more exactly. Although the "perfect predictor" is a mere illusion, the obsession of finding it is shared between thousands of investors as well as scientists who are developing new financial models and ratios on a daily basis. One of the most famous groups of financial ratios has a sole purpose to determine the chance of success / bankruptcy for all types of companies. This research puts to test two financial scoring models of this type: Altman Z score and BEX index. Altman Z score is the worlds' most recognizable tool of measuring business quality by expressing the probability of a company to go (or not to go) bankrupt. BEX is an index which has a goal of measuring business excellence of companies, and was developed on a sample of Croatian companies five years ago.

The empirical research is based on a data-set of companies on Zagreb Stock Exchange (ZSE) in the period from 2006 to 2011. Results show that lagged dependent variable (price) is statistically significant and positive in all models. Moreover each of the independent variables is also positive and statistically significant with varying strength of influence, except for BEX. However, when controlling for crisis, BEX shows positive and significant influence on the stock price in periods without crisis. Concentrating on our findings within this research, we can suggest that investors interested in fundamental base of a stock and long term investing should use Z-score and BEX as a support in their decision making.

1 INTRODUCTION

Stock market is a global playground where everyone out of millions of investors, who vary vastly by their investment strategies, risk aversion, purchasing power, etc., has the same goal: beating the market. This goal often becomes an obsession for a stock investor and it can go a long way. Beating the market implies prediction of future trends in stock prices which is done with the help of numerous financial analysis tools usually divided into groups as fundamental and technical techniques.

Regarding the fundamental analysis, modern finance is constantly discovering different tools and methods for prediction of future business results and stock price movements more exactly. Although the "perfect predictor" is a mere illusion, the mission of finding it is shared between thousands of investors as well as scientists who are developing new techniques, financial models and ratios on a daily basis. One of the most famous groups among previous has a sole purpose to determine the chance of success / bankruptcy for all types of companies through modelling their financial data and giving a single score as an output. This research puts to test two financial scoring models of this type: Altman Z score and BEX index. Altman Z score is the worlds' most recognizable tool of measuring business quality by expressing the probability of a company to go (or not to go) bankrupt. BEX is an index which has a goal of measuring business excellence of companies, and was developed on a sample of Croatian companies five years ago. In this paper the effect of these financial scoring models on the stock price will be tested. Afterwards the strengths of impact for BEX and Altman Z-score will be compared. This will answer two questions:

1. Do financial scoring models BEX and Z-score have influence on the stock price?
2. Which one has a stronger influence on stock price?

The answer on second question will be interesting because Altman Z-score and BEX are financial ratios constructed with base data from different markets and under the different conditions. BEX was constructed on Croatian capital market which suffers from lack of liquidity and transparency.

This research paper describes both ratios and tests their prediction quality using a sample of the most traded Croatian stocks for the period between 2006 and 2011. Based on the data from ZSE the authors calculated yearly stock prices for each company in the chosen period that satisfied the liquidity condition of more than 50% of trading days in a year. Moreover, based on companies' financial statements the authors calculated the ratios Z-score, Z-score'', BEX and ROA. The aim was to compare results given by each of the ratio. This type of comparison has a goal to answer the question which of the ratio is better at predicting future trends in market price movements and can either of them serve as a support for making investment decisions. Investors usually use ratios as EPS, DPS, P/E, P/B, ROA, debt ratio, debt-to-equity ratio to make final conclusion about investing in company.[137] Z-score and BEX use some of these ratios to give an answer about investing using only one number.

Zeytinglou, Akarim, Celik (2012) find out that EPS, P/E and M/B explains 63% of one period ahead stock returns. Martani, Mulyono, Khairurizka (2009) found that profitability, turnover

[137] EPS – earnings per share, DPS – dividends per share, P/E – price to earnings ratio, P/B – price to book value ratio, debt ratio – total debt / total assets, debt-to-equity ratio – long term debt / average shareholder equity.

and market ratio has significant impact to the stock return. The results are consistent with previous studies Hobarth (2006) and Utama and Santoso (1998).

Prihatni and Zakaria (2011) from the sample of companies during year 2004-2008 in Indonesian stock exchange concluded that positive and negative Z-Score did not significantly differ in stock price from 5 days before and 5 days after publication date of financial report.

The concept of the research is based on the described dataset which is tested in STATA software. The second chapter of this paper explains the models used in the research and the intention of testing their ability of predicting the stock market movement. Chapter three describes the construction model of the database and gives an explanation of the methodology used. Further the results of the tests are given and interpreted. Chapter five has a role of indicating the connection between the research concept and intelligent investing. At the end the main conclusions of the paper are given.

2 EVOLUTION OF SCORING MODELS AND DESCRIPTION OF MODELS SELECTED FOR THIS RESEARCH

Through the history of financial analysis many authors developed and suggested their own scoring models as a way of seeing a company's quality through one number which could tell if it is performing above or below expectations and predicting its future perspectives. Altman's Z-score formula (1968) was one of the earliest models developed to predict the chance of bankruptcy or financial distress with the accuracy of 95%. The Z-score followed just after Beaver's invention of a similar scoring model (1967) but it included multiple discriminant analysis as the appropriate statistical technique (Altman, 2000). Altman also offered revisited Z-score on a few occasions afterwards (1977, 1983, and 1995) through which he upgraded the score and made it suitable to measure credit risk- ZETA, 1977 (Altman, 2000). This research has taken into consideration the first formula developed in 1968 which is referred to as Z and its revisited model (1995) to which we refer as Z'' as suggested by Belak and Aljinović Barać (2007).

The Z equation:

$$Z = 0{,}012\ X_1 + 0{,}014\ X_2 + 0{,}033\ X_3 + 0{,}006\ X_4 + 0{,}999\ X_5 \quad (1)$$

The Z'' equation:

$$Z'' = 6{,}56\ X_1 + 3{,}26\ X_2 + 6{,}72\ X_3 + 1{,}05\ X_4 \quad (2)$$

with the explanation of variables as follows:

X_1 = working capital / total assets
X_2 = retained earnings / total assets
X_3 = EBIT / total assets
X_4 = market value of equity / book value of liabilities
X_5 = total revenue / total assets

Every single ratio has a reason which made it a part of the total indicator. X_1 is a ratio of working capital and total assets. In financial analysis, use of total assets as a denominator is usual, so it is logical to have that denominator in four of five ratios. Total assets denominator gives comparison of other elements from balance sheets or profit and loss statement. Numerator is working capital and it is difference between short-term assets and short-term

liabilities. It can be negative if short-term liabilities are greater than short-term assets. This ratio provides information about the short term financial position of the business. Higher level of working capital compared to the total assets means higher level of liquidity. Altman praised the X_1 as one of the most important ratios.

In X_2 the numerator is retained earnings from balance sheet. It shows the quality of capital structure. If company has losses for a few consecutive years, this number will be negative. An important factor for a company is to have retained earnings to show investors that there plans for further investment and development. Also, company with a high level of retained earnings can finance its projects without loans.

The X_3 ratio is a profitability ratio and its high weight in Altman's Z-score is reasonable. The numerator is EBIT (Earnings before Interest and Taxes). The purpose of the Z-score is to predict success or failure and it is obvious that companies with losses will have lower ratio and a greater chance to go bankrupt.

The lowest weight ratio is X_4 and the reason for it lies in its nominator: market value of equity. This sensitive data is obtained from capital markets and subsequently it can be easy to manipulate with the numerator. Denominator is the book value of liabilities so ratio shows if market value of equity exceeds book value of liabilities. There is a potential risk for a company if this wouldn't be the case. Then the company would need to decrease its liabilities.

X_5 is simple ratio of asset turnover. Numerator is total revenues- the data obtained from profit and loss statement. The interpretation of this ratio is simple and it shows speed of assets' circulation. It has the greatest weight in the Z-score but it is excluded from Z'' score because it is easy to manipulate total revenues through accounting methods so Altman decided that it should not be the part of Z'' score.

Z higher than 2,675 indicates an excellent company, while 1,81 and lower means that a company should go bankrupt in two years. Value between 1,81 and 2,675 suggests a need to reconsider the strategy and implement changes. Although the Z-score remained the most famous and most frequently used formula for predicting financial distress, different models were presented in the period after it became known. According to the systematization of Ghodrati and Manavi Moghaddam (2012), the Springate model was announced in 1978. It consisted of four variables and had an accuracy of 92,5% on the sample of forty manufacturing enterprises. Ohlson (1980) used financial ratios and multi-dimensional logic analysis with the sample of one hundred and five companies facing financial crisis and 2.058 companies free of any financial distress. Its accuracy in predicting bankruptcy was 85%. Fulmer (1984) presented a model developed on a sample of thirty bankrupt and thirty non-bankrupt companies. The model demonstrated the ability to predict 96% of the bankrupt companies and 100% of the non-bankrupt ones. Profit analysis on a sample of a hundred and twenty companies resulted with a model from Zmijewski (1984) with an accuracy rate of 78% one year before bankruptcy. C-A score was developed in 1987 and used a multivariate analysis and had an accuracy rate of 83%. Belak and Aljinović Barać (2007) based their research on the sample of companies from the Croatian stock exchange and developed BEX, an index for predicting success or failure of companies.

The BEX equation:

$$BEX = 0{,}388\ ex_1 + 0{,}579\ ex_2 + 0{,}153\ ex_3 + 0{,}316\ ex_4 \qquad (3)$$

with the explanation of variables:

ex_1 = EBIT / total assets
ex_2 = net profit / (equity · cost of capital)
ex_3 = working capital / total assets
ex_4 = 5 · (net profit + depreciation + amortization) / total liabilities

ex_1 and ex_3 ratios are as same as in the Z-score, but ex_2 and ex_4 are interesting ratios. The nominator for ex_2 is "net profit" from profit and loss statement, but the denominator is product of equity and cost of capital. ex_2 offers an answer on two questions: "What is the level of return on capital? Can a company with a better return on capital be found?" ex_4 can be compared with X_4 from Z-score. It shows the company's ability to use net profit and amortization to settle its total liabilities.

In construction of BEX the highest weight was given to ex_2 and the lowest to ex_3. Imperfection of BEX is noticeable through frequent use of two elements: total assets and final result from profit and loss statement i.e. net profit or loss.

For the value of cost of capital, the interest rates on deposits denominated in Croatian Kuna not indexed to foreign currency was used.

Table 1. Cost of capital by year (%)

Cost of capital by year (%)	
2006	2,98
2007	4,34
2008	5,45
2009	6,50
2010	1,39
2011	1,32

Interest rates on deposits for companies denominated in Croatian Kuna not indexed to foreign currency.
Source: Calculated from http://www.hnb.hr/statistika/hstatistika.htm

BEX above 1 and higher is characteristic for good companies (up to more than 5 or 6 for excellent and world class companies), while 0 and below indicates high possibility of company failure. Values between 0 and 1 are seen as marginal and indicate a need of restructuring.

3 DATA AND METHODOLOGY

The empirical research is based on a data-set of companies on Zagreb Stock Exchange (ZSE) in the period from years 2006 to 2011. A filter is made to insert fair price from market. Hence, in data-set only companies with over 50% trade days in a year are inserted. The number of companies with over 50% trade days varied through years as it can be seen in Table 3, however the overall number of companies in sample regardless of time is 119. Liquidity is one of the problems on ZSE and the aim was to solve that problem. For calculation of Z-score, Z-score", BEX and ROA financial statements from companies that passed liquidity filter are used. Data important for BEX calculation, i.e. cost of equity is used from Croatian National Bank (CNB) publication. Interest rate on time-deposits is used as an approximation for cost of equity.

Since most of economic relations are dynamic in nature which means that present value of a variable depends of its past values, dynamic panel models are used in empirical research. Dynamic panel models consist of lagged dependent variable among the regressors:

$$y_{it} = \mu + \gamma \cdot y_{i,t-1} + \beta_1 \cdot x_{i,t1} + \beta_2 \cdot x_{i,t2} + ... + \beta_K \cdot x_{i,tK} + \alpha_i + \varepsilon_{it}, i = 1,...,N; t = 1,...,T \quad (4)$$

where i denotes for individual and t time, μ is intercept, γ is a parameter of lagged variable and $\beta_1, \beta_2,..., \beta_K$ are parameters of K exogenous variables. It is assumed that ε_{it} is *IID (0,* σ^2_ε*)*. α_i is individual-specific effect.

Including the lagged dependent variable leads to occurrence of correlation between $y_{i,t-1}$ and α_i. Therefore, using Ordinary Least Squares (OLS) estimator leads to biased and inconsistent parameters estimates. Instead, using Generalized Method of Moments (GMM) estimator, which was introduced by Arellano and Bond, leads to efficient results. The validity of instruments used in model estimation can be tested using Sargan test. If the null-hypothesis cannot be rejected, it means that all the instruments are valid and that the model is adequately specified. Except for Sargan test, in empirical results two more diagnostic tests are used: first-order autocorrelation (m_1) and second-order autocorrelation (m_2) in differenced residuals. If the null-hypothesis in second-order autocorrelation in differenced residuals cannot be rejected, it means that estimates are consistent. Two step Arellano Bond GMM estimator is used in empirical analysis because it is heteroscedasticity robust and more efficient than one step estimator. Moreover this estimator is adequate for large number of units and small time period.

4 EMPIRICAL RESULTS

The stock price is considered to be the dependent variable and others like Z-score, Z-score", BEX and ROA are regressors. Taking into consideration the first-order autoregressive behaviour of stock prices, dynamic panel model is specified and given by the following equation:

$$y_{it} = \mu + \gamma \cdot y_{i,t-1} + x'_{it} \cdot \beta + \alpha_i + \varepsilon_{it}, i = 1,...,N; t = 1,...,T \quad (5)$$

where i denotes for individual and t time. It is assumed that ε_{it} is *IID (0,* σ^2_ε*)* and α_i is individual-specific effect. μ is intercept, γ is a parameter of lagged dependent variable, x'_{it} is K *x 1* matrix of explanatory variables and $\beta = [\beta_1, \beta_2, ..., \beta_K]'$ is vector K *x 1* of all coefficients of independent variables.

Each dynamic panel model is estimated using Z-score, Z-score", BEX and ROA as regressors respectively.

In Table 2 variables and their descriptive statistics for the whole sample period are presented.

Table 2. Descriptive statistics of selected variables through the whole period

Variable	Mean	Std. Dev.	Min	Max	N
Price	1790.38	5215.42	0.99	63445.38	493
Z-score	2.59	3.96	-7.28	70.18	493
Z-score"	3.63	7.48	-27.03	122.74	493
BEX	0.31	17.59	-179.70	268.17	493
ROA	0.93	8.08	-60.6	29	493

Source: Compiled by the authors

The values of these variables varied through years and companies. Since there are 119 companies in the sample, descriptive statistics by company would take too much space. Therefore in Table 3 variables and their means are presented only by year. It can be concluded that the crisis in years 2009 and 2010 influenced a large drop in both prices of shares and other variables. Z-score of companies in the sample showed that companies on ZSE were on average excellent in years from 2006 to 2008, and in years that led afterwards Z-score points out difficulties Croatian companies are facing with, indicating the possibility of companies to go bankrupt in years to come. Average BEX in years before crisis indicates that Croatian companies are on average good companies with a need of restructuring. Moreover, in the years 2009 and 2010 BEX has a negative sign showing the possibility of companies' failures.

Table 3. Mean of selected variables by year

Variable	2006	2007	2008	2009	2010	2011
Price	1795.03	3185.38	2581.15	787.88	683.48	689.04
Z-score	2.50	3.67	3.18	1.89	1.72	1.88
Z-score"	3.38	5.54	4.74	2.46	1.99	2.34
BEX	0.53	0.85	0.69	-0.60	-0.35	0.26
ROA	1.15	2.19	1.69	-0.76	-0.25	0.59
N	96	111	81	69	70	66

Source: Compiled by the authors

Correlation matrix between observed variables in the whole period is presented in Table 4 to explore the potential sign of relationship between variables. The positive sign implies the positive relationship between variables, i.e. the rise in one variable leads to an increase in the other variable.

Table 4. Correlation matrix

Variable	Price	Z-score	Z-score"	BEX	ROA
Price	1				
Z-score	0.1021	1			
Z-score"	0.0745	0.9795	1		
BEX	0.0238	0.0640	0.0747	1	
ROA	0.1583	0.3103	0.3747	0.0610	1

Source: Compiled by the authors

Five dynamic panel models have been estimated using two-step Arellano Bond GMM estimator using a maximum of one lag of dependent variable as instruments. The model consists of one lag of dependent variable and one regressor in each model, except for model 4 where, when controlling BEX for crisis period, besides BEX the variable BEX*crisis is used. The results are shown in Table 5 and the models are presented in the Appendix.

Table 5. Dynamic panel models

Variable	MODEL 1	MODEL 2	MODEL 3	MODEL 4	MODEL 5
L.Price	0.418***	0.433***	0.450***	0.448***	0.441***
	(0.00588)	(0.00619)	(0.00553)	(0.00573)	(0.00600)
Z-score	571.0***				
	(103.1)				
Z-score"		190.8***			
		(71.45)			
BEX			-0.399	36.99***	
			(2.366)	(3.425)	
BEX*crisis				-38.57***	
				(3.187)	
ROA					39.65***
					(14.07)
μ	-596.2***	67.39	536.8***	531.0***	589.0***
	(227.6)	(231.8)	(83.70)	(84.75)	(90.87)
N	233	233	233	233	233
Sargan test (p-value)	0.1886	0.1386	0.1337	0.0960	0.2503
m1 test(p-value)	0.2415	0.2399	0.2466	0.2470	0.2409
m2 test (p-value)	0.2400	0.2143	0.1972	0.1723	0.2103

Standard errors in parentheses.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
Source: Compiled by the authors

All the models are well specified, i.e. using Sargan test the null-hypothesis cannot be rejected. This means that all the instruments are valid and that the model is adequately specified. Using second-order autocorrelation in differenced residuals (m_2) the null-hypothesis cannot be rejected, which means that estimates are consistent.

Results show that lagged dependent variable (price) is statistically significant and positive in all models. Moreover each of the independent variables is also positive and statistically significant with varying strength of influence, except for BEX (in model 3). However, when controlling for crisis (years 2009 and 2010) in model 4, BEX shows positive and significant influence on the stock price in periods without crisis (36.99), and in crisis it shows negative impact on stock prices (36.99-38.57=-1.58). Table 5 shows that Z-score has the highest positive influence on stock prices among all the regressors. It can be easily explained by the impact of crisis in a situation when investors are not using any ratios as a decision-making support. Strength of the crisis was the crucial determinant of stock price instead of the changes in financial statements and ratios calculated from them. Consequently, the impact of changes in financial ratios on investment decisions was weak during the financial crisis period.

Changes in ROA are showing significant and positive influence on the stock price and demonstrate that even the use of a single ratio could be meaningful for investment decision making. Nevertheless, the habit of experts and professional investors is to use a wider spectrum of different ratios. According to that approach, our suggestion is to use aggregate and individual ratios together. Investors need to be educated to understand the logic of the fundamental analysis, construction and meaning of the ratios.

5 SCORING MODELS AND INTELLIGENT INVESTING

The term intelligent investor was invented by Benjamin Graham and presented through his homonymous book (2006). The main goal is to define a distinction between investors and speculators. Investor's decisions are determined by the analysis of companies' statements, environment, management etc. If he decides to invest in a stock or a bond, his investment will be long-term (more than a year). Speculators' investments are determined by the situation spotted on capital market. He buys and sells stocks intraday or in short term to achieve surplus in his trade.

There are a lot of financial ratios and more comprehensive financial models based on financial statements. Investors use them as a tool to make their decisions with the element of choosing the most appropriate ratio as the capital problem. It can be expected that investors cannot use same ratios on ZSE and, for instance New York Stock Exchange (NYSE) or London Stock Exchange (LSE) with the exact effect. Certain characteristics of every capital market must be taken into consideration when conducting the analysis. For this purpose it is necessary to make back testing and try to isolate the indicators which would be the most useful predictors of future stock movements. Liquidity is one of the crucial problems on ZSE and in this research liquidity filter is used to extract the stocks which do not have the necessary volume. All conclusions are controlled for liquidity problem as much as possible on ZSE.

If a research of this type would be made on a stock market with higher volume, we could use more companies in each year and more ratios to show which one determines the future price most correctly with more significance. With the inclusion of more ratios and with a higher volume market selected as a research base it would probably be possible to make some additional and (to contribute the intelligent investor concept) more relevant conclusions.

Therefore, an intelligent investor could make a competent decision if he would be using appropriate ratios. That would be a significant contribution of ratio analysis to stock investment decision making. Certain limitations as use of creative accounting and similar frauds can exist. However, they should be seen as an exception, and not the as the rule.

6 CONCLUSION

The aim of this research was to compare prediction ability of Altman's Z-score ratio and BEX index. Although purpose of Z-score is prediction of financial distress and BEX is used to evaluate business excellence we used them as a tool for prediction of market price. We emphasize the dynamic analysis approach which could be a useful starting point for the further researches, i.e. it is appropriate to use the ratios based on financial statements as a lagged variable to explore the influence on stock prices in the preceding year. However, in this paper the assumption was that even the information in quarterly financial statements of a company, which are published on ZSE, are perceived by investors and their investment decisions are made based on those information in the same year.

Considering the results of econometric analysis it can be concluded that Z-score and BEX have a significant positive impact on market price. Seeing that elements of these two financial models are important financial ratios with empirically derived ponders, the results obtained by our empirical research are indicative. Important part of this research is controlling for crisis. This element should be included in all researches that use stock market prices and financial statements as inputs. The panic seen on capital markets all over the world was massive and

produced that stock prices were not determined by financial statements, financial ratios or other data from real and financial ratios. The final conclusion is that Z-score is a better predictor of stock price movement which is interesting considering that BEX is based on Croatian capital market. It can be stated that Altman Z-score includes more significant ratios and performs better during periods of crisis.

Differences between investors and speculators are defined by Graham and are important to comprehend before further consideration of chapter five. An intelligent investor will use ratios and financial statements and the most important, he will have faith in long term profitability of his investment. A speculator is usually trading without the use of fundamental analysis. History of financial markets teaches us that intelligent investors with rationale decision-making process achieves better results in long term (Graham, 2006). Concentrating on our findings within this research, we can suggest that investors interested in fundamental base of a stock and long term investing should use Z-score and BEX as a support in making their decisions on capital markets.

7 BIBLIOGRAPHY

Altman, E. I., (1968), **Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy**, ***Journal of Finance***, 23; 4: 589-609.

Altman, E. I. (July, 2000), **Predicting financial distress of companies: Revisiting the Z-score and ZETA models**, http://pages.stern.nyu.edu/~ealtman/Zscores.pdf [Accessed 1.3.2013]

Baltagi, B. H. (2005), **Econometric Analysis of Panel Data, 3rd ed.,** John Wiley & Sons Ltd.

Belak, V., Aljinović Barać, Ž. (2007), **Business excellence (BEX) index za procjenu poslovne izvrsnosti tvrtki na tržištu kapitala u Republici Hrvatskoj**, ***Računovodstvo, revizija i financije***, br. 10/2007.

C.A. – Score, A Warning System for Small Business Failures, Bilanas (June 1987): 29-31

Fulmer, J. G. Jr., Moon, J. E., Gavin, T. A., Erwin, M. J. (1984), **A Bankruptcy Classification Model For Small Firms,** ***Journal of Commercial Bank Lending***, 25-37.

Ghodrati, H., Manavi Moghaddam, A. H. (2012), **A Study of the Accuracy of Bankruptcy Prediction Models: Altman, Shirata, Ohlson, Zmijewsky, CA Score, Fulmer, Springate, Farajzadeh Genetic, and McKee Genetic Models for the Companies of the Stock Exchange of Tehran**, ***American Journal of Scientific Research***, 59: 55-67

Graham, B. (2006), **Inteligentni investitor**, *Masmedia*, Zagreb.

HNB (2012) **Tekući broj biltena: Kamatne stope banaka na kunske depozite bez valutne klauzule.xls,** http://www.hnb.hr/statistika/hstatistika.htm [Accessed 1.3.2013]

Hobarth, L.L. (2006), **Modelling the Relationship between Financial Indicators and Company Performance – An Empirical Study for US-listed Companies,** Dissertation zur Erlangung des akademischen Grades einer Doktorin/eines Doktors der Sozial- und Wirtschaftswissenschaften an der Wirtschaftsuniversität Wien

Martani, D., Mulyono, Khairurizka R. (2009), **The effect of financial ratios, firm size, and cash flow from operating activities in the interim report to the stock return,** Chinese Business Review Volume 8, No.6: 44-55.

Ohlson, J. A. (1980), **Financial Ratios and the Probabilistic Prediction of Bankruptcy,** ***Journal of Accounting Research,*** Spring: 109-131.

Prihatni, R., Zakaria, A. (2011), **The Financial Performance Analysis Using Altman Z-score and its Effect to Stock Price Banking Sector in Indonesian Stock Exchange,** 2nd International Conference on Business and Economic Research

Springate, Gordon L.V. (1978), **Predicting the Possibility of Failure in a Canadian Firm, *Unpublished M.B.A. Research Project***, Simon Fraser University.

Škrabić Perić, B. (2012), **Utjecaj stranog vlasništva banke na njezin kreditni rizik u zemljama srednje i istočne Europe: dinamički panel modeli**, doktorska dizertacija, Ekonomski fakultet Split.

Utama, S., Santosa, A.B. (1998), **Kaitan Antara Rasio Price/Book dan Imbal Hasil Saham Pada Bursa Efek Jakarta,** Jurnal Riset Akuntansi, 1:127-140.

Višić, J., Škrabić Perić, B. (2011), **The determinants of value of incoming cross-border mergers & acquisitions in European transition countries**, Communist and Post-Communist Studies, 44: 173-182.

Zeytinglou E., Akarim Y.D. and Celik, S. (2012), **The Impact of Market-Based Ratios on Stock Returns: TheEvidence from Insurance Sector in Turkey,** International Research Journal of Finance and Economics, 84: 41-48.

Zmijewski, M. E. (1984), **Methodological Issues Related to the Estimation of Financial Distress Prediction Models**, ***Journal of Accounting Research***, 24 (Supplement): 59-82.

8 APPENDIX

The detailed structure of models used in this research is as follows:

$$y_{it} = \mu + \gamma \cdot y_{i,t-1} + \beta_1 \cdot x_{i,t1} + \beta_2 \cdot x_{i,t2} + ... + \beta_K \cdot x_{i,tK} + \alpha_i + \varepsilon_{it}, i = 1,..., N; t = 1,..., T$$

MODEL 1

$$\text{Price}_{it} = \mu + \gamma \cdot \text{Price}_{i,t-1} + \beta_1 \cdot \text{Z-score}_{i,t1} + \alpha_i + \varepsilon_{it}$$

MODEL 2

$$\text{Price}_{it} = \mu + \gamma \cdot \text{Price}_{i,t-1} + \beta_1 \cdot \text{Z-score''}_{i,t1} + \alpha_i + \varepsilon_{it}$$

MODEL 3

$$\text{Price}_{it} = \mu + \gamma \cdot \text{Price}_{i,t-1} + \beta_1 \cdot \text{BEX}_{i,t1} + \alpha_i + \varepsilon_{it}$$

MODEL 4

$$\text{Price}_{it} = \mu + \gamma \cdot \text{Price}_{i,t-1} + \beta_1 \cdot \text{BEX}_{i,t1} + \beta_2 \cdot \text{BEX*crisis}_{i,t2} + \alpha_i + \varepsilon_{it}$$

MODEL 5

$$\text{Price}_{it} = \mu + \gamma \cdot \text{Price}_{i,t-1} + \beta_1 \cdot \text{ROA}_{i,t1} + \alpha_i + \varepsilon_{it}$$

THE IMPORTANCE OF THE GROWTH OF DYNAMIC ENTERPRISES FOR THE NATIONAL ECONOMY: AN EXAMPLE OF A GROWTH FORECAST FOR SLOVENIA UNTIL 2015

Viljem Pšeničny
DOBA FAKULTETA
Prešernova ulica 1, 2000 Maribor, Slovenia
Phone: + 386 41 610 552
E-mail: viljem.psenicn@doba.si

Riko Novak
DOBA FAKULTETA
Prešernova ulica 1, 2000 Maribor, Slovenia
Phone: + 386 22 283 890
E-mail: riko.novak@doba.si

Key words: *Rapid growth factors, Dynamic enterprises, Dynamic entrepreneurship, National economy, Growth trend*

ABSTRACT

This article addresses the national economic relevance of the growth of dynamic enterprises on the basis of seven identified key factors of rapid growth (the external environment, the entrepreneur, the business strategy, the management system, the employees, innovations and financing) with an emphasis on gross domestic product (GDP) growth and employment trends. The article is based on empiric results of longitudinal studies of dynamic enterprises from the last twenty years (conducted on enterprises, which have in terms of certain criteria shown potential for rapid growth). These are enterprises that generate during a specific period of time (usually a five-year period – Birch, 1987) the majority of all new jobs in a national economy (St-Julien et al., 2008; Henrekson and Johansson, 2009) and play an important role in regional restructuring and dynamics (Julien, 2007). Using a previous qualitative and quantitative empirical study of 4,511 Slovene dynamic enterprises conducted in 2012, a growth trend forecast until 2015 for the enterprises studied was identified. The growth trend forecast for Slovene dynamic enterprises was also qualitatively verified on the basis of several previous empirical studies and forecasts of sales and job growth (Žižek and Liechtenstein, 1994; Pšeničny, 2002; Pšeničny et al., 2012) that were obtained from different periods of time (1990–1993; 1996–2000; 2006–2010). The final results, as indicated in the article, were based on 15,000 surveyed Slovene dynamic enterprises from the last twenty years and offer an in-depth insight into the investigated and forecasted growth trend of the reviewed enterprises based on criteria and factors of rapid growth used to predict further continued (rapid) growth. The provided results can be used by enterprises, showing potential for rapid growth, as guidelines during the planning process for considering further business operations and growth strategies. With this information, enterprises will be able to stay or become a dynamic enterprise and thus further contribute to the preservation, improvement and growth of the national economy.

1 INTRODUCTION

Dynamic entrepreneurship, dynamic entrepreneur, dynamic management and dynamic enterprises are terms that are increasingly being used in studying the importance of entrepreneurship for national economies. Lately, these are also terms that researchers increasingly have to take into consideration. The adjective "dynamic" describes the entire phrase from the viewpoint of facilitated, fast, additional, rapid, etc. contribution of entrepreneurship to the national economy. It is a known fact that at least 85% of economic growth and all new jobs in every national economy are generated by 5% (or even less) of economic operators or so-called dynamic enterprises. Literature also provides us with several different definitions of dynamic enterprises, such as "gazelles" (Birch, 1987), "dynamos" (Kingston, 1987), "fast growing companies" (Davidsson, 1989), "flyers" (Storey, 1994), "potential high growth enterprises" (Pšeničny et al., 2012), etc. Generally speaking, these are companies that during a specific time interval (researchers usually take a five-year time interval – Birch, 1987) generate the majority of all new jobs in the studied national economy (St-Julien et al., 2008; Henrekson and Johansson, 2009) and that are an important driver of regional restructuring and regional dynamism (Julien, 2007). Empirical findings in Slovenia have shown that in a specific five-year time interval, dynamic enterprises in general create: 1 – one fifth of all net sales revenue in the country, 2 – employ one sixth of all employees, 3 – hold one sixth of all capital, 4 – pay out one fifth of all salaries and 5 – generate almost one quarter of all value added in the economy.

This article deals with the national economic importance of growth of dynamic enterprises on the basis of seven recognised key factors of rapid growth (Pšeničny, 2002 summarised from Mei-Pochtler, 1999: 1 – the enterprise's external environment, 2 – the entrepreneur, 3 – the business strategy, 4 – the management system, 5 – employees, 6 – innovations, 7 – growth financing) with an emphasis on GDP growth and employment trends utilising the population of 15,000 Slovenian dynamic enterprises over the past twenty years. The results featured in the article are based on the results of several empiric studies of dynamic enterprises exhibiting rapid growth potential on the basis of chosen criteria. Dynamic enterprises exhibiting growth potential were selected from the database of all Slovenian economic operators (excluding activities such as banks, insurance companies, public institutions and similar) in a specified time period on the basis of specific success criteria (1 – revenue, 2 – value added, 3 – employment and 4 – profit).

The purpose of the article is to use a previous qualitative and quantitative empirical study from 2012 (the studied period was 2006–2010) of 4,511 Slovenian dynamic enterprises to forecast the growth trend of these enterprises. The growth trend of Slovenian dynamic enterprises is further qualitatively verified on the basis of individual previous empirical results and sales and job growth forecasts (Žižek and Liechtenstein, 1994; Pšeničny, 2002) that were obtained during various time intervals (1990–1993; 1996–2000) on an equal basic population of enterprises. The final results of the article provide an in-depth insight into past growth and predicted growth trends of the studied enterprises on the basis of criteria and factors of rapid growth in order to predict future continuous growth. The provided findings can serve enterprises exhibiting growth potential as a guideline in planning their future operation and growth strategy. This will help them remain or become dynamic enterprises and thus additionally contribute to preserving and reviving the national economy and restore its growth.

The final findings of the article and the study of dynamic entrepreneurship can be summed up in the realisation that dynamic enterprises are small, medium and large business from all

sectors. They are mostly highly technologically-oriented and above-average innovative rapid growing enterprises that suddenly appear on the market with a specific product or service. In the next growth life cycle, they obtain the required financial resources for growth, start with regular operation and then they grow at an above-average pace and achieve above-average results in individual fields. In this way, they become the key driving force of every economy and will also maintain their growth in the future while at the same time also be one of the possible solutions for overcoming the crisis or facilitating the growth of the national economy. Our intention is thus to use the analysis of the fastest growing enterprises from the 2006–2010 period to establish their contribution or share in the growth of the Slovenian economy and to try and predict the growth of these enterprises in the 2012–2015 period or their contribution in the next period. As at the time the study was being conducted results for 2011 were published, therefore our results and predictions were also verified using 2006–2011 interim results.

2 THEORETICAL BASIS

2.1 Dynamic entrepreneurship

The beginnings of researching dynamic entrepreneurship go back to the 1980s (Birch, 1979). Birch followed Edith Penrose's theoretical model, *The Theory of the Growth of the Firm* (1959). In this theory, Penrose provided the basics for future theoretical and empirical research of the most dynamic part of the economy – (rapidly) growing enterprises. In his subsequent research, Birch (1981) put together an extremely innovative and potentially powerful database of American companies that he used for studying the dynamics of the effects of business and employment. Birch's empirical findings established that of all the net new jobs created in the sample of 5.6 million American businesses between 1969 and 1976, two thirds were created by firms with twenty or fewer employees. Another interesting finding was that these were very young companies. About 80 percent of the replacement jobs were created by enterprises four years old or younger. In 1987, Birch again researched American businesses and established that the majority of dynamics was created by the above mentioned 15% of rapidly growing enterprises. Based on qualitative findings and analyses, Birch quickly separated rapidly growing enterprises from other enterprises labelled as mice (slowly growing small enterprises) and elephants (large enterprises). The final finding of Birch's work was of fundamental importance for the future development of studies of dynamic entrepreneurship, i.e. that large firms are no longer the major generators or creators of new jobs but that this role belongs to young and small enterprises exhibiting rapid growth potential.

On the other hand, Armington and Acs (2004) provide an important contrary finding of later-date study of dynamic entrepreneurship, i.e. that small (dynamic) enterprises do not generate the majority of jobs but generate the majority of net new jobs and a larger number of jobs than was to be expected considering their share in the national economy. Acs and Mueller (2008) also provide interesting findings regarding employment trends in dynamic entrepreneurship. They found that only start-ups with more than twenty employees have persistent positive employment effects over time in a specific national economy and only in large diversified metropolitan regions. Henrekson and Johansson (2009) also emphasise that dynamic enterprises are critical for new job creation and economic development. They studied how the institutional framework affects the prevalence and performance of dynamic enterprises. They define growth of dynamic enterprises as resulting from perpetual discovery and use of productive knowledge. The more active researchers of dynamic entrepreneurship in the last twenty years include some of the following authors (see Acs and Armington, 2004; Acs and Storey, 2004; Acs and Armington, 2006; Acs and Amoros, 2008; Acs and Mueller, 2008; Acs

et al., 2008), who predominantly studied various aspects of dynamic or rapidly growing enterprises with regard to national economies. This especially includes individual factors, which allow these companies to exhibit rapid growth, the aspects and the effect of rapidly growing enterprises on employment, the financing of rapidly growing enterprises, etc.

2.2 The dynamic enterprise

The appearance of rapidly growing dynamic enterprises and their contribution to national economies triggered numerous discussions on the importance of small enterprises as a significant catalyst for the growth of an individual economy. In the last decade, this issue has been increasingly studied by both expert and political bodies of the European Commission that established already in the mid-1990s that the EU business environment was not conducive to entrepreneurship compared to the business environment in the USA or BRIC countries. The EC thus tried to facilitate the entrepreneurial sector with various programmes and declarations. The latest extensive analysis (EIM, 2011) has shown that 85% of newly created jobs can be attributed to micro, small and medium growing enterprises, while the employment growth rate in these enterprises is twice as high than in large enterprises. One of the main goals of the 2000 Lisbon Strategy was for the EU economy to become the most competitive and dynamic knowledge-based economy in the world by the year 2020, capable of sustainable economic growth with more and better jobs and greater social cohesion. In 2010, there were over 20.8 million enterprises that were active in the non-financial business sector in the European Union, which represents 99.8% of all small and medium enterprises. Approximately 92% of the entire business sector comprised micro enterprises with less than 10 employees. These data served as the basis for establishing that a typical European enterprise is actually a micro enterprise.

Henrekson and Johansson (2009) and Julien (2007) establish that dynamic enterprises, even though they represent only from 2% to 10% of all small and medium enterprises, generate over 40% of all new jobs (similar findings for the Slovenian economy are also noted by Pšeničny et al. 2012) and that they are an important driving force of regional development (Julien, 2007). On the other hand, Bavdaž et al. (2009) state that in 2008, EU-27 countries had 19,700,000 enterprises of which 92% employed less than 10 people and 99.7% of all enterprises employed less than 250 people. When studying dynamic enterprises, Birch (1979) already established that growth is the main distinguishing feature or factor in studying rapidly growing enterprises (similar statements among later authors can also be found in Julien, 2007; St-Jean et al., 2008). We can generally say that in business dynamics, the size of enterprises is not as important as their age. The majority of new enterprises are small (Armington and Acs, 2004). Size and age of the enterprise are thus two main factors that affect the pace of growth (Fritsch and Mueller, 2004).

Julien (2007) defines dynamic enterprises as small and medium enterprises with an annual 20 percent increase in sales and annual base revenue of at least USD 100,000 (approximately EUR 75,000). In business terms, this means they are agile enough to avoid hostile takeovers by larger enterprises and growing fast enough to grow faster than their increase of costs, thus becoming profitable as soon as they become large enough. Similarities can be found with St-Jean et al. (2008), who defines dynamic enterprises as enterprises accounting for 2% to 10% of all SMEs in an economy. In the majority of developed economies, they generate over 40% of all new jobs. They also generate long-term growth. Some other researchers additionally supplement these findings with the fact that dynamic enterprises play an import role in regional restructuring and regional dynamism (Frederick, 2004; Lechner et al., 2006). Garnsey and Heffernan (2005) thus establish that the majority of dynamic enterprises do not

exhibit continuous or uninterrupted linear growth. Different researches has shown that growth first points steeply upwards, later decelerates or even drops but it is continuous in the long-run, whereby steep growth is followed by a period of decline or vice versa (Smallbone et al., 1995; Shelton, 2005; O'Regan et al., 2006).

2.3 The dynamic entrepreneur

Researchers agree and at the same time confirm that in general, the (dynamic) entrepreneur holds the central role in (rapid) growth of dynamic enterprises (Stuart and Abetti, 1990; Blanchflower and Oswald, 1998; Cooper et al., 1994; Van Praag, 2003; Bosma et al., 2004), which undoubtedly positively affects the entire economy of a country. Leitao and Franco (2008) emphasise another important aspect that affects rapid growth of enterprises, i.e. access to capital for financing the growth. Colombo and Grilli (2005) emphasise that this aspect is closely related to access to human capital, which is needed to develop open and effective relationships with financiers, to control processes and costs and to effectively organise resources. Wang (2008) points out another important challenge in acquiring human capital, i.e. the time available for recruiting and training. Moreover, in many entrepreneurship studies human capital has been demonstrated as the main factor affecting dynamism or entrepreneurial performance (Richbell et al., 2006; Robson et al., 2009). For this reason, the actions and activity of the entrepreneur in relation to developing the enterprise's long-term vision are of exceptional importance for rapid growth. Various studies identified the following characteristics of an entrepreneur as being the most common (summarised from Audretsch and Keilbach, 2007; Acs et al., 2009; Audretsch, 2012): 1 – the founding team (stability of individual members; time of previous cooperation; diversity of individual members; size), 2 – gender, 3 – market orientation, 4 – access to resources, 5 – human resources, 6 – social capital, 7 – financial capital and 8 – intellectual capital.

The article derives from the following definition of a dynamic entrepreneur, which represents a kind of a common denominator for several different studies: the average age of a dynamic entrepreneur is between the ages of 40 and 49; he has completed a higher education programme from a technical field but has at least 5 to 10 years of previous work experience. He knows how to manage people and is innovative and creative. His last employment was mostly in a different privately held company where he held a management position and was engaged in completely different things (services or products). The main reason for setting up the enterprise was mostly an opportunity for profit. The key motivation in this respect was independence (be your own boss). For most entrepreneurs, this was their first and only established company (summarised from Pšeničny, 2002; Pšeničny et al., 2012).

2.4 Factors of rapid growth

In the last decades, researchers have been dealing with different aspects of growth of enterprises, from studying growth models and strategies to growth motivation, while numerous authors have also been studying factors of rapid growth. When studying the fastest growing European dynamic enterprises, authors (Mei-Pochtler, 1999; Roure, 1999; Pšeničny, 2002) established that the following factors most strongly affect firm growth: 1 – the enterprise's external environment, 2 – the entrepreneur or the entrepreneurial team, 3 – innovations and implementation of changes, 4 – the growth and yield strategy, 5 – the business model and the management model, 6 – human resources and 7 – growth financing. These factors of dynamic entrepreneurship can be described by a number of characteristics (attributes) that affect them either from the external or the internal environment of the

enterprise. Mei-Pochtler (1999) calls them "facilitators and inhibitors of fast growth of gazelles".

Among the more recent studies is also the study by Coad and Hölzl (2010), who study the growth of enterprises from the viewpoint of various factors that affect rapid growth or growth in general. Rapid growth of enterprises shows that rapidly growing enterprises are the key driving force in the development of new jobs in every economy. The authors establish that these enterprises are not limited only to highly technological sectors and are also not only young and small. Davidsson and Wiklund (2000) say that enterprises can grow healthily by expanding their basic activities on the basis of takeovers of existing companies. On the other hand, Davidsson and Delmar (2006) point out that growth in the majority of young rapidly growing enterprises is healthy, while in larger and older enterprises the majority of expansion of growth relates to takeovers of smaller and younger enterprises.

Literature also uses the so-called Gibrat's Law to study rapid growth. Gibrat's Law states that the size of an enterprise and its growth rate are independent. Other authors, such as for example Higson et al. (2002 and 2004), de Wit (2005), Bottazzi and Secchi (2006), Bottazzi et al. (2007) and Coad (2009) establish that growth is partially (auto)correlated. Gibrat's Law is often unsuccessful/wrong, which is shown by numerous studies provided by authors who established that small and younger firms have a higher anticipated growth rate than older and larger enterprises (Hart and Oulton, 1996; Lotti et al., 2003; Coad, 2007; Foster et al., 2008). Coad and Rao (2008 and 2010), Hölzl (2009), Goedhuys and Sleuwaegen (2009) emphasise that the growth of young enterprises is also affected by their innovation abilities that affect sales levels. On the other hand, Stam and Wennberg (2009) establish that in regard to the relation or influence of innovations and rapid growth, the aspect of the so-called technical unemployment is important. This means that rapidly growing innovative enterprises have less need for a labour force, as they use new and highly technological equipment such as robots and thus reducing their need for a labour force. The article derives from the fact that in their operation, dynamic enterprises are subject to numerous internal and external factors that affect their success and "pace" of growth. Factors of rapid growth are also being investigated by Slovenian researchers (Pšeničny et al., 2012; Pšeničny and Novak, 2012) and in recent years, they have added important new findings on attributes that determine or describe these factors. Below is an overview of some of the more important findings of studying dynamic enterprises in the field of employment.

2.5 Employment trends of dynamic enterprises

Armington and Acs (2004) provide an important finding of modern study of dynamic entrepreneurship, i.e. that small (dynamic) enterprises do not generate the majority of jobs but generate the majority of new jobs and a larger number of jobs than was to be expected considering their share in employment. In studying dynamic enterprises and their generation of new jobs, one can ask what affected these enterprises' employment dynamics in the past and what will affect it in the next five years. This is a question already posed by Birch over thirty years ago: "Who creates jobs: mice, gazelles or elephants?" Birch's (1987) most interesting finding was that it was the rapidly growing enterprises or gazelles which were responsible for most of the employment growth in regional economies.

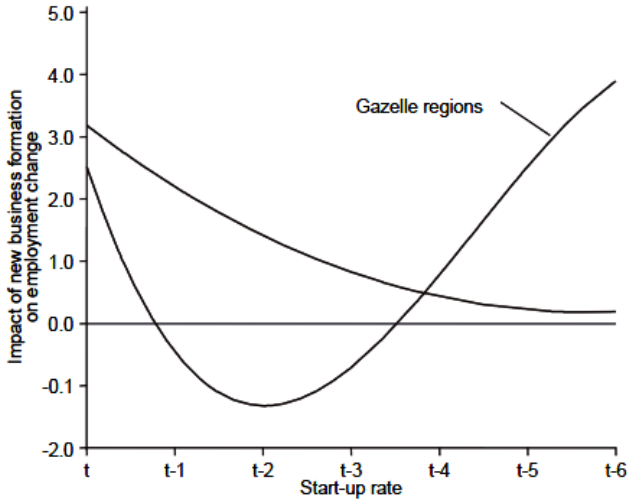
Henrekson and Johansson (2010) provide their findings of studying dynamic enterprises from the viewpoint of employment trends on the basis of various methods of studying and measuring rapid growth. Some of these methods include the 10% fastest growing firms (the criteria were developed and introduced by Schreyer in 2000) that were selected on the basis of

1 – Birch's (1987) index, 2 – double sales turnover in real terms (Littunen and Tohomo, 2003), 3 – firms growing by more than 50% (Halabisky et al., 2006), 4 – an average growth in employees of over 20 percent over a 3-year period (Deschryvere, 2008).

On the basis of these items, Henrekson and Johansson (2010) provide the following findings:

- Dynamic enterprises dominate job creation within their branch or cohort of enterprises of a same age.
- Dynamic enterprises account for all new job growth in the whole individual economy.
- They established that the majority of dynamic enterprises are small and medium enterprises (SMEs), while an important subgroup are large dynamic enterprises. In this respect, Acs et al. (2008) emphasise that new job creation is mostly divided between small enterprises (< 500 employees) and large enterprises (> 500 employees) (in the USA, enterprises with up to 500 employees are considered small enterprises.).
- Dynamic enterprises are mostly younger that the average age of other enterprises in the branch. Acs et al. (2008) established that less than 10 percent of US high-tech enterprises were established in the last four years. The authors also established that the average age of high-tech enterprises was 25 years before their growth started contributing to the national economy.
- Dynamic enterprises are not mostly present only in high-tech industries but exist in all industrial and service branches. Hölzl (2009) emphasises that rapid growth is primarily an economic phenomenon and not merely a technical or technological one.
- Being a dynamic enterprise is mostly the phenomenon of small and young enterprises.

Figure 1. Employment effects and trends: start-ups of enterprises with 20 to 499 employees and gazelles



Source: Armington and Acs 2004, p. 25

In light of Figure 1, Armington and Acs (2004) established that location has an important effect on dynamic enterprises. Compared to mice and elephants, gazelles achieve long-term positive effects on employment through a longer period of time or after entering the market. Immediately after entering the market, dynamic enterprises first record a negative employment trend. However, the employment effect turns positive after two years when the enterprises start rapidly employing and after approximately five years of operation they

achieve a large advantage in employment trends over other enterprises (similar was also found by Hall et al., 2008). Below are some of the findings of a longitudinal study of Slovenian rapidly growing dynamic enterprises.

3 LONGITUDINAL STUDY OF SLOVENIAN DYNAMIC ENTERPRISES

David Birch (1979) was among the first researchers of dynamic enterprises. His results, which pointed out the exceptional importance of rapidly growing enterprises in the economy and were derived on the basis of an analysis of the US economy, were followed by numerous researchers across the globe that analysed rapidly growing enterprises in other national economies. In the early 1990s comparisons for some of the EU member states were prepared: Harper, 1994; Žižek and Liechtenstein, 1994; Charan and Tichy, 1998; Mei-Pochtler, 1999; Roure, 1999; Pšeničny, 2002; Tajnikar 2006.

Among the first researchers of dynamic enterprises in Slovenia were Žižek and Liechtenstein (1994), who studied rapid growth of enterprises and the importance of individual factors of rapid growth in several CEE countries, including Slovenia, employing a sample of 150 dynamic enterprises in each country. The next important researcher of dynamic entrepreneurship is Pšeničny (2002), who utilised a sample of 175 dynamic enterprises to continue the research conducted by his two predecessors and verified their empirical findings. An important contribution to dynamic entrepreneurship in Slovenia was also provided by Tajnikar (2006), who studied enterprises predominantly from the viewpoint of financing of their rapid growth.

Additional insight into the criteria of dynamism was provided by Bajt's (2008) study *Growth Factors in Slovenian Dynamic Enterprises* that deals with the issues of dynamic entrepreneurship. His study sample comprised a population of 500 of the fastest growing enterprises in Slovenia. The study verified similarities between factors of rapid growth of dynamic enterprises in the internal and external environment with factors that were verified in a study by Pšeničny (2002). He established that in order to grow dynamically, an enterprise has to exhibit individual attributes of rapid growth.

In recent years, the following authors have been engaged in in-depth study of dynamic enterprises and factors of rapid growth in Slovenia: Pšeničny et al. (2012), Pšeničny and Novak (2012), Rebernik et al. (2012) and an analytical group with the Dnevnik daily (see also Drnovšek, 1999 and 2005; Antončič et al., 2007; Kurinčič, 2009). Important annual findings on Slovenian entrepreneurship and on the general characteristics of rapidly growing enterprises are provided by the GEM study (Global Entrepreneurship Monitor – Rebernik et al., 2012), which has in recent years been increasingly focusing on the population of rapidly growing enterprises and not only on emerging new enterprises. In their research, these authors provide a comprehensive analysis of the entrepreneurial environment that determines nine fundamental conditions for a dynamic and entrepreneurship-friendly environment: 1 – a favourably inclined government policy and tax regulations, 2 – developed government programmes that support entrepreneurial initiatives, 3 – availability of financial resources, 4 – a developed commercial and professional infrastructure, 5 – developed education and training, 6 – research and development transfer to companies, 7 – internal market openness, 8 – access to physical infrastructure and 9 – a more favourable entrepreneurial culture and social norms.

4 PURPOSE AND RESEARCH QUESTION

This article deals with the national economic importance of growth of dynamic enterprises on the basis of seven recognised key factors of rapid growth: 1 – the external environment, 2 – the entrepreneur, 3 – the business strategy, 4 – the management system, 5 – employees, 6 – innovations and 7 – growth financing with an emphasis on GDP growth and employment trends utilising the population of Slovenian dynamic enterprises for the past twenty years. The purpose of the article is to use a previous qualitative and quantitative empirical study from 2012 (the studied period was 2006–2010) of 4,511 Slovenian dynamic enterprises to predict the growth trend of these enterprises by 2015. The predicted growth trend of Slovenian dynamic enterprises is further verified on the basis of individual previous empirical results and sales and job growth predictions (Žižek and Liechtenstein, 1994; Pšeničny, 2002) that were obtained during various time intervals (1990–1993; 1996–2000) on an equal basic population of enterprises. The main research question that we will investigate is whether rapidly growing enterprises of a specific period will continue to also grow sustainably in the future, and can it be assumed that in every following period, there will be a specific share of rapidly growing enterprises that will grow persistently and sustainably and contribute to economy growth. The final results of the article provide an in-depth insight into past growth and the predicted growth trend of the studied enterprises on the basis of criteria and factors of rapid growth in order to predict future continuous growth. The results featured in the article are based on the results of longitudinal empirical studies of dynamic enterprises for a period of the past twenty years that have indicated rapid growth potential on the basis of chosen criteria.

5 METHODOLOGY

5.1 The methodological framework of the study

The empirical study was conducted in 2012 encompassing 4,511 Slovenian dynamic enterprises that were selected from the AJPES (the Agency of the Republic of Slovenia for Public Legal Records and Related Services) database of Slovenian companies (Vidovič, 2011). The database was simply produced by a public Agency in Slovenia (by the Ministry of Economy). Data on enterprises were obtained on the basis of strict previously determined criteria of dynamism that were summarised and developed by Pšeničny (2002). The author explained that if all enterprises of an economy are classified according to several possible criteria and an intersection of so-called dynamic enterprises is prepared, there is a possibility that some above-average dynamic enterprises will not be included because of one or two (of the too many) criteria. For this reason, Pšeničny adopted GrowthPlus criteria that include eight or nine criteria. For all studies, dynamic enterprises were thus selected by equal criteria with minimum deviations depending on the planned share of the fastest growing enterprises that were to be included in the study (e.g. 500 gazelles thus represent approximately 0.4% of all Slovenian companies and 5,000 dynamic enterprises the top 4% of enterprises). In this way, continual comparability with data and studies of European gazelles and dynamic enterprises in Central and Eastern Europe and Slovenia from the early and mid 2000–2010 decade was ensured. On the other hand, we also avoided the risk of shaping the criteria for selecting dynamic enterprises to be included in the study ourselves. We can thus speak of a range of the best examples that meet specified criteria and not of a randomly chosen sample.

5.2 Selection criteria for dynamic enterprises

For the 2011–2012 study, Slovenian dynamic enterprises exhibiting growth potential were selected from the database of all economic subjects (excluding activities such as banks, insurance companies, public institutions and similar) on the basis of the previously mentioned criteria that were shaped pursuant to available findings on dynamic enterprises and for the studied period of 2006–2010. Based on 2006 and 2010 data, all enterprises whose end of 2010 data included the following features were excluded from the so-obtained list:

- had less than 2 employees or less than one in the case of sole proprietors
- generated sales revenue of less than EUR 100,000
- generated negative value added
- did not operate for 12 months in 2006 and in 2010
- had less employees in 2010 than in 2006
- generated less than double the average net revenue growth in the economy (2 x 11.8%) in the period
- were in the majority ownership of the state (over 50%)
- were companies engaged in the following activities (LOSTU sections):
    - L – real estate activities
    - O – public administration and defence, compulsory social security
    - S – other services
    - T – activities of households as employers; undifferentiated goods
    - U – activities of extra-territorial organisations and bodies
- generated a cumulative net loss
- had a lower value added in 2010 than in 2006
- generated value added per employee of less than EUR 21,000.

The dynamic enterprises, which were included in the 2012 study on the basis of the mentioned criteria, are of course not equally successful and operate differently. We thus selected some of the most common tools for measuring their success or growth on the basis of success criteria (1 – revenue growth, 2 – value added growth, 3 – new jobs and 4 – profit growth).

5.3 The studied population

The enterprises were selected on the basis of criteria which are used to identify potential high growth enterprises and which consider not only sales revenue growth but also growth in the number of employees, value added, capital and profit. The enterprises were selected from the database of all 126,976 economic operators. We thus obtained a database of 4,511 enterprises (including 1,010 sole proprietors and 3,501 commercial companies that cumulatively met all the previously determined criteria (together they represented 3.55% of all economic operators

in Slovenia in the studied period). In the 2006–2010 period, these enterprises: 1 – generated 23.7% of total net sales revenue in the country, 2 – employed 16% of all employees, 3 – held 16% of total capital, 4 – paid out 18.7% of all salaries and 5 – generated 21.8% of total value added in the economy (which is very similar to the results of the other mentioned studies).

5.4 Data collection and study sample

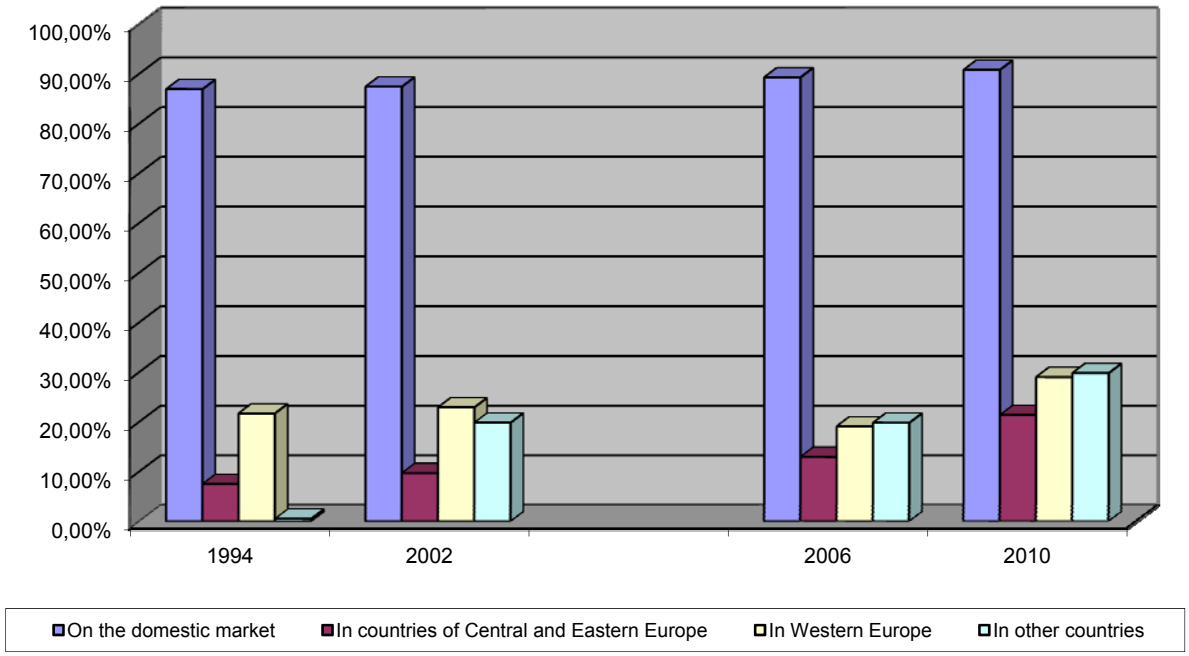
An extensive questionnaire with over 130 questions or 243 descriptive attributes (Mei-Pochtler, 1999) of seven factors of rapid growth, which were later reviewed and reduced to 149 (Pšeničny and Novak 2012), was sent to all recognised 4,511 enterprises. In its basic form, the questionnaire was initially developed for researching European gazelles (Žižek and Liechtenstein, 1994; Roure, 1999), later completed and used to analyse growth of dynamic enterprises in various studies (Pšeničny, 2002) and subsequently updated for the study conducted in 2011–2012 (Pšeničny et al., 2012). Empirical data were collected and subsequently processed for a sample of 131 dynamic Slovenian enterprises. For further analyses or to draw conclusions both datasets were used (the population 4.511 for statistical research, for statistical comparison of the overall economy and sample 131 for further empirical research and for the longitudinal comparison of business of Slovenian dynamic enterprises).

6 DYNAMIC SLOVENIAN ENTERPRISES 2012

It was established for the period of the past twenty years that dynamic enterprises are mostly production-oriented. They usually appear on the market as a limited liability company with the funding entrepreneur as the owner. They were mostly established because of an opportunity for profit. The reasons for their success can be found in various fields: the owner's or the management team's experience, the owner's or the management team's organisational skills, innovations, good customer relations, appropriate financing and quality of products/services. In the majority of cases, the enterprises were managed by a single director during the last ten years, who is usually also the owner of the enterprise. The establisher or the dynamic entrepreneur's average age is about 40 and 49 years. The employees of these enterprises have a relatively good education (at least higher education). They sell their products mostly on the domestic market (Slovenia) and on the EU market. They list final users as their most important buyers, as they buy their products despite the fierce competition in the branch (they list small and large privately-held firms as their main competitors). In terms of competitiveness, they are among the top 10 percent on a national scale or are considered pursuers. In order to achieve such levels of competitiveness, these enterprises have highly trained employees, healthy finances and excellent internal organisation.

Summarising the general empirical findings on the definition of dynamic entrepreneurship of some international authors (Baumol, 2004; Acs and Audretsch, 2005; Beck et al., 2005; Fritsch and Weyh, 2006; Halabisky et al., 2006; Acemoglu et al., 2007; Angelini and Generale, 2008), these are enterprises that are on average younger than other enterprises and are represented in newer and rapidly growing industries. They lean towards exploring new fields of knowledge and implement radically new innovations with high economic potential, while large and mature enterprises merely continue to control the fields in which they already prevail. Audretsch (2006) says that small and young firms are much more inclined towards innovations in specific new and dynamic activities compared to old and large firms. This is mostly due to their flexibility. Audretsh (2012) also says that firm size and age influence firm growth.

Chart 1. Key sales markets of dynamic enterprises in the 1994-2001 and the 2006-2010 period



Source: Own

Diagram 1 shows the key sales markets of Slovenian dynamic enterprises from 1994 to 2010 with regard to individual time periods, i.e. from 1994 to 2001 and from 2006 to 2010. The data show that in over four fifths of cases, dynamic enterprises sold most of their products on the domestic market and only then on other international markets. On the EU market, net revenue of dynamic enterprises increased by 152% and by the end of 2010 already stood at EUR 3.85 billion or one quarter of total Slovenian export to the EU market. Dynamic enterprises also increased sales on other export markets, i.e. by 74.00% to EUR 2.14 billion, which represents a 31.20 percent share of total Slovenian export to the non-EU market.

The studied 3.55% dynamic enterprises therefore represent almost 27.00% of total Slovenian export. In terms of their prevailing growth strategy for the next three years, almost two thirds of dynamic enterprises emphasise the strategy of introducing new products and services on existing markets and two quarters the strategy of promoting existing products and services on existing markets as well as the strategy of introducing new products and services on new markets.

Dynamic enterprises emphasise the following as the key fields that affect firm growth: logistics, pursuing (leading) technological development, efficiency of the production process, high-quality suppliers, knowledge of market trends, knowledge of consumer habits and behaviour and the orientation of employees towards meeting customer demands. Dynamic enterprises pay special attention to human resources management, the personnel policy or the right choice of employees, education and continuous training, financial remuneration, the valuing and recognition of individuals and the establishing of teams.

The establishment and the first year of operation of the majority of dynamic enterprises were financed from their own savings. After three years of operation, more than one half of enterprises financed their operation from their profit. A very large share, almost one third, financed their operation from their own savings after three years. In the last two years of operation, enterprises also financed their operation from profit (almost two thirds) and from commercial or investment loans as well as from their own savings. On this basis, they

anticipate between 0 and 4.90% growth of net revenue in the next financial year and less than EUR 499,000 of net profit.

On the other hand, the Slovenian economy experienced three good and two critical years during this period (2006–2010). If we focus on only a few of the indicators, the five-year balance provides the following findings:

- 12 percent net sales revenue growth (with an approximate 11 percent GDP growth in the 2006–2010 period)
- a reduction in the number of employed people by 24,000–
- zero profit growth
- 10 percent growth of value added and
- 15 percent growth of value added per employee.

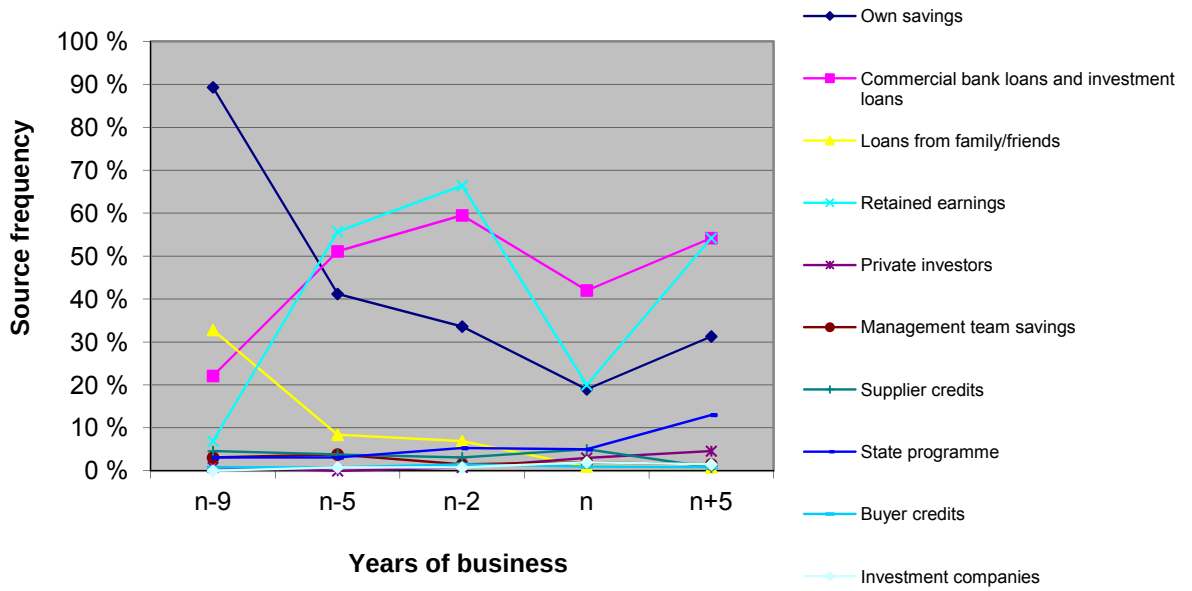
On 31 December 2010, all the studied dynamic enterprises employed 82,564 people or 16% of all employed people in Slovenia. The treated period saw a 46 percent employment growth rate. During the so-called economic crisis, the studied dynamic enterprises thus generated 26,094 new jobs. In these firms, sales revenue in 2010 amounted to EUR 18 billion, which is 23.51% of the total economy with a 78.50% growth (Vidovič, 2011).

More than two thirds of entrepreneurs are satisfied with the firm's achievements in the first five years of operation. The greatest achievements of dynamic enterprises in the last ten years were made in the field of employee satisfaction, enterprise competitiveness and future growth potential. In order for the enterprise to grow even faster, dynamic entrepreneurs also think about internationalisation of operation. Direct export is the form closest to them.

The entrepreneurs believe that the majority of their employees are sufficiently qualified for their work in the enterprise. More than one half of entrepreneurs emphasise that it is rather difficult to find employees with specific knowledge despite the currently very high unemployment rate in Slovenia. As the majority of employees obtained these specific skills in the current enterprise, it can be deducted that the majority of dynamic enterprises are very narrowly oriented and that employees have to have special (specific) knowledge to manage their work in the firm.

Dynamic enterprises are predominantly financed from retained earnings and own sources. Diagram 2 shows the changes in financing and financing plans for future investments in a ten-year period. In their first years of operation, dynamic enterprises finance their operation and growth from their own savings and from retained earnings, while the growth phase also needs to be supported by investment loans from banks. The crisis is obviously affecting financing plans and for future periods, enterprises mostly rely on their own savings and retained profits that are growing in the structure of financing.

Chart 2. Changes in financing and financing plans for future investments in a five-year period



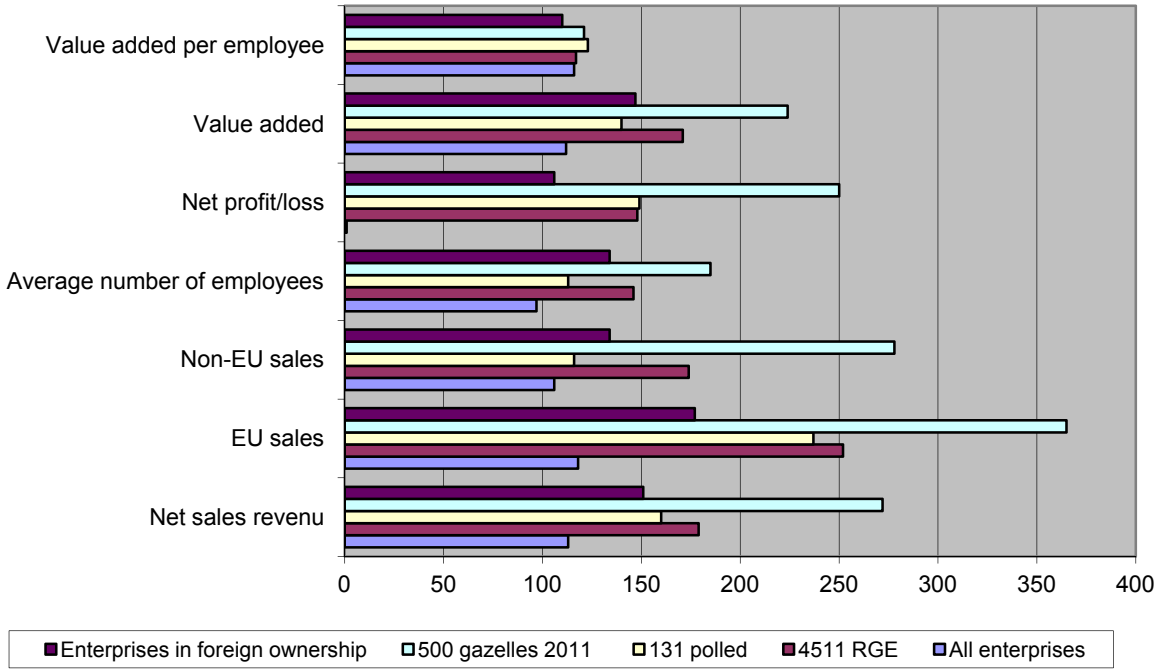
Source: Own

The implementation of changes in enterprises relates to the entrepreneur's readiness to take risks. Dynamic entrepreneurs list new opportunities and the desire for achievements as the main motives of their entrepreneurial action. They are critical towards the development of creativity in the educational process. They see the protection of intellectual property as insufficient or lacking and believe that the cooperation with the research and development sector is improving. Dynamic entrepreneurs are mostly motivated by the desire to grow – the vision of the enterprise in the future, as practically all entrepreneurs (93%) see this as the most important or at least very important motive for managing the enterprise.

The second position is held by the desire to build and manage a respected enterprise, while the desire for the development of employees, internal entrepreneurial motives and the anticipated higher yield also rank high.

Slovenian dynamic enterprises display some common characteristics and properties: 1 – they think similarly about the business environment and the state's attitude towards entrepreneurship, 2 – they are managed by similar types of entrepreneurs, 3 – they treat their employees similarly, 4 – they are characterised by specific business models and organisation, 5 – they choose similar growth strategies and 6 – the financing of growth follows certain common rules. In order to get a better insight into the rapid growth of enterprises exhibiting growth potential, we compared their growth levels with growth levels of Slovenian gazelles from the same period, Slovenian enterprises in foreign ownership, the study sample of 131 dynamic enterprises and of course all enterprises in Slovenia in the studied period.

Chart 3: Individual basic comparisons of growth indexes: all enterprises, 4,511 dynamic enterprises, 131 enterprises in the sample, 500 gazelles 2011 and enterprises in foreign ownership; Slovenia on 31 December 2010



Source: Own

The highest growth rates are of course recorded by the 500 gazelles that almost tripled their sales, with increased sales in the EU by four times, profit by 2.5 times and more than doubled value added. However, nine times as many dynamic enterprises (4,511) generated practically all of the total increase in sales revenue for the period, practically of the total increase of value added for the period and actually all new jobs. As mentioned before, in the 2006–2010 period, these enterprises: 1 – generated 23.7% of total net sales revenue in the country, 2 – employed 16% of all employees, 3 – held 16% of total capital, 4 – paid out 18.7% of all salaries and 5 – generated 21.8% of total value added in the economy.

For the next five years, almost one half of the dynamic enterprises have plans for investments of between EUR 100,000 and EUR 500,000. They will mostly finance these investments from profit, commercial or investment loans from banks and from their own savings. In the next two years, additional funds will be invested into entering new markets and purchasing real estate. Enterprises would be motivated for additional future investments by having the opportunities for taking on long-term loans, with better loan possibilities and lower interest rates. Based on investments, over two thirds or more than 40% of dynamic enterprises are planning to create from 1 to 9 new jobs, i.e. between 5,000 and 45,000 new jobs. The average monthly net salary of employees is between EUR 800 and EUR 1,000; in one third of cases even more than EUR 1,000. In the last year, dynamic enterprises invested an average of 2% to more than 2.50% of their revenue in research and development.

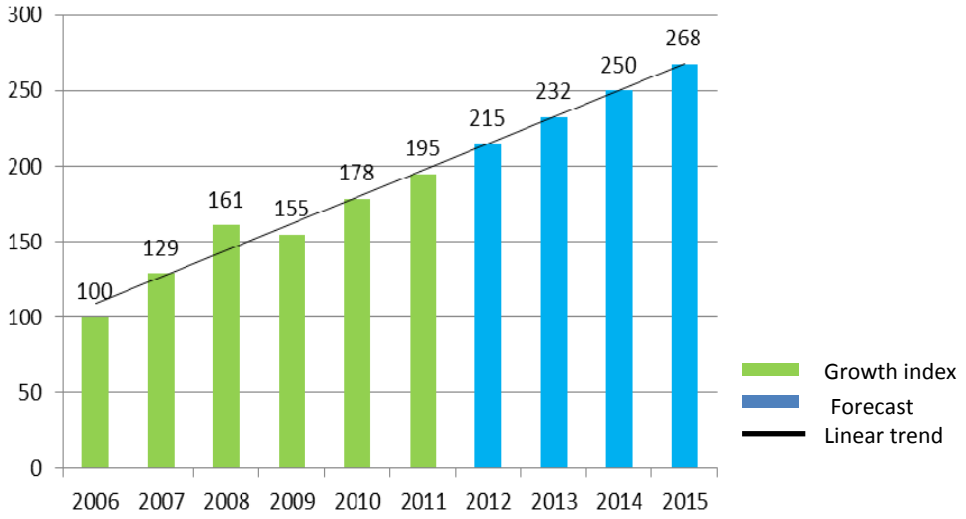
7 GROWTH FORECASTS FOR DYNAMIC ENTERPRISES IN THE 2012-2015 PERIOD

The growth analysis of dynamic enterprises for the 2006–2010 period showed an increase in growth during the years studied. Indicators with regard to the legal form of the enterprise are shown. Growth indexes for previous periods confirm Birch's and other findings that there are always approximately 5 % of rapidly growing enterprises that generate the most part of total

economic growth. In the most dynamic part of the economy, sales thus at least double in five years, while the number of employees increases by at least fifty percent. Based on the 2006–2010 data analysis, growth for future years was predicted by 131 entrepreneurs answered the questionnaire. Entrepreneurs were asked what is their prediction about the growth of total sales and about employment in the 2010–2014 period. The 2006–2010 period was initially a period of high growth that was followed by a steep decline of economic activity in the second part of the observed period. Entrepreneurs therefore estimated similar growth for the 2010–2014 period without any bigger risks (with the assumption that the economy will not deteriorate further in 2012). The fact that such forecasts, with the assumption that the economy will be revived, do not pose any major risks was undoubtedly supported by the already prepared growth forecasts for the 2003–2007 and 2004–2008 periods (Pšeničny, 2009) together with even older forecasts, i.e. the 1990–1993 study (Žižek and Liechtenstein, 1994) and the 1996–2000 study (Pšeničny, 2002).

On the basis of the studied sample of 131 dynamic enterprises, growth of dynamic enterprises was predicted for the year 2011 already in early 2011, a few months before AJPES published 2011 data. The analysis of operating results of 4,511 dynamic enterprises for 2011 (which was conducted in 2012 on the basis of published data) has shown that their growth was even steeper than the forecast for the third year of crisis (2011) that was made on the basis of the sample and steeper than what entrepreneurs forecast in their answers that were provided for the empirical study.

Chart 4. Net revenue, growth and projection (2006–2011 realisation, 2012–2015 projection)

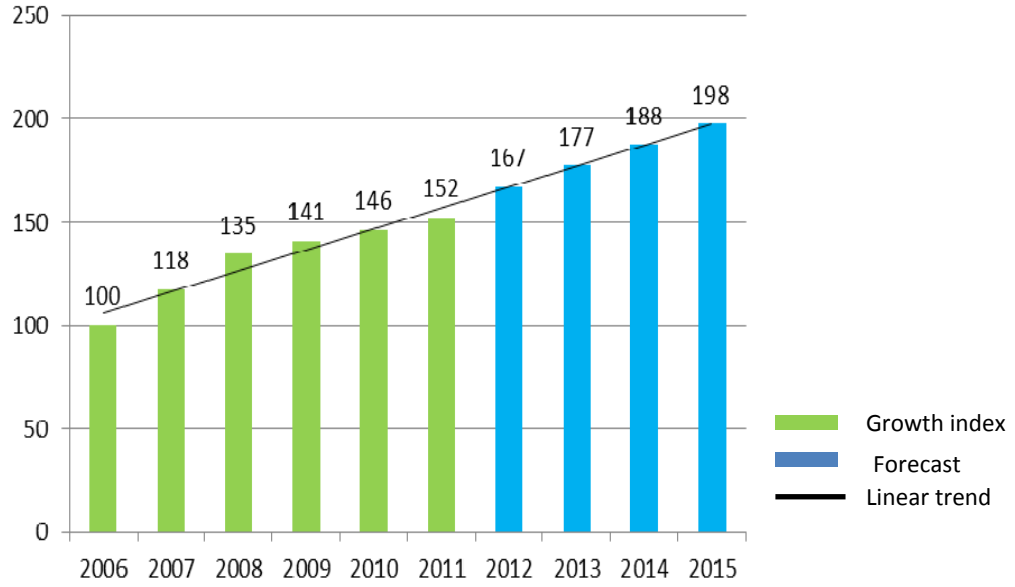


* diagram prepared on the basis of data for all 4,511 dynamic enterprises
Source: Own

Growth forecasts for future years thus indicate that up to 5% of the fastest-growing enterprises in Slovenia can generate up to 40 thousand new jobs by the year 2014 and EUR 32 billion of sales revenue, of that, EUR 13 billion on international markets. We estimate that by the year 2014, dynamic enterprises can generate EUR 55,000 of average value added per employee. In the 2006–2010 period, dynamic enterprises created 26,000 new jobs. In May 2012, we utilised a sample of 131 enterprises to forecast net revenue growth of dynamic enterprises from 2011 to 2014. A growth index of 178 was forecast for the year 2011 to the 2006 base year. The enterprises achieved a growth index of 195 (polled enterprises of 166) to the 2006 base year (Diagram 4). A detailed analysis shows that Slovenian dynamic enterprises experienced high growth in 2008, a shock in 2009 and again recorded rapid growth in the next

two years of crisis. This fluctuation was also reflected in employment (Diagram 5), where a slower employment trend is evident in 2010 and 2011.

Chart 5. Employees, growth and projection (2006–2011 realisation, 2012–2015 projection)



* Chart prepared on the basis of data for all 4,511 dynamic enterprises
Source: Own

The growth reality for dynamic enterprises forecast by entrepreneurs in the 2012 survey for the 2011–2014 period is corroborated by operating results for 2011, i.e. in the third year of the crisis. From 4,511 enterprises about 70 did not submit their annual reports to AJPES in 2011, while 4,440 enterprises recorded better results than in the previous five years. Their growth rates in the 2006–2011 period surpass growth rates from the 2006–2010 period. The sales growth index for the EU market for example stood at 292 (in the 2006–2010 period at 252) and the number of employees increased by additional 3,474 employees with regard to the 2006–2010 period (in the 2006–2010 period: 29,568 employees). Value added also increased to EUR 4,052,607,690 (value added per employee decreased to EUR 47,102). On this basis forecasts for the 2012–2015 period can be prepared the same as the forecasts for the 2011 results.

8 THE FINAL FINDINGS

Dynamic enterprises are considered to be small and young highly technological enterprises with an enviable ability of discovering new market niches and adapting their business processes to the goal in order to control new market opportunities (opportunity-driven). However, in the beginning it is difficult to differentiate them from other small enterprises. They soon separate from this group and rapidly grow through a longer period of time. They first devotedly build and carefully choose their first employees until they start rapidly growing, swiftly developing, intensively employing and continually staying ahead of the competition. Their aim is not merely to survive but, above all, to succeed. In this path, it is important to: 1 – ensure resources for rapid growth, 2 – find the right people for the new tasks in the enterprise equally fast, 3 – maintain innovations and the competitive advantage over pursuers/copycats and 4 – consider various key internal and external growth factors. When these and other assumptions are met, dynamic enterprises, according to chosen criteria (e.g. growth of sales), in a time interval of at least five years record growth levels that place them among the top 5 or even 0.5% of companies in the economy or sector.

The study, whose partial results have been presented in this article, shows that almost total growth of net sales revenue (EUR 8 million) in the 2006–2010 period was generated by only 4,511 or 3.55% of all economic operators in Slovenia. These enterprises generated 26,094 new jobs in five years (46% increase compared to 2006), which was more than the loss of jobs in the economy in the same five-year period. They increased value added by EUR 1.6 million (or by 71%), which equals the total increase of value added in the 2006–2010 period. They increased the value added per employee by 17%, however we need to stress that the average value added per employee in 2010 in dynamic enterprises stood at EUR 47,582, which is substantially above the economy's 2010 average that stood at EUR 35,152 per employee. The presented results confirm the findings of numerous authors (Birch, 1987; Roure, 1999; Mei-Pochtler, 1999; Acs et al., 2008; Henrekson and Johansson, 2008) who studied growth potential of dynamic enterprises in the past and who had established that 5% or less of the fastest growing enterprises generate up to 85% of revenue growth and up to 85% of all new jobs.

Growth forecasts for dynamic enterprises for future years show an optimistic picture for the development of the Slovenian economy in the future. However, in order to realise this estimated growth, obstacles that were pointed out by the dynamic enterprises that comprise our study sample will need to be considered and overcome. The current obstacles to growth seen by these enterprises are: 1 – the unfavourable legislation for entrepreneurship, 2 – especially the tax legislation, 3 – excessive costs of operation, 4 – insufficient demand and 5 – the inability to obtain appropriate financing. To sum up, two sets of measures are required in future years in planning the growth of the Slovenian economy. The first set encompasses measures that will provide enterprises with normal operating conditions that are comparable to the most dynamic countries (especially tax breaks and financing) and thus prevent a drop of employment. The second set relates to establishing appropriate conditions for the growth of dynamic enterprises that eliminate the obstacles that these enterprises are facing. If in this respect we manage to establish an entrepreneurship-friendly environment in all aspects, we can anticipate an increase in the share of rapidly growing enterprises, or at least 1,000 additional new dynamic enterprises, by the year 2015 and thus an additional facilitation of growth of the Slovenian economy.

Entrepreneurs and researchers have been pointing out for decades that the management of a growing enterprise and enterprise growth depend on entrepreneurial opportunities (the crisis actually facilitates the search for opportunities), on the ability to transition from a small to a professionally managed growing company, on generating positive cash flow, leadership, interpersonal relations with which the entrepreneur overcomes the lack of employees in his enterprise and on general values, with the most important being the remuneration for the entrepreneur's willingness to take risks and the desire to create an enterprise that will outlive future crises and generations.

9 BIBLIOGRAPHY

Acemoglu, D., Aghion, P., Lelarge, C., Van Reenen, J., Zilibotti, F., (2007): **Technology, Information, and the Decentralization of the Firm,** ***Quarterly Journal of Economics***, 12 (4): 1759 – 1799.

Acs, J. Z., and Storey, J. D., (2004): **Introduction: Entrepreneurship and Economic Development,** ***Regional Studies***, 38 (8): 871 – 877.

Acs, J. Z., and Audretsch, B. D., (2005): **Entrepreneurship, Innovation and Technological Change,** ***Foundations and Trends in Entrepreneurship***, 1 (4): 1 – 49.

Acs, J. Z., and Armington, C., (2006): **Entrepreneurship, Geography, and American Economic Growth**, New York: Cambridge University Press.

Acs, J. Z., and Amoros, J., (2008): **Entrepreneurship and Competitiveness Dynamics in Latin America, *Small Business Economics***, 31 (3): 305 – 322.

Acs, J. Z., and Mueller, P., (2008): **Employment Effects of Business Dynamics: Mice, Gazelles and Elephants, *Small Business Economics***, 30 (1): 85 – 100.

Acs, J. Z., Desai, S., Klapper, L., (2008): **What Does Entrepreneurship Data Really Show? *Small Business Economics***, 31 (3): 265 – 281.

Acs, J. Z., Audretsch, B. D., Braunerhjelm, P., Carlsson, B., (2009): **The Knowledge Spillover Theory of Entrepreneurship, *Small Business Economics***, 32 (1): 15 – 30.

Angelini, P., and Generale, A., (2008): **On the Evolution of Firm Size Distributions, *American Economic Review***, 98 (1): 426 – 438.

Antončič, B., Ruzzier, M., and Bratkovič, T., (2007): [**Ustanavljanje, rast in razvoj podjetja: primeri iz podjetništva]**, **Establishment, Growth and Development of the Company: Cases in Entrepreneurship**, Koper: Society for academic and applied research.

Armington, C., and Acs, J. Z., (2004): **Job Creation and Persistence in Service and Manufacturing, *Journal of Evolutionary Economics***, 14 (2): 305 – 329.

Audretsch, B. D., (2006): **Entrepreneurship, Innovation and Economic Growth,** Cheltenham: Edward Elgar Publishing.

Audretsch, B. D., and Lehmann, E. E., (2004): **Financing High-Tech Growth: The Role of Banks and Venture Capitalists, *Schmalenbach Business Review***, 56 (4): 340 – 357.

Audretsch, B. D., (2012): **Determinants of High-Growth Entrepreneurship. Report Prepared for the OECD/DBA International Workshop on High-growth Firms: Local Policies and Local Determinants**, Copenhagen: University of Indiana – United States.

Bajt, R., (2008): **[Dejavniki rasti v slovenskih dinamičnih podjetjih. Magistrsko delo], Growth Factors in the Slovenian Dynamic Enterprises, Master Thesis**, Ljubljana: Faculty of Economics.

Baumol, J. W., (2004): **Entrepreneurial Enterprises, Large Established Firms and Other Components of the Free-market Growth Machine, *Small Business Economics***, 23 (1): 9 – 21.

Bavdaž, M., Drnovšek, M., and Lotrič-Dolinar, A., (2009): **Achieving a Response From Fast Growing Companies: The Case of Slovenian Gazelles, *Ecomonic and Business Review***, 11 (3): 187 – 203.

Beck, T., Demirgüc-Kunt, A., and Maksimovic, V., (2005): **Financial and Legal Constraints to Growth: Does Firms Size Matter, *Journal of Finance***, 60 (1): 137 – 177.

Birch, L. D., (1979): **Job Generation Process**, Cambridge, MA: Joint Center for Neighbourhood and Regional Development, MIT.

Birch, L. D., (1981): **Who Creates Jobs? *The Public Interest***, 65 (1): 3 – 14.

Birch, L. D., (1987): **Job Creation in America: How our smallest companies put the most people to work**, New York: Free Press Macmillan.

Blanchflower, G. D., and Oswald, J. A., (1998): **What Makes an Entrepreneur? *Journal of Labor Economics***, 16 (1): 26 – 60.

Bosma, N., Van Praag, C. M., Thurik, R., de Wit, G., (2004): **The Value of Human and Social Capital Investments for the Business Performance of Startups, *Small Business Economics***, 23 (3): 227 – 236.

Bottazzi, G., and Secchi, A., (2006): **Explaining the Distribution of Firms Growth Rates, *Rand Journal of Economics***, 37 (2): 234 – 263.

Bottazzi, G., Cefis, E., Dosi, G., and Secchi, A., (2007): **Invariances and Diversities in the Patterns of Industrial Evolution: Some Evidence from Italian Manufacturing Industries,** ***Small Business Economics***, 29 (1): 137 – 159.

Charan, R., and Tichy, N., (1998): **Every Business is a Growth Business**, New York: John Wiley & Sons.

Coad, A., (2007): **Testing the Principle of "Growth of the Filter": The Relationship Between Profits and Firm Growth,** ***Structural Change and Economic Dynamics***, 18 (3): 370 – 386.

Coad, A., (2009): **The Growth of Firms: A Survey of Theories and Empirical Evidence**, Edward Elgar: Cheltenham, UK.

Coad, A., and Hölzl, W., (2009): **On the Autocorrelation of Growth Rates, Journal of Industry,** ***Competition and Trade***, 9 (2): 139 – 166.

Coad, A., and Rao, R., (2008): **Innovation and Firm Growth in High- Tech Sectors: A Quantile Regression Approach,** ***Research Policy***, 37 (4): 633 – 648.

Coad, A., and Rao, R., (2010): **Firm Growth and R&D Expenditure,** ***Economics of Innovation and New Technology***, 19 (2): 127 – 145.

Colombo, G. M., and Grilli, L., (2005): **Founders Human Capital and the Growth of New Technology-based Firms: A Competence-based View,** ***Research Policy***, 34 (6): 795 – 816.

Cooper, C. A., Gimeno-Gascon, F. J., and Woo, Y. C., (1994): **Initial Human and Financial Capital as Predictors of New Venture Performance,** ***Journal of Business Venturing***, 9 (5): 371 – 395.

Davidsson, P., (1989): **Entrepreneurship – and After? A Study of Growth Willingness in Small Firms,** ***Journal of Business Venturing***, 4 (3): 221 – 226.

Davidsson, P., Lindmark, L., and Olofsson, C., (1998): **The Extent of Overestimation of Small Firm Job Creation - An Empirical Examination of the Regression Bias,** ***Small Business Economics***, 11 (1): 87 – 100.

Davidsson, P., and Wiklund, J., (2000): **Conceptual and Empirical Challenges in the Study of Firms**, in D. Sexton, and H. Landström, ed.: ***The Blackwell handbook of Entrepreneurship***, Oxford: Blackwell.

Davidsson, P., and Delmar, F., (2006): **High-growth Firms and Their Contribution to Employment: The case of Sweden 1987-96**, in P. Davidsson, F. Delmar, and J. Wiklund, ed.: ***Entrepreneurship and the Growth of the Firm***, Cheltenham, UK: Edward Elgar.

Deschryvere, M. (2008), **High-growth Firms and Job-Creation in Finland, Discussion Paper**, ETLA, Helsinki, No. 1144, June 2008.

de Wit, G., (2005): **Firm Size Distributions: An Overview of Steady-state Distributions Resulting from Firm Dynamics Models,** ***International Journal of Industrial Organization***, 23 (5-6): 423 – 450.

Drnovšek, M., (1999): **[Ustanavljanje in rast podjetja], Creation and Business Growth**, Ljubljana: Faculty of Economics.

Drnovšek, M., (2005): **Job Creation Process in a Transition Economy,** ***Small Business Economics***, 3 (23): 179 – 188.

EIM, (2011): **Do SMEs create more and better jobs?** http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/performance-review/pdf/do-smes-create-more-and-better-jobs_en.pdf [Accessed 7.2.2013]

Foster, L., Haltiwanger, J., and Syverson, C., (2008): **Reallocation, Firm Turnover, and Efficiency: Selection on productivity or profitability?** ***American Economic Review***, 98 (1): 394 – 425.

Frederick, H. H., (2004): **Towards High Growth Enterprise,** ***International Journal of Entrepreneurship and Small Business***, 1 (3/4): 238 – 248.

Fritsch, M., and Mueller, P., (2004): **The Effects of New Business Formation on Regional Development over Time,** ***Regional Studies***, 38 (8): 961 – 975.

Fritsch, M., and Weyh, A., (2006): **How Large are the Direct Employment Effects of New Businesses. An Empirical Investigation for West Germany,** ***Small Business Economics***, 26 (2/3): 245 – 260.

Garnsey, W. E., and Heffernan, P., (2005): **Growth Setbacks in New Firms,** ***Futures***, 37 (7): 675 – 697.

Goedhuys, M., and Sleuwaegen, L., (2009): **High-growth Entrepreneurial Firms in Africa: A Quantile Regression Approach,** ***Small Business Economics***, 34 (1): 31 – 51.

Hall, B. H., Lotti, F., and Mairesse, J., (2008): **Employment, Innovation and Productivity: Evidence from Italian Microdata,** ***Industrial and Corporate Change***, 17 (4): 813 – 839.

Halabisky, D., Dreessen, E., and Parsley, C., (2006): **Growth in Firms in Canada 1985–1999,** ***Journal of Small Business and Entrepreneurship***, 19 (3): 255 – 268.

Harper, C. S., (1994): **The McGraw-Hill Guide to Managing Growth in your Emerging Business: Guidelines for Transforming your Small Business into an Exceptional Enterprise**, New York: McGraw-Hill.

Hart, P. E., and Oulton, N., (1996): **The Growth and Size of Firms,** ***Economic Journal***, 106 (3): 1242 – 1252.

Henrekson, M., and Johansson, D., (2009): **Competencies and Institutions Fostering High-growth Firms,** ***Foundations and Trends in Entrepreneurship***, 5 (1): 1 – 80.

Henrekson, M., and Johansson, D., (2010): **Gazelles as Job Creators: A Survey and Interpretation of the Evidence,** ***Small Business Economics***, 35 (2): 227 – 244.

Higson, C., Holly, S., and Kattuman, P., (2002): **The Cross-sectional Dynamics of the US Business Cycle: 1950-1999,** ***Journal of Economic Dynamics and Control***, 26 (9-10): 1539 – 1555.

Higson, C., Holly, S., Kattuman, P., and Platis, S., (2004): **The Business Cycle, Macroeconomic Shocks and the Cross-Section: The Growth of UK Quoted Companies**, ***Economica***, 71 (282): 299 – 318.

Hölzl, W. (2009): **Is the R&D Behaviour of Fast-growing SMEs Different? Evidence From CIS III Data for 16 Countries,** ***Small Business Economics***, 33 (1): 59 – 75.

Julien, P. A., (2007): **A Theory of Local Entrepreneurship in the Knowledge Economy**, Cheltenham: Edward Elgar.

Kingstone, B., (1987): **The Dynamos: Who are they Anyway?** New York: John Wiley and Sons.

Kurinčič, H., (2009): **[Financiranje rasti dinamičnih podjetij v Sloveniji. Magistrsko delo], Funding Growth of Dynamic Enterprises in Slovenia. Master Thesis**, Celje: Faculty of Commercial and Business Sciences.

Lechner, C., Dowling, M., and Welpe, M. I., (2006): **Firm Networks and Firm Development: The Role of the Relational Mix,** ***Journal of Business Venturing***, 21 (4): 514 – 540.

Leitao, J., and Franco, M., (2008): **Individual Entrepreneurship Capacity and Performance of SMEs**, Munich: MPRA Papers University Library of Munich.

Littunen, H., and Tohomo, T. (2003): **The High Growth in New Metal-Based Manufacturing and Business Service Firms in Finland,** ***Small Business Economics***, 21 (2): 187 – 200.

Lotti, F., Santarelli, E., and Vivarelli, M. (2003): **Does Gibrat's Law Hold Among Young, Small Firms?** ***Journal of Evolutionary Economics***, 13 (3): 213 – 235.

Mei-Pochtler, A., (1999): **Strategies for Growth**, Edinburgh: Europe's 500.

O'Regan, N., Ghobadian, A., and Gallear, D., (2006): **In Search of the Drivers of High Growth Manufacturing SMEs,** ***Technovation***, 26 (1): 30 – 41.

Penrose, E., (1959): **The Theory of the Growth of the Firm**, New York: John Wiley and Sons.

Pšeničny, V., (2002): **[Pogoji in možnosti za dinamično podjetništvo v Sloveniji], Conditions and Opportunities for Dynamic Entrepreneurship in Slovenia. Doctoral Thesis**, Ljubljana: Faculty of Economics.

Pšeničny, V., (2009): **A Longitudinal Comparison of the Growth Factors of Slovenian Fast Growing Enterprises,** ***Economic and Business Review***, 11 (4): 265 – 283.

Pšeničny, V., and Novak, R., (2013): **Organisational Factors of Rapid Growth of Slovenian Dynamic Enterprises,** ***Organizacija***, 46 (1): 3 – 12.

Pšeničny, V., Maček, A., Vidovič, D., Novak, R., (2012): **[Podjetja z visokim potencialom rasti 2012. Poročilo o raziskavi, 1. in 2. Faza], High Growth Potential Firms 2012. Research Report, 1st and 2nd Phase,** Maribor: DOBA Faculty.

Rebernik, M., Tominc, P., and Crnogaj, K. (2012): **[Usihanje podjetništva v Sloveniji: GEM Slovenija 2011], Decline of entrepreneurship in Slovenia: GEM Slovenia 2011,** Maribor: Faculty of Business and Economics.

Richbell, M. S., Watts, H. D., and Wardle, P., (2006): **Owner-managers and Business Planning in the Small Firm,** ***International Small Business Journal***, 24 (5): 496 – 514.

Robson, J. A. P., Wijbenga, F., and Parker, C. S., (2009): **Entrepreneurship and Policy, Challenges and Directions for Future Research,** ***International Small Business*** **Journal**, 27 (5): 531 – 535.

Roure, J., (1999): **Europe's Most Dynamic Entrereneurs; The 1998 Job Creators**, Bruselles: Europe's 500.

Schreyer, P., (2000), **High-growth Firms and Employment, OECD Science, Technology and Industry**, Paris, Working Papers, No. 2000/3.

Shelton, M. L., (2005): **Scale Barriers and Growth Opportunities: A Resource-based Model of New Venture Expansion,** ***Journal of Enterprising Culture***, 13 (4): 333 – 357.

Smallbone, D., Leigh, R., and North, D., (1995): **The Characteristics and Strategies of high Growth SMEs,** ***International Journal of Entrepreneurial Behaviour & Research***, 1 (3): 44 – 62.

St-Jean, E., Julien, P. A., and Audet, J., (2008): **Factors Associated with Growth Changes in Gazelles,** ***Journal of Enterprising Culture***, 16 (2): 161 – 188.

Stam, E., and Wennberg, K., (2009): **The Roles of R&D in New Firm Growth,** ***Small Business Economics***, 33 (1): 77 – 89.

Storey, J. D., (1994): **Understanding the Small Business Sector**, Routledge: Thomson.

Stuart, W. R., and Abetti, A. P., (1990): **Impact of Entrepreneurial and Management Experience on Early Performance,** ***Journal of Business Venturing***, 5 (3): 151 – 162.

Tajnikar, M., (2006): **[Tvegano poslovodenje: Knjiga o gazelah in rastočih poslih]. Risk Management: Book of Gazelles and Growing Business**, Portorož: GEA College of Entrepreneurship.

Van Praag, C. M., (2003): **Business Survival and Success of Young Small Business Owners: An Empirical Analysis,** ***Small Business Economics***, 21 (1): 1 – 17.

Vidovič, D., (2011): **AJPES Processing – Database of Annual Reports for the Years 2006 through 2010**, Maribor: The Ministry of the Economy of the Republic of Slovenia.

Wang, L. C., (2008): **Entrepreneurial Orientation, Learning Orientation, and Firm Performance,** ***Entrepreneurship Theory and Practice***, 32 (4): 635 – 657.

Žižek, J., and Liechtenstein, H., (1994): **Venture Capital & Entrepreneurship in Central & East Europe, Final Report. Database Survey on 750 Central and East European Dynamic Entreprneureurs**, Gent: EFER.

DYNAMIC ENTREPRENEURSHIP – GENERATOR OF SUSTAINABLE ECONOMIC GROWTH AND COMPETITIVENESS

Viljem Pšeničny
DOBA fakulteta
Prešernova ulica 1, 2000 Maribor, Slovenia
Phone: + 386 41 610 552
E-mail: viljem.psenicny@doba.si

Edvard Jakopin
Ministry of Regional Development and Local Self-Government
Makedonska 4, Beograd, Serbia
Phone: +381 11 3345-233, 3345-234; Fax: + 381 11 3345-531
E- mail: edvard@yubc.net

Zoran Vukčević
The Parliament of Montenegro
Bulevar Svetog Petra Cetinjskog br. 10, 81000 Podgorica, Montenegro
Phone: + 382 20 242 161
E-mail: zoran.vukcevic@t-com.me

Gordana Ćorić
University of Applied Sciences VERN'
Iblerov trg 10/I, Zagreb, Croatia
Phone: + 385 91 48 25 898
E-mail: gordana.coric@gmail.com, gordana.coric@vern.hr

Key words: *Dynamic Entrepreneurship, Sustainable Growth and Development Gazelles, Competitiveness*

ABSTRACT

Fast-growing companies (gazelles) are the main creators of new jobs, revenue growth and vibrant, competitive economy. This paper reviews (a) conditions for dynamic entrepreneurship in Croatia, Montenegro, Serbia and Slovenia and (b) recent studies on dynamic enterprises (gazelles) conducted in these countries. However, since the authors are in the process of launching new research on gazelles (based on the same methodology and selection criteria), which is to be carried out simultaneously in all four countries in 2014, the paper provides (c) discussion on these initiatives and initial results as well. A constant growth of dynamic enterprises and gazelles and their increasing share in economy presents an invaluable analytical instrument for forecasting overall economic growth in the next period.

In order to define favorable, supportive environment for dynamic and sustainable entrepreneurship, the authors addressed the institutional and regulatory environment, level of knowledge of entrepreneurs, access to finance, incentives for introduction of modern technology, innovations, internationalization, etc., and monitored the trends of entrepreneurial development index, entrepreneurial activity index and competitiveness index for each country.

Since the integral pilot project has already been implemented in Slovenia in 2011, and a number of conclusions were drown, the authors have studied the main features of fast-growing companies and differences between the growth factors that affect growing companies in Slovenia, and compared respective results in all four countries. Among factors for growth, the most critical ones in Slovenia were: environmental barriers, management systems and financing; these factors were further examined in other three countries. In addition, the growth rates of dynamic enterprises were compared with the ones of their European counterparts, and therefore these studies were able to offer an indication of what time is required by the Southeast European gazelles for catching up with their counterparts abroad.

The most important findings of this research and its impacts on respective countries, served as a basis for making recommendations for better addressing the phenomenon of dynamic entrepreneurship, sustainable growth and rising competitiveness.

1 INTRODUCTION

With this paper we present the most important findings of the initial research and comparison of dynamic entrepreneurship that has been carried out in Croatia, Montenegro, Slovenia, and Serbia. We find that dynamic enterprises do not significantly differ in growth rates. If backed up by a favourable environment and supportive atmosphere for entrepreneurship, gazelles could catch up with their counterparts in EU in ten years' time. Among factors for growth, the most critical are: environmental barriers, management systems and financing. Fast growing companies are crucial to the recovery of the economy.

Gazelles are the fast-growing companies that create most of the newly created jobs in the national economies. They represent not more than 3-5% of companies in the total number of businesses. These companies can achieve above average growth rates and can operate in any field of activity, even in those with low growth rates. The creator of the name gazelles is David Birch (Birch, 1987), professor of entrepreneurship from Boston MIT and founder of research and consultancy company Cognetics. During the seventies, with a booming Silicon Valley, it was learned that only 3% of the companies (so-called dynamic businesses, gazelles) both survive and continue to grow.

2 THEORETICAL CONTEXT OF DYNAMIC ENTREPRENEURSHIP

We have established that entrepreneurship, entrepreneur and the entrepreneurial organization have their roles in the economic science as well as in business science and that entrepreneurship cannot be automatically equated or restricted to the »small business« only, or to the creation of new enterprises. However, both in literature and in every day’s life this connection is frequently used and can be attributed to the fact that new economic entities do not emerge unless there is an entrepreneurial approach and entrepreneurs. On the other hand, there are not many economic entities in small business sector that act in an entrepreneurial way, have real potential for growth, or demonstrate wish to generate growth.

We have founded the necessity of an interdisciplinary treatment of entrepreneurship as a socio-economic phenomenon of the twenty-first century (Pšeničny, 2002), linking at least three basic approaches:

(1) *the economic aspect:* from the macro-economic and socio-economic aspects we can establish, assess and measure the contribution of »entrepreneurship« to the economic growth, employment, advanced stage of the country's economy, and the prosperity of

the society. From the micro-economic point of view, we can establish the economic effects of individual entrepreneurial entities, their optimum size to achieve the expected return and balance the use of resources to achieve the maximum effects;

(2) *the business-organisational aspect* helps us to assure the economic goals in an entrepreneurial organization – an enterprise – and administer and manage the business functions that are prerequisite for the specialization of entrepreneurship to achieve the economic and socio-economic goals;

(3) *the aspect of entrepreneurial management and entrepreneurial behaviour* allows us to clarify, to the certain extent, what the entrepreneurial handling and conduct of the entrepreneur (or the entrepreneurial team) and the entrepreneurial organization should be like to be able to apply the professional techniques and models developed by the business and organizational science and achieve economic, as well as non-economic goals as set by the entrepreneur and all others entering the organizational relationship.

We have restricted our study of entrepreneurship at this point of time to a narrower scope – the *dynamic entrepreneurship* and its role in economic growth. This has proved to have an exceptional macroeconomic role, and the growth of the most dynamic enterprises contributes crucially to the growth of national economies, social prosperity, job creation, technological progress and development, and also creates the highest added value (Pšeničny, 2009).

Dynamic entrepreneurship has been defined in great detail in the framework of the theory of growth (Penrose, 1959), by models and factors of growth divided into the environmental and internal ones (the enterprise and entrepreneur), by the motivation for growth (and harvest), by the strategies of growth, as well as by the management systems and development of the organization of enterprise. In the long run, the growth stands for the profit – i.e. the harvest for the entrepreneur who has identified and seized a market opportunity, and developed, on the basis of his clear vision and harvest expectation, a proactive strategy of growth and organization throughout all organizational stages up to the corporate entrepreneurship (Pšeničny, 2002). Dynamic enterprises are led by dynamic entrepreneurs who create the change and have an effect on the environment, are innovative and successful in the long-run, which can be measured by financial and non-financial indices, and whose business strategies are competitiveness, internationalization and globalization.

Dynamic enterprises can be found in all developmental stages of an enterprise, not only in the so-called stage of growth. The long-term growth is related to, and depends on, the assertion of the leadership professionalization and the development of an entrepreneurial and managerial team, as well as on an advanced, professional organizational structure, tailored to the nature of the business. Underlying for the dynamic enterprise leadership is the understanding and awareness of the management techniques of a growing enterprise, which means that we cannot expect the most dynamic enterprises to be led by individual entrepreneurs, but by strong entrepreneurial and management teams, under the lead of an influential entrepreneur or an entrepreneurial manager, who must not necessarily be the founder of the enterprise.

The study of the current cognizance has proved that the growth of (dynamic) enterprises depends on certain factors (Mei-Pochtler, 1999; Roure, 1999): (1) the business environment, (2) the entrepreneur and/ or the entrepreneurial-managerial team and their capability, (3) the attitude of the entrepreneur and the enterprise to innovation, development and research activities, and introducing changes, (4) the strategy or model of growth and harvest, (5) the management system and business model, (6) the employees' and human resources'

management, and (7) the financing of growth. The factors of growth have an external – environmental (1) and internal component (2-7).

The similarities and differences in the interplay of these factors and individual principles on the dynamic enterprises in Croatia, Montenegro, Slovenia, and Serbia were scrutinized and compared with the dynamic enterprises in the European Union (EU). Dynamic enterprises and dynamic entrepreneurs were categorized, according to the EU criteria, among the fastest growing dynamic enterprises in Europe. Our thesis is that the dynamic enterprises in studied countries emerge and operate in the same characteristics, but different internal and external conditions that are relevant for the fast growth of enterprises in the EU. In order to accelerate the enterprise growth and support to the dynamic entrepreneurship, we should at least provide similar conditions in the environment and inside fast-growing enterprises, as the dynamic enterprises in Europe have. If we identify these differences, we could stimulate the activities that should lead to provide similar conditions for dynamic entrepreneurs in the near future, such as European dynamic enterprises enjoy now. Therefore, our fundamental hypothesis shall read:

2.1 Even in the time of crisis not more than 5% of economic entities generate almost all economic growth and most new jobs.

To verify the differences in growth between dynamic companies in studied countries, we have selected from the database of all enterprises such enterprises that fulfilled certain criteria, and checked them additionally against the criteria of growth as specified above. The criteria that were applied to select the most dynamic enterprises are equal to the criteria applied for the selection of the European dynamic enterprises – the *Europe's 500* (GrowthPlus, 2001).

The development and competitiveness of entrepreneurship in Slovenia, Serbia, Croatia and Montenegro

The entrepreneurial sector in analyzed countries accounts for 99.8% of the number of enterprises, in the structure of economy employs 2/3 of the employed, generates 2/3 of turnover and 55% of the newly created value; it accounts for 49% of exports and 1/3 of GDP. However, in comparison with large enterprises the entrepreneurial sector is less productive and less profitable.

Table 1. Weight of the entrepreneurial sector (SMEs) in economy 2011 (%)

Indicators	Serbia	Slovenia	Croatia
No of enterprises	99,8	99,47	99,6
No of employees	65,3	64,62	65,6
Turnover	65,5	49	50,2
GVA	55,2	53,91	58,9
Exports	48,5	46,12	42
Imports	55,8	61,95	40,4
Balance of goods	66,7	236,52	n/a
Investments	52,1	61,41	n/a

Source: National statistic offices

In the structure of the entrepreneurial sector micro enterprises are most numerous, while small and medium-sized enterprises dominate all the indicators of reference. Medium-sized enterprises export 47.2% and have the best export-import ratio; micro enterprises employ 45.6%, while the balance of goods is the highest in small enterprises.

The level of competitiveness of the SME sector of Serbia significantly lags behind the European average and most transition economies. Qualitative indicators of the development level of the entrepreneurial sector are lower in comparison with the EU average and the majority of analyzed countries (employment per enterprise, turnover, GVA, and profit per employee). The rate of profitability is above the average, a consequence of a low starting basis and not the expansion or a higher level of this sector's internationalization.

Table 2. Comparative indicators of entrepreneurship development 2011

	EU	Bulgaria	Czech	Hungary	Romania	Slovenia	Serbia	Croatia*	Montenegro**
No of companies (in 000)	20,989.9	287.0	934.5	552.7	535.3	106.9	319.3	168,9	23,3
No of employees (in 000)	87,818.2	1,459.2	2,368.8	1,876.8	3,032.3	396.9	786.9	1,432	123,7
No of SME per 1,000 citizens	41.8	38.9	89.1	55.3	25.0	52.1	43.6	33,4	37,3
No of employees per company	4.2	5.1	2.5	3.4	5.7	3.7	2.5	5,1	5,3
Turnover per employee (in EUR 000)	141.9	53.5	100.5	84.7	49.4	122.0	64.8	139,2	n/a
GVA per employee (in EUR 000)	41.3	10.1	20.6	13.5	9.2	29.3	10.9	30,6	n/a
Profit per employee (in EUR 000)	10.9	4.2	3.6	0.6	7.2	2.4	4.0	n/a	n/a
Profitability rate	27.0	38.1	19	2.0	52.0	9.0	36.1	n/a	n/a

Source: EUROSTAT, DG Enterprise and Industry and national statistic offices. * Data 2010, ** Data 2009

Due to deteriorated business climate, the number of start-ups as well as new entrepreneurs is decreasing, which heavily restricts opportunities for the creation of new jobs and productivity growth. For example, in the course of 2011 each month around 3,400 individuals established new business entities, much less than 5,000 individuals (an average number of people that set up businesses each month in 2007).

The entrepreneurial environment in Serbia has deteriorated since the outbreak of the economic crisis. Consumer demand has been decreasing and the loss of business trust has made an adverse impact on the availability of financial support; therefore the opening of new and development of existing enterprises and shops has been seriously limited. The rate of the setting up of new enterprises has slowed down substantially. Namely, in 2007 per each 6 newly established enterprises one was closed down, and per three newly opened shops two were closed. In 2011 per 6 newly established companies 10 were closed, and the number of established shops was by about 10% lower than the number of closed ones. Prospects of newly established companies to survive on the market diminished, and so the share of companies that live through the first two years of operating went down from 92.0% (2007) to 87.6% (2011), while the rate of survival of shops fell from 66.2% to 55.4%. At the same time, unemployment increased a lot, which leads to continued forced emigration, particularly of the young and the educated. The global economic crisis has made an adverse impact both on economic entities in the early stage of operating and on already established companies – there are fewer business opportunities and it is more difficult to start a business.

Since the beginning of the crisis in the second half of 2008 the Slovene business sector experienced an above average economic growth of annually 3 to 4%. In 2008, the Slovene gross domestic product (GDP) per capita in terms of purchasing power reached 91% of the EU average and in 2009 a sharp slump followed as a consequence of the financial and economic crisis. The GDP shrunk by 8 %. Initially, weak positive growth was observed

followed by a slight deterioration in 2011. In the three years since the beginning of the economic crisis Slovenia was lagging behind the European average and the difference rose by 7 percentage points. In comparison to the EU average the fall of the GDP per capita in 2009 generally resulted from a relatively larger fall of productivity compared to the EU. In 2010, the unemployment rate adjusted to the economic situation in a great extent (SIB, 2013).

The lack of fresh property and loan financing resources presents the greatest risk for the economic recovery. Beside weak financial markets weakened by a long-term debt and financial crisis in the euro area, other obstacles in the way of recovery are the drop of the domestic demand and the decline of demand on foreign markets, where the Slovene economy is traditionally present. The Slovene economy is also too slow at accessing new, growing world markets or is only indirectly present.

The number of business entities in Slovenia rose by 3800 or 2.5 % in 2006 and in 2009 (the first year of the crisis) by 6310 or for more than 5 %. In 2011 more entries but also more deletions from the Slovene Business Register were recorded (the difference being 4141 entities). In the year 2012 the positive difference between new entries and deletions dropped to only 1457 and that is significantly less than in the period before the crisis.

A positive element are high-growth firms, which were practically responsible for the entire economic growth in the period 2006–2010, for the overall increase in added value and all new workplaces in the Slovene economy.

As per *Entrepreneurship Development Strategy* (2013-2020), proposed by Croatian Ministry of Entrepreneurship and Crafts, measured number of enterprises, total employment in these companies and their value added, small business sector in Croatia shows no significant differences in relation to the EU. In Croatia, there are a total of 168,931 small business entities (data for 2011., taken from Financial agency's FINA report on the financial performance for 2011., the Trades/crafts registry at the Ministry of Entrepreneurship and Crafts, and Croatian Chamber of Trades and Crafts).

The same source reports that, of these, 92.2% are micro enterprises (up to 9 employees), 6.3% are small businesses (10 to 49 employees) and medium-sized enterprises amounted to 1.2%. The sum of these percentages shows that in Croatia there are 99.7% of small business entities. Data for the EU Member States (EU-27) show that 99.8% of all small businesses.

Employment in small enterprises in Croatia in 2010. amounted to 702,071, or 69.83% (calculation based on data at FINA and administration of the Central Bureau of Statistics for 2010. year) of total employment. Micro enterprises employed 26.06% of the total number of employees, small businesses 27.07% and medium-sized 16.71%. Data for the EU-27 amounted to 67.5% of all small businesses, and 20.6% for small businesses. Compared with the EU-27, a small business in Croatia are more important for the creation of employment.

With regard to value added, small business sector in Croatia amounted to 58.9% of the 11 total value added in 2009. year, of which micro businesses created 20.3% of value added and 19.6% of small businesses, and medium-sized enterprises contributed with 19.1%. If the same data is compared those from 2008., when the total value added of the small business sector amounted to 57.1% (of which are micro enterprises incurred 16.6% of value added, 20.2% of small businesses, and medium-sized 20.3%), it is evident that the percentage of value added in this sector has increased thanks to the micro-enterprises, which are the only continued to give a positive contribution to the value added. In the EU-27 share of the small business

sector amounted to 58.4% of value added produced by all companies. Of these, micro-enterprises, to 21.5%, 18.6% of small businesses and medium-sized 18.3%.

Small business sector in Croatia did not show significant differences with respect to the same sector in the EU Member States with regard to the composition and the importance of sub-sectors for the total number of enterprises, the share of total employment and contribution to total value added.

In the period between 2001 and 2010, the density of small businesses per 1000 population in Croatia has increased from 12.71% in 2001. to 22.47% in 2010., as a result of increasing the number of small businesses and a declining population. The same data for the EU-27 average is 39.3%. The latest available data also indicate that a significant percentage of the recorded number of small enterprises in Croatia are not active (28.4%).

Although Croatia shows very similar characteristics to those of the EU in terms of the share of small and medium enterprises in the total number of companies and its contribution to employment and value added, it is necessary to increase the number of active small and medium enterprises in the country.

2.2 The impact of the recession on the entrepreneurial sector

Before the outburst of the global economic crisis the SME sector had been the most vital segment of the economy and a major source of new jobs. Due to general deterioration of business conditions, there was a considerable decrease in the volume of employed labor and, consequently, a comparative improvement of business performances relative to the number of employees.

Table 3. Performance indicators in SMEs sector (growth rates)

	Serbia			Slovenia			Croatia			Montenegro		
	2009	2010	2011	2009	2010	2011	2009	2010	2011	2009	2010	2011
No of enterprises	3,7	1,2	0,2	4	2,5	3,1	n/a	n/a	-5,7	n/a	-4,4	8,9
No of employees	-7,2	-6,6	-3,4	-4,9	-3,5	-2,1	-3,6	-4,5	-1,4	4,8	-7,5	0,8
Turnover	-14,7	0,3	0,2	-14,8	4,4	4,3	n/a	-5,6	5,7	n/a	n/a	n/a
GVA	-15,7	-1,4	-3,2	-8,6	-0,5	1,3	n/a	-12,7	12	n/a	n/a	4,5
Exports	-8,9	15,9	6,0	-15,1	15,9	13,4	n/a	13,2	25,9	n/a	n/a	n/a
Imports	-24,2	1,9	1,3	-24,5	13,8	11,6	n/a	-29,2	14,3	n/a	n/a	n/a
Balance of goods	-33,1	-9,1	-3,5	-37,9	-9,8	-8	n/a	n/a	n/a	n/a	n/a	n/a

Source: EUROSTAT, DG Enterprise and Industry and national statistic offices.

The recession tide (decline of external and internal demand, investments, higher risks and costs of investment, as well as a fear of failure) hit the entrepreneurial sector in Slovenia, Croatia, Serbia and Montenegro particularly hard. Robust entrepreneurial dynamics of the previous period has been undermined (slower establishment, growth, and development of new enterprises, and faster closing), and so the number of shops fell and the number of enterprises is stagnating. Research done on the basis of the GEDI index and its sub-indexes relating to key dimensions of entrepreneurial activity in 2008-2010 point to strong negative effects of the crisis on the entrepreneurial climate in SEE: deteriorated business conditions led to a decrease in perceived opportunities for staring a new business, expansion of the fear of failure (induced by higher investment risks) and a decline in social support for entrepreneurial activities, coupled with more intensity of the market competition. At the same time, the share of new companies in the sector of medium- and high technology is heavily decreasing, and chances for a company to apply new technologies and innovations of implement business strategies

that ensure faster growth are slimmer. The degree of orientation of new companies to an external market is in ever greater decline, and so is their readiness to employ venture capital.

Data extracted from the Entrepreneurship Development Strategy for Croatia 2013-2020 include the following: SME share in GDP is 51.6%; number of small business entities: 168,931. The share of micro enterprises: 92.2%, of small businesses: 6.3% and of medium-sized companies: 1.2%. In total, 99.7% of all businesses - small businesses (EU average: 99.8%). SME's contribution to GDP is 50.6% (EU: 67%). The number of employees in 2010 was 702,071, which contributes with 68.83% of total employment (EU: 67.5%). Share of value added (2009.) was 58.9% (EU: 58.4%).

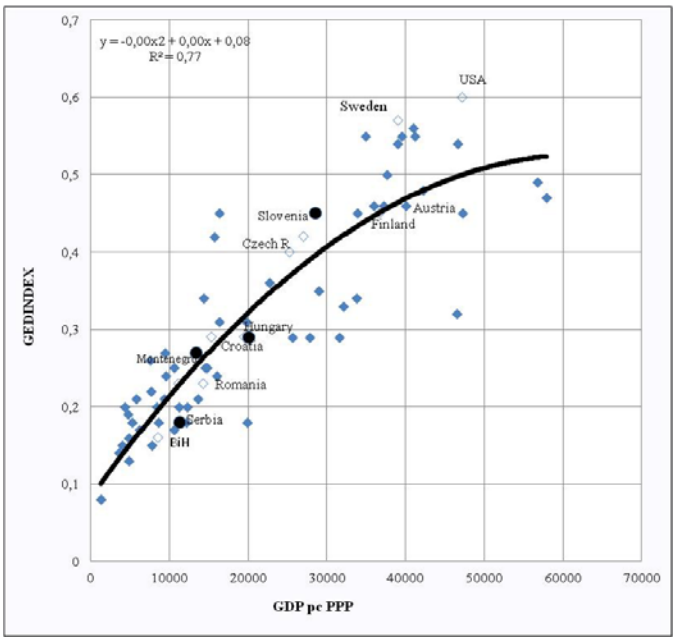
According to data from the 2012 Eurobarometer, 54% of the Croatian population experiences selfemplyment as positive event (EU: 37%), but 80% is not considered feasible (EU: 67%). According to the same survey 54% of Croatian citizens want to be entrepreneurs (EU: 37%), a significant increase compared to 2009. when 43% of Croatian citizens (EU: 45%) had a desire to be self-employed.

2.3 The quality of entrepreneurship

Measuring the quality of entrepreneurship entails a study of various dimensions of entrepreneurship development by states, the focus being on measuring the impact of innovations, the quality of technology, education of labor, and availability of the venture capital.

One of the most representative composite indicators for measuring the quality of entrepreneurship is *GEDI - Global* Entrepreneurship *Development Index*[138]. In particular, GEDI examines effects of entrepreneurship and innovations that are caused by individual and institutional factors.

Figure 1. GEDI indeks

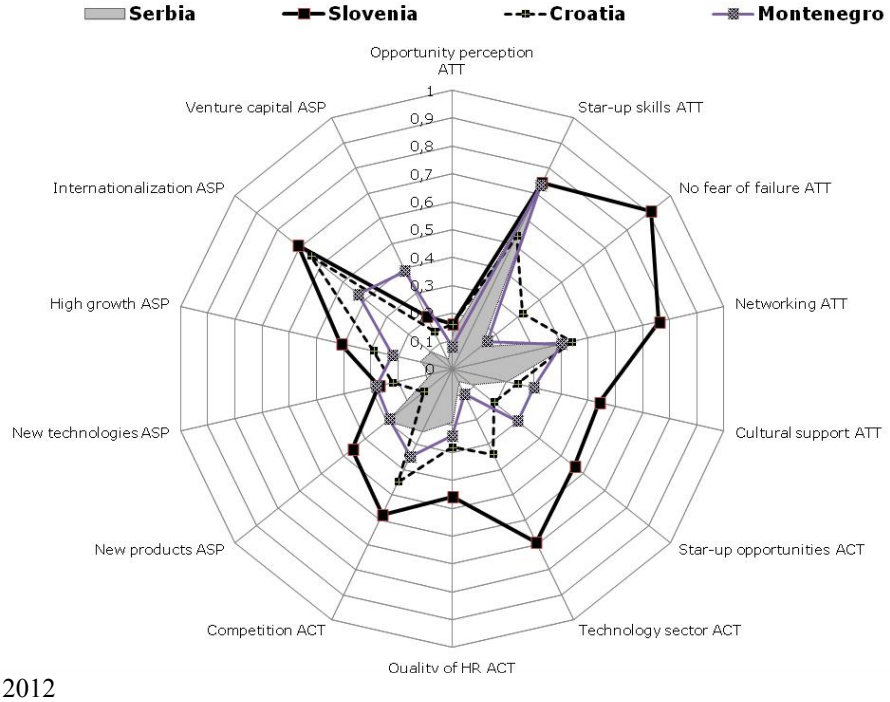


Source: GEDI 2012.

[138] Acs, Autio, and Szerb (2010, 2011, 2012). GEDI comprises three different entrepreneurship dimensions: *The entrepreneurial attitude (ATT)*; *The entrepreneurial activity (ACT)*; *The entrepreneurial aspiration (ASP)*.

The value of GEDI are different from county to country: Serbia 0.18 (the rank being 63), Romania and Macedonia (0.23), Montenegro 0.27, Hungary and Croatia (0.29), Slovenia (0.42), Austria (0.46). The average value for SEE is three times less than in Denmark (0.55). In the group of countries whose development is driven by efficiency[139], Serbia is at the bottom of the list – the highest ranked country is Columbia (0.27), and the lowest value of GEDI is that of Ecuador (0.15). In relation to the attained level of economic development, the level of GEDI and all three sub-indicators (ATT, ACT, and ASP) in SEE countries is low.

Figure 2. The quality of entrepreneurship in Slovenia, Serbia, Croatia and Montenegro



Source: GEDI 2012

Sub-indicators of the dimension *Entrepreneurial attitude* show that deterioration of business conditions in Serbia, Croatia and Montenegro has led to reduction of perceived opportunities for starting new business, expansion of the fear of failure (related to amplification of investment risks), and a decline in social support for entrepreneurial activities. In comparison with adjacent countries and the EU average, a lower value of the sub-index Entrepreneurial attitude (0.29) is registered only in BiH (0.21) and Romania (0.22).

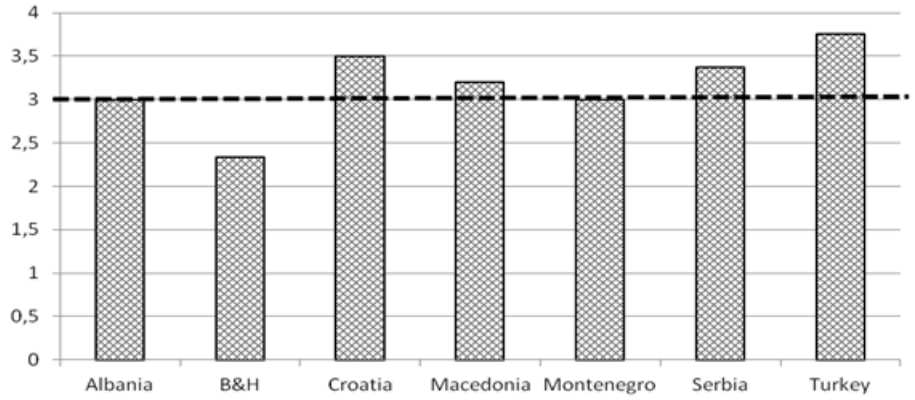
The trend of some sub-indexes of *Entrepreneurial activity* is extreme decline: the share of new companies in the sector of medium and high technology is heavily decreasing and opportunities of businesses to apply new technology are tighter. Serbia and BiH have the lowest values of this sub-index (0.14 each), while an above average value is that of Slovenia (0.46 vs. 0.44 of the EU). As for the segment of *Entrepreneurial aspiration,* the degree of state-of–the-art technology and innovation application is in decline, and so are entrepreneurs' chances to apply business strategies that provide faster growth, the level of openness of new companies to the international market, as well as the degree of venture capital usage. For example, the sub-indicator of the internationalization degree of the SME sector in Serbia is only by 0.10 and 5-6 times lower than that of Romania (0.65), Croatia (0.60), Macedonia (0.50), and Hungary (0.46).

[139] Average of the group "Stage 2 – Efficiency-driven Economies" (WEF).

2.4 Policy of entrepreneurship development - SBA

The official framework for the policy of entrepreneurship development in the European Union is based on the *Small Business Act - SBA*. Guidelines for the creation and implementation of policies at the level of the EU and SBA member states are defined in the form of 10 principles: creation of a stimulating environment that appreciates entrepreneurship and family business; providing opportunities for the 'second chance' for honourable entrepreneurs that went bankrupt; defining rules and regulations in line with the principle 'think small first'; building up of public administration that is more responsive to needs of SME; facilitating participation of SME in public procurement and better making use of state aid; facilitating the access of SME to sources of funding and creating conditions for due payment of debts; assistance for SME so that they would take full advantage of the common market; improvement of skills and knowledge; innovations; eco-innovations, and SME's penetration of emerging markets (especially those of China and India). All the principles are backed by elaborate proposals for concrete actions and activities, divided as commitments of the European Commission and recommendations for member states. Since 2009 the SBA has been the reference framework for policies of support for SME and Western Balkans countries.

Figure 3. SME Policy Index in 2012



Source: OECD

SBA is translated into practice through the monitoring of the *SME Policy Index* which has been developed by most eminent global institutions such as the OECD, European Commission, EBRD, and ETF (European Training Fund). On the basis of the latest Report and the Index results, the rate of reforms has slowed down:

- Various levels of economic development and the fact that some countries have made greater progress in the process of EU accession have impacted on opportunities for development and an effective implementation of SMEE policies in a consistent and harmonized way.

- The global financial crisis diverted the attention of governments from structural reforms of SME policies to short-term measures of support.

Table 4. Index of SME policy by areas in 2012

	Croatia	Serbia	Slovenia	Montenegro
1. Education and training	3.25	2.25	2.5	2,5
2. Bankruptcy and second chance	3	2.75	2.75	3,75
3. Regulatory framework for SME policy making	3.75	4	4	3,75
4. Operational environment	3.5	3.5	3.5	3,5
5a. Business support for SME and start-up	4	3.5	2.5	3
5b. Public procurement	3	3	2.5	3,25
6. Access to finance for SME	3.5	3.75	2.5	3
7. Standards and technical regulation	4.25	4	3.75	2,75
8a. Enterprise skills	3.25	3	2.75	2,75
8b. Innovation policy	3.75	3.25	2.75	2
9. SME in a green economy	3.25	2.75		2,25
10. Internationalization of SME	4	4.25	2.75	3,25

Source: OECD

The SEE countries are given the following recommendations:

- Working environment should be improved and targeted measures of support for most dynamic enterprises designed and implemented. For example, while the system of business registration is largely efficient, it can be additionally improved by adjusting the company's registration number and expanding the online registration service that at the moment is available only to entrepreneurs.

- Bankruptcy procedures should be made more efficient.

- The existing network of incubators should be reinforced and support for them increased. Incubators need to be more oriented towards science-based companies, i.e. high-quality services that provide greater value and support for innovations.

- The promotion of green economy could generate new opportunities for the SME sector, both in the country and on export markets. Eco-efficiency and eco-innovations should be underlined as priorities in the following SME strategies and linked to clear goals and measures.

- In the area of development of human capital, the role of high education institutions in the promotion of cooperation with the business community, and the „cross campus" concept of entrepreneurial learning need to be promoted.

3 RESEARCH RESULTS IN SLOVENIA, SERBIA AND CROATIA

Since projects in Slovenia and Serbia used the same methodology, their researh results will be presented and compared in this chapter. In addition, research results from the Croatian gazelles project[140] will be presented separatelly.

[140] different criteria used

3.1 Methodological framework and initial results

The research of company's growth is based on various methodological concepts, which include most representative indicators, such as: an increase in total or business income, a newly created value, the number of employees, the market value of a company, market shares, the value of goods or service brands, company's assets, etc. The paper promotes an entirely new methodological concept of measuring the dynamic entrepreneurship in Serbia and Slovenia. Criteria and indicators result from a continual research into dynamic entrepreneurship in Serbia (Jakopin, 2003 and 2008) and Slovenia (Pšeničny 2002 and 2012). The research is based on the quantitative analysis of growth of all the companies in Serbia during the period 2005-2010. The methodological framework for studying the dynamic entrepreneurship in 2005-2010 has been based on the following criteria that had to be met by rapidly growing companies:

- they had more than 2 employees in 2010 or more than one employee (this criterion refers to entrepreneurs);
- their business income was higher than EUR 65,000 (Serbia) and 100,000 (Slovenia) in 2010 (the border value represents average business income in economy);
- their GVA (newly created value) per employee in 2010 on 2006 was larger than an average GVA per employee in economy;
- their enterprise worked continuously over the analyzed period of 5 years;
- their enterprise had at least the same number of employees in 2010 and higher GVA in 2010 compared to 2006;
- they created at least twice as high average growth of business income than created in economy over the period 2006-2010;
- the minimal cumulative profit was registered over the period 2006-2010;
- enterprises are not in majority ownership of the state (over 50%) on December 31 2010;
- enterprises dealing with the following activities have been excluded: L – Real estate; O – Public administration and defence, compulsory social insurance; S – Other services; T – Household activities with employers; various goods; U – extra-territorial organizations and institutions.

The listed criteria were met by 2,583 enterprises in Serbia in 2010, which equaled 2.84% of the total number of enterprises in Serbia. In Slovenia under the same criteria 4,511 fast-growing companies or 3,55% of the total number of enterprises, both value added and the number of employees grew even during the economic crisis. These enterprises generated 26,000 jobs while the economy had lost 24,000 jobs in 5 years (2006-2010).

The methodological process of ascertaining gazelles in Serbia was based on the well-known Birch's indicator[141] (Birch, 1987), which analyzes changes to the number of the employed, the

[141] The Birch's indicator aims to reduce the impact of a company's size on the growth indicator, and presents a combination of the proportional and absolute rise in employment:

newly created value, or their combination. The application of the Birch's indicator has helped differentiate 300 gazelles in Serbia, which is slightly more than 10% of dynamic enterprises.

In Croatia, somewhat different project aimed at identifying and promoting the concept of gazelles and fast growing companies, was initiated in 2006 (Coric, Meter & Bublic, 2012) . Croatian newspaper Business.hr had launched the study of fast growing companies (Croatian Gazelles), based on the growth criteria defined by achieving cumulative turnover growth by at least 20% (30%) in the three preceding years. Since then, Business.hr researched the data of over 5000 Croatian Gazelles in 6 consecutive listings, provided by the national financial agency FINA. The study has been divided into six regions in Croatia.

Eligibility criteria for the selection among Croatian gazelles included the following:

- the company operates three full calendar years with a cumulative profit in all three years, provided that the profit is higher than 0 in the last (upper) reference year (n);
- the company is founded the latest on January 1 of the year n-2 (lower reference year), and is still active;
- there are at least five employees in all these three years, and the company were not employing 1000 or more employees in the year n-2;
- at least three final accounts are submitted to the national financial agency for the years n-2, n-1 and n;
- business income/turnover earned in the year n is at least 20% higher than the business income earned in the year n-2 (in the first 4 listings, the increase requirement was defined at 30%);
- business income must be higher than 3,000.000,00 Kn in the year n-2, but should not exceed 500,000.000,00 Kn in the year n;
- company must be market-oriented (not to be a utility company or institution);
- financial institutions are excluded (due to different reporting obligations);
- clean record - the company and/or management are not subjects of the open investigation(s), there are no verdicts against them due to economic or other serious wrongdoing in the business, and there are no doubts in the legality of the business.

Since 2010, the additional criteria for establishing the priority in the ranking of companies were introduced – the priority was given to the companies that have had growth in employment in the period in the three studied years, according to the Birch index, representing the absolute difference in employment between the upper (n) and the lower (n-2) reference year, multiplied by employment in the upper reference year, divided by employment in the lower reference year.

$m=(X_{i,t} - X_{i,t0})*(X_{i,t}/ X_{i,t0})$,
whereby $X_{i,t}$ and $X_{i,t0}$ present the number of employees at the end and at the beginning of the period of reference. The Birch's indicator still depends on the size of a company, but the degree of bias is lower in relation to the company's size than with the proportional or absolute measure of growth.

In 2010, in addition to the concept of gazelles as fast-growing companies, the concept of sustainable gazelles was introduced in the project Croatian Gazelles. Sustainable gazelle are gazelles that were featured (ranked) amongst the winning gazelles in all listings since the commencement of the project in 2006, and thus showing outstanding performance and growth for 8 years.

Referring to the data from 2010, 1085 companies-gazelles created 12.827 jobs between 2007-2009 (on average, each company opened 12 new jobs). However, the data reported in the 2011. gazelle report showed significant drop in numbers: 976 gazelles created 6.767 new jobs between 2008 and 2010, which gives only 7 new jobs per company.

3.2 Less than 5% of companies generate the entire economic growth in Slovenia and Serbia

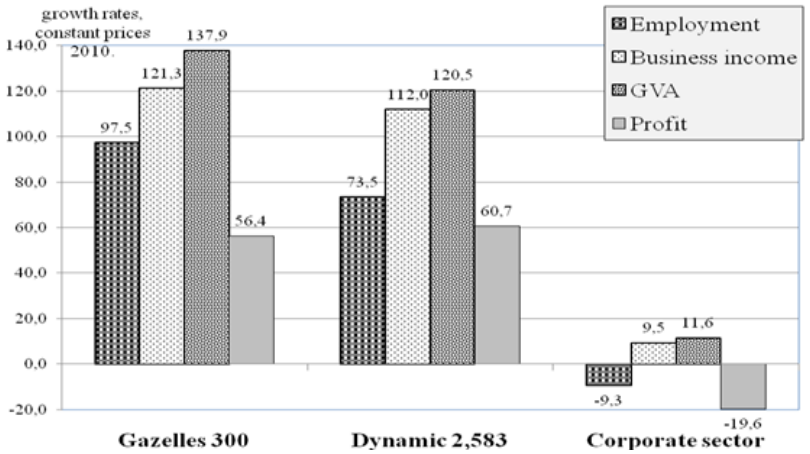
Dynamic enterprises are present in all economies, both in the period of growth and in the period of recession. Their maximum number is up to 5% of all the enterprises, they report an above average increase in revenues and employment, and they drive innovation and sustainable development. Each economy should place its focus on these enterprises, encourage them, and continually create conditions for their growth. According to research done over the past ten years, dynamic enterprises have propelled economic growth of Serbia.

During the period 2006-2010 in Serbia 2,583 dynamic enterprises did business, of which 300 were gazelles (most dynamic enterprises) that during the period of major global recession (since the Great Depression in 1929) in 2009 presented an economic buffer zone against the collapse of the economic system; they generated overall economic growth. The potential for growth of dynamic enterprises is above average.

In the period 2006-2010 in Serbia 2,583 rapidly growing enterprises:

- participated in the increase in business income of Serbia with 114.14%, which means that these enterprises covered 14.14% of the loss of the remaining segment of economy;
- generated 90% of the increase in newly created value in Serbia;
- generated all the profit in economy;
- created 33,000 new jobs in economy (7.45% of overall employment in the corporate sector), while in the corporate sector employment went down -108,000.

Figure 4. Growth indicators for gazelles, dynamic enterprises and the corporate sector



Source: authors calculations

The survey in Slovenia (Pšeničny et.al., 2012), whose partial results have been presented in this article, shows that almost total growth of net sales revenue (EUR 8 million) in the 2006-2010 period was generated by only 4,511 or 3.55% of all economic subjects. These enterprises generated 26,094 new jobs in five years (a 46% increase compared to 2006), which was more than the loss of jobs in the economy in the same five-year period. They increased value added by EUR 1.6 million (or by 71%), which equals the total increase of value added in the 2006-2010 period. They increased the value added per employee by 17%, however we need to stress that the average value added per employee in 2010 in potential high growth enterprises stood at EUR 47,582, which is substantially above the economy's 2010 average that stood at EUR 35,152 per employee (Vidovič, 2011).

In the 2006–2010 period, these 4511 enterprises:

1 – generated 23.7% of total net sales revenue in the country,
2 – employed 16% of all employees,
3 – held 16% of total capital,
4 – paid out 18.7% of all salaries and
5 – generated 21.8% of total value added in the economy

Almost entire economic growth in 2006-2010 was generated by 2,583 dynamic enterprises, i.e. 2.8% of all the enterprises in Serbia and 4511 dynamic enterprises (3,55%) in Slovenia. This serves to confirm the well-known Birch's rule that at least 85% of economic growth and job creation in any economy is generated by 5% of enterprises at the most.

3.3 Overall growth in Croatia is generated by a small number of companies

The study Diagnosis of Growth - are there Entrepreneurial *D*eficit in Croatia? (Bićanić, 2012; Šošić, 2012) has shown that Croatian companies often roam between profit and loss, and that the growth was concentrated in a very small number of businesses. It turned out that the fast-growing enterprises (gazelles) in the period since 1995. by 2009. on average accounted for about 2-6 percent of the total number of active firms, but their share in employment was between 10 and 20 percent. Also, these companies are in the period generated almost the entire increase in net employment.

The study identified that the gazelles on average are more productive than other firms and have significant indirect effects on the companies in which they operate, and their efficiency. After the initial phase of fast growth, gazelles remain higher rate of productivity and thus also affect the productivity of the economy. These results suggest that among the fast-growing businesses in Croatia prevalent type of productive entrepreneurship and the success of these companies in most cases, it does not depend on administrative barriers that would affect their competition.

Whatever the conclusion that the gazelles as a group large enough to affect the outcome, and that is probably not related to the political model, that are successful without being a part of clients' networks and corruption, the research leaves the story open without confirmed conclusions.

4 RISKS

4.1 National Competitiveness Decline Trend

Before the outbreak of the economic crisis, economic growth in ***Serbia*** had been increasing by 23% per year (IMF) and getting closer to the SEE average. GDP per capita decreased in 2009 and 2010 (on average by 11%) but in 2011 Serbia again saw growth, of 11%, which was not sufficient to get to the level before the start of the crisis (of all the adjacent countries Macedonia and Montenegro managed to achieve this).

Table 5. Indicators of Serbia's international competitiveness

	Serbia			
Competitiveness pillars	rank	value	2012/2007	EU-27=100
GCI	**95**	**3.87**	**102.3**	**81.7**
Sub-index A: BASIC REQUIREMENTS	*95*	*4.15*	*99.1*	*80.1*
1st pillar: Institutions	130	3.16	93.7	69.6
2nd pillar: Infrastructure	77	3.78	139.2	73.7
3rd pillar: Macroeconomic stability	115	3.91	84.9	81.3
4th pillar: Health and primary education	66	5.73	94.9	92.1
Sub-index B: EFFICIENCY ENHANCERS	*88*	*3.83*	*107.7*	*81.5*
5th pillar: Higher education and training	85	3.97	108.8	77.4
6th pillar: Goods market efficiency	136	3.57	101.1	77.0
7th pillar: Labour market efficiency	100	4.04	104.6	89.9
8th pillar: Financial market development	100	3.68	98.5	83.8
9th pillar: Technological readiness	58	4.10	122.8	77.9
10th pillar: Market size	67	3.64	112.4	82.9
Sub-index C: INNOVATION FACTORS	*124*	*2.96*	*89.6*	*68.6*
11th pillar: Business sophistication	132	3.11	88.3	67.5
12th pillar: Innovation	111	2.81	91.1	67.6

Source: WEF - Global Competitiveness Report 2012/2013

The global barometer of competitiveness (WEF), which includes 114 countries, ranks Serbia 95th, and by GDP per capita of USD 6,081 places it at the foot of the group of 33 countries (Stage 2 – *Efficiency-driven economies*) that through improvement of efficiency aim for economic growth and an improved competitiveness position overall. Almost all of the countries in the region are in the second stage of development except for Hungary (60) and Croatia (81) that are moving to the group of most robust economies that already includes Slovenia (56) with GDP per capita of USD 24,533.

For years the competitiveness of Serbian economy has been stagnating and structural changes have been delayed, which is why the country fails to reach higher ranks in the global rankings that other SEE countries have. In this stage of development Serbia should strive to develop its own production processes and upgrade the quality of its products through constant enhancement of high education, professional training of labour, and the ability to use available technologies so that eventually the price of work and the standard of living would go up. However, the prerequisite for boosting efficiency and transiting to innovative development in order to generate high productivity are solid *institutions* (pillar 1) and competent pursuit of *macroeconomic policy* (pillar 3), and with respect to these Serbia lags behind other countries a lot. These two pillars, apart from *innovations* (pillar 12), have registered the steepest drop in rankings compared to the year before.

Table 6. Indicators of Croatia's international competitiveness

	Croatia			
Competitiveness pillars	rank	value	2012/2007	EU-27=100
GCI	**81**	**4.04**	**96.2**	**85.3**
Sub-index A: BASIC REQUIREMENTS	*60*	*4.68*	*101.9*	*90.5*
1st pillar: Institutions	98	3.52	91.2	77.6
2nd pillar: Infrastructure	44	4.65	117.8	90.7
3rd pillar: Macroeconomic stability	60	4.75	99.0	98.6
4th pillar: Health and primary education	60	5.81	100.6	93.4
Sub-index B: EFFICIENCY ENHANCERS	*72*	*4.01*	*100.3*	*85.2*
5th pillar: Higher education and training	56	4.47	103.8	87.2
6th pillar: Goods market efficiency	114	3.85	93.9	83.0
7th pillar: Labour market efficiency	106	4.00	91.2	89.0
8th pillar: Financial market development	92	3.79	89.0	86.5
9th pillar: Technological readiness	50	4.36	126.0	82.8
10th pillar: Market size	71	3.57	103.6	81.4
Sub-index C: INNOVATION FACTORS	*83*	*3.39*	*90.0*	*78.7*
11th pillar: Business sophistication	96	3.66	89.2	79.4
12th pillar: Innovation	74	3.12	91.1	75.2

Source: WEF - Global Competitiveness Report 2012/2013

Croatia's ranking for 2012 in the *Global Competitiveness Report 2012-2013* dropped by five places compared to 2011. This year's real decline of four positions compared to 2011 puts Croatia in 81st place out of 144 countries. Since 2002, when it was first included in these rankings, Croatia's results in the competitiveness rankings have oscillated, registering improvements from 2005 to 2007 and then a continuous decline from 2008 to 2012.

Table 7. Indicators of Slovenia's international competitiveness

	Slovenia			
Competitiveness pillars	rank	value	2012/2007	EU-27=100
GCI	**56**	**4.34**	**96.8**	**91.6**
Sub-index A: BASIC REQUIREMENTS	*39*	*5.05*	*99.0*	*97.4*
1st pillar: Institutions	58	4.05	91.0	89.1
2nd pillar: Infrastructure	35	4.91	113.7	95.7
3rd pillar: Macroeconomic stability	50	4.94	90.3	102.5
4th pillar: Health and primary education	24	6.29	102.1	101.1
Sub-index B: EFFICIENCY ENHANCERS	*55*	*4.25*	*96.5*	*90.2*
5th pillar: Higher education and training	23	5.20	102.3	101.4
6th pillar: Goods market efficiency	49	4.42	95.5	95.2
7th pillar: Labour market efficiency	91	4.15	93.6	92.4
8th pillar: Financial market development	128	3.29	70.4	75.0
9th pillar: Technological readiness	34	4.96	115.5	94.0
10th pillar: Market size	78	3.46	105.4	78.9
Sub-index C: INNOVATION FACTORS	*36*	*4.02*	*95.6*	*93.1*
11th pillar: Business sophistication	53	4.18	89.8	90.6
12th pillar: Innovation	32	3.85	102.7	92.8

Source: WEF - Global Competitiveness Report 2012/2013

Croatia's results this year show the decline in infrastructure (44th) and in technological readiness (50th). In addition, the results in health and primary education (60th) continue to be a concern, while higher education (56th), goods market efficiency (114th) and market size (71st) are stagnating. The rankings for those pillars of competitiveness in which Croatia was already falling behind continued to deteriorate – financial market development (92nd), business sophistication (96th), and institutions (98th). The decline in the evaluation of innovation (74th) was halted, while there was an improvement in the evaluation of labor market efficiency (106th), but it continues to be at a very low level. The improvement in the pillar for macroeconomic environment (60th) is simply due to changes in methodology.

In the last few years, the international competitiveness of Slovenia has deteriorated. The ranking on Slovenia on various indexes, such as WEF, IMD, Doing Business, GEM, EIS – Europe Innovation Scoreboard, has either stagnated or declined. Reasons for this can be found in the difficult economy's financing conditions, the inefficient labour market, the ineffectiveness of the rule of law, smaller foreign investments, the high tax burden on employment as well as the current development of the business innovation environment.

In the framework of the World Economic Forum (WEF) survey, in the years 2012 and 2013 Slovenia was placed 56 among a total of 144 economies, this means Slovenia gained 1 position compared to the previous year but lost 11 positions compared to two years before. Slovenia was well positioned in the pillars higher education and training as well as health and primary education. Followed by the pillars innovation, technological readiness, and goods market efficiency.

The most problematic areas of the Slovene competitiveness in the last three years were (i) financial market efficiency and (ii) labour market efficiency. According to the survey's findings, access to financing is the biggest obstacle for business activities, followed by inefficiency of governmental administration, stiff labour legislation, tax rates and tax regulations.

Some of the 13 most critical areas for raising competitiveness are: protection of small shareholders, the scale of market domination, brain drain, efficiency of legal procedures, and efficiency of the anti-monopoly policy.

In addition to the date presented in the Table 8 and Table 9, some of the significant declines have happened in Croatia (agricultural policy costs - 143), Slovenia (Hiring and firing - 142, soundness of banks - 137), Montenegro (all indicators in the 10th pillar of the market size - 130). Common areas of the most critical fields for all four states were presented in bold. They include data on protection of small shareholders' interests, law efficiency in legal procedures, efficiency of state corporations, burden of government regulation and worker-employer working relation.

Table 8. Indicators of Montenegro's international competitiveness

	Montenegro			
Competitiveness pillars	rank	value	2012/2007	EU-27=100
GCI	**72**	**4.14**	**106.1**	**87.5**
Sub-index A: BASIC REQUIREMENTS	*74*	*4.49*	*100.3*	*86.6*
1st pillar: Institutions	44	4.38	118.8	96.5
2nd pillar: Infrastructure	66	4.06	145.3	79.1
3rd pillar: Macroeconomic stability	118	3.85	71.3	79.9
4th pillar: Health and primary education	73	5.65	94.3	90.9
Sub-index B: EFFICIENCY ENHANCERS	*74*	*3.99*	*110.7*	*84.7*
5th pillar: Higher education and training	51	4.63	124.7	90.3
6th pillar: Goods market efficiency	48	4.42	113.8	95.3
7th pillar: Labour market efficiency	93	4.14	93.7	92.1
8th pillar: Financial market development	40	4.49	94.5	102.4
9th pillar: Technological readiness	56	4.15	117.7	78.7
10th pillar: Market size	130	2.08	158.2	47.4
Sub-index C: INNOVATION FACTORS	*69*	*3.57*	*112.2*	*82.7*
11th pillar: Business sophistication	76	3.83	104.2	83.0
12th pillar: Innovation	60	3.31	123.1	79.7

Source: WEF - Global Competitiveness Report 2012/2013

Table 9. The most critical competitive fields

competitive fields WEF	Global rank out of 144 countries			
	Slovenia	Serbia	Croatia	Montenegro
o protection of small shareholders' interests	**126**	**143**	**120**	65
o law efficiency in legal procedures	**126**	**138**	**137**	51
o efficiency of state corporations	**122**	**141**	**127**	93
o burden of government regulation	**124**	**136**	**139**	33
o extent of market domination	71	142	117	59
o efficiency of anti-monopoly policy	64	142	90	87
o strength of local competition	41	137	120	114
o purchaser sophistication	108	138	116	88
o brain drain	83	141	126	60
o worker-employer working relation	**114**	**139**	**133**	**109**
o new technology in a company	78	142	77	100
o quality of competitive advantage	35	134	43	59
o readiness to delegate powers	47	139	109	41

Source: WEF - Global Competitiveness Report 2012/2013

4.2 Luggish improvement of the business environment

By conditions for doing business (World Bank, Doing Business 2013), Serbia is ranked 86th in the rankings of 185 countries. Of all the European countries, Serbia is better positioned only than Ukraine (137), BiH (126), Russia (112), and Malta (102). Although in 2011 Serbia made some positive reform steps (it promoted conditions for doing business in segments of starting a business, enforcing contracts, and resolving insolvency), Serbia has not seen a marked improvement in the business environment whereas some countries managed to promote operations and alleviate effects of the global economic crisis through faster structural reforms.

Table 10. Poorer conditions for doing business

	Serbia			Croatia			Slovenia			Montenegro		
Doing business 2013	2011	2012	Δ	2011	2012	change	2011	2012	Δ	2011	2012	Δ
BUSINESS CONDITIONS, rank	***95***	***86***	***9***	***80***	***84***	***-4***	***35***	***35***	***0***	***57***	***51***	***6***
Dealing with construction permits, rank	**178**	**179**	**-1**	**141**	**143**	**-2**	**61**	**61**	**0**	**175**	**176**	**-1**
Procedures (number)	18	18	12	12	n/a	11	11	n/a	16	16	n/a	n/a
Time (days)	279	269	317	317	n/a	197	197	n/a	267	267	n/a	n/a
Cost (% of income per capita)	1,603	1,427	591,1	573,3	n/a	64,9	65,3	n/a	1.469,9	1.169,6	n/a	n/a
Paying taxes, rank	**145**	**149**	**-4**	**47**	**42**	**5**	**80**	**63**	**17**	**119**	**81**	**38**
Payments (number)	66	66	18	18	n/a	22	11	n/a	42	29	n/a	n/a
Time (hour)	279	279	196	196	n/a	260	260	n/a	372	320	n/a	n/a
Income tax (%)	n/a	11.6	n/a	11,3	n/a	n/a	14,1	n/a	n/a	7,1	n/a	n/a
Taxes and contributions for employees (%)	n/a	20.2	n/a	19,4	n/a	n/a	18,2	n/a	n/a	12,8	n/a	n/a
Other taxes (%)	n/a	2.2	n/a	2	n/a	n/a	2,4	n/a	n/a	2,5	n/a	n/a
Total tax rate (% profit)	34	34	32,9	32,8	n/a	34,7	34,7	n/a	22,3	22,3	n/a	n/a

Source: The World Bank Group, Doing Business 2013

The lowest rank and 179th position Serbia occupies with respect to the *process of obtaining licences and various permits* (for construction, electricity access, telephone, permits from various inspectorates, etc.). Although it improved its performances in this area (the number of procedures went down by 2, the number of days by 10, and costs by 11%), other countries develop much faster with respect to creating conditions for attracting potential investors, and thus the low rank is further lowered. A very low rank of Serbia is induced by high costs of issuing construction permits although they have a declining trend, viewed by years. While in the EU on average it takes 99% of GNI per capita (most in Ireland, 626%, and least in Hungary, 6%), in Serbia entrepreneurs should pay a 14 times higher value than the value of GNI/capita or 1,427% (only 11 countries located out of Europe face higher costs), while in countries located out of the EU costs stand at: in Montenegro 1,170%, in Bosnia 1,102%, in Croatia 573%, and in Macedonia 518% of GNI per capita.

In the year 2012 as well as the year before, the World Bank survey "Doing Business", which analyses the regulations of doing business in individual countries, ranked Slovenia on the 35th position among the 183 surveyed economies, what represents a relatively high position. Most obvious is that Slovenia gained 16 positions in 2011; this is a consequence of the changed methodology (the indicator "employment", where Slovenia achieved a very low position, has been removed). The county's decline is a result of an even deeper credit crunch, which slows down financing and growth (SIB, 2013).

By conditions for doing business in the same WB survey, Serbia is ranked 86th in the rankings of 185 countries. Of all the European countries, Serbia is better positioned only than Ukraine (137), BiH (126), Russia (112), and Malta (102). Although in 2011 Serbia made some positive reform steps (it promoted conditions for doing business in segments of starting a business, enforcing contracts, and resolving insolvency), Serbia has not seen a marked improvement in the business environment whereas some countries managed to promote operations and alleviate effects of the global economic crisis through faster structural reforms.

The lowest rank and 179th position Serbia occupies with respect to the process of *obtaining licences and various permits* (for construction, electricity access, telephone, permits from various inspectorates, etc.). Although it improved its performances in this area (the number of procedures went down by 2, the number of days by 10, and costs by 11%), other countries develop much faster with respect to creating conditions for attracting potential investors, and

thus the low rank is further lowered. A very low rank of Serbia is induced by high costs of issuing construction permits although they have a declining trend, viewed by years. While in the EU on average it takes 99% of GNI per capita (most in Ireland, 626%, and least in Hungary, 6%), in Serbia entrepreneurs should pay a 14 times higher value than the value of GNI/capita or 1,427% (only 11 countries located out of Europe face higher costs), while in countries located out of the EU costs stand at: in Montenegro 1,170%, in Bosnia 1,102%, in Croatia 573%, and in Macedonia 518% of GNI per capita.

5 CONCLUSION

If backed up by a favourable, supportive atmosphere for entrepreneurship, dynamic enterprises in Southeastern Europe could catch up with their counterparts abroad in ten years' time. However, among factors for growth, the most critical in four studied countries are: environmental barriers, management systems and financing. As state capacities should act as an enabling factor and thus support entrepreneurship and growth in all sectors, it is necessary to direct them and produce incentive mechanisms capable to strengthen entrepreneurship in all stages and types of entrepreneurial development, not only in those of individual entrepreneurs.

The analysis of conditions for dynamic entrepreneurship, doing business in four countries and sharing of initial results of the stable performance of sustainable gazelles during these years in respective countries, proved an additional proof that authors should continue with exchange of information, experiences and sharing of results of projects in these countries. This should serve as a platform for improvement of studies of gazelles as real job creators and launch joint study in order to benefit from mutual comparisons, exchange of best practices and lessons learned from mistakes. The authors should also continue their search for sustainable growers, business excellence of gazelles, and enablers of sustainable growth. Increase in understanding particular reasons and driving forces behind sustainable fast-growing companies, so as the slowdown factors will result with creation of range of strategies and large variety of options for achieving stability and dealing with issues such as lack of demand, turnaround factors, recesion, growth in unemployment, etc.

Recessionary waves made the impact on reducing demand in the whole Southeastern Europe, which consequently affected the increase in unemployment. Model of growth based on domestic demand is exhausted (very high fiscal deficit, high public debt, problems with to restraining inflation, etc.). After fiscal consolidation, economic policy makers remain no possibility to achieve further growth, but must focus on finding new sources of growth - especially exports, for which it is necessary to start production, but of equal importance of structural reforms and constantly delayed reform of the public sector. It seems that the growth model based on exports of most depend on the export possibilities of dynamic companies in the manufacturing industry.

Understanding weaknesses of the present environment(s), effectiveness of past and current support programs, and identifying upcoming trends, should improve the effectiveness of forecasting scenarios for future development of gazelles, their impact and flexibility, and thus provide better conditions for higher quality dynamic entrepreneurship in all four countries.

6 BIBLIOGRAPHY

Acs, Z.J:, Szerb, L., & Autio, E. (2013). Entrepreneurship And Development Index 2013

Bićanić, I. (2012): **Generiranje postojanog rasta u Hrvatskoj u silaznoj fazi gospodarskog ciklusa**, in ***3. Zagrebački ekonomski forum*** *2012*. Zagreb: Friedrich Ebert Stiftung. Available at http://www.fes.hr/E-books/pdf/ZEF3_web.pdf. [Accessed 30.11.2012.]

Birch, L. D., (1987): **Job Creation in America: How our smallest companies put the most people to work**, New York: Free Press Macmillan.

Chouhan, V., Vasita, M. L. and Vyas, D. K. (2012): **Entrepreneurship challenges-and Opportunities: Indian Scenario.** http://www.publishyourarticles.net/knowledge-hub/articles/entrepreneurship-challenges-and-opportunities-indian-scenario.html. [Accessed 30.11.2012.]

Ćorić, G., Meter, J. & Bublić, V. (2012): **Evidence from the Project Croatian Gazelles – Promotion of Sustainable Growth,** in ***Revija Mednarodno inovativno poslovanje.*** Letnik 4 (2012), #2 (ISSN 1855-6175)

Ćorić, G., Senegović, I. & Bekić, I. (2012): **The Significance of Education Programs for Dynamic Entrepreneurship in Maximizing Regional Competitiveness**, in ***Revija Mednarodno inovativno poslovanje.*** Letnik 4 (2012), #2 (ISSN 1855-6175).

EIM (2011): **Do SME`s create more and better jobs?** The report prepared for the European Commission under the Competitiveness and Innovation Programme 2007-2013, http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/performance-review/pdf/do-smes-create-more-and-better-jobs_en.pdf [Accessed 7.2.2013]

Europe's 500, **GrowthPlus**, http://www.europes500.eu/index.html, [Accessed 16.2.2013]

European Commission (2011): **SME`s Access to Finance Survey.** December 2011.

EUROSTAT, DG Enterprise and Industry and national statistic offices

Gabe, T. M. (2000): **Economic Development Incentive and Enterprise Growth (Firm Learning).** The Ohio State University, ProQuest, Digital dissertations.

Garnsey, E. (1998): **A Theory of the Early Growth of the Firm.** New York: Oxford University Press.

Garnsey, E. (2002): **The growth of new ventures: analysis after Penrose**, in Pitelis, C. (ed.): ***The growth of the firm: the legacy of Edith Penrose***, Oxford: Oxford University Press, pp.101-125.

Global Entrepreneurship Development Index*, http://www.thegedi.org/*, [Accessed 27.2.2013]

Hamel, G. & Prahalad, C.K. (1994): **Competing for the future**. Boston: MA, Harvard Business School Press.

Hayek, F.A. (1945): **The use of knowledge in society**, in ***American Economic Review*****,** 35: 519-30.

Hennessy, Ph. (2012): **A Framework of Knowledge Management For Higher Education Business Incubation,** in ***Journal of Knowledge Management Practice,*** Vol. 13, No. 1. Limerick Institute of Technology, Tipperary, Ireland. http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/performance-review/pdf/do-smes-create-more-and-better-jobs_en.pdf [Accessed 27.2.2013]

Itami, H. & Numagami ,T. (1992): **Dynamic interaction between strategy and technology,** in ***Strategic management Journal***, 13, pp. 119-135.

Jakopin, E. & Bajec, J. (2012): **Structural transformations – a development imperative,** in ***Ekonomika preduzeća***, 1-2: 79-93.

Jakopin, E. & Tontić, S. (2012): **Transition Effects on the Development of Dynamic Entrepreneurship - The Case of Serbia**, in ***Revija Mednarodno inovativno poslovanje***. Maribor: Doba fakultet

Jakopin, E. (2003): **Srpske gazele**. Republički zavod za razvoj. Beograd.

Jakopin, E. (2008): **Srpske gazele**. Republički zavod za razvoj. Beograd.

Kor, Y.Y. & Mahoney, J.T. (2000) **Penrose's resource-based approach: The process and product of research creativity,** in ***Journal of Management Studies***, 37(1): 109-139.

Kor, Y.Y., Mahoney, J.T. & Michael, S.C. (2005): **Resources, Capabilities and Entrepreneurial Perceptions** http://www.business.uiuc.edu/Working_ Papers/papers/ 05−0120.pdf . [Accessed 30.11.2012.]

Mahoney, J.T. (1995) **The management of resources and the resource of management**, in ***Journal of Business Research,*** 33: 91–101.

Martin, R. & Martin, D. (2010): **The Risk Takers: 16 Women and Men Who Built Great Businesses Share Their Entrepreneurial Strategies For Success**. Philadelphia: Vanguard Press

Mei-Pochtler, A. (1999): **Strategies for Growth**, Edinburgh: Europe's 500.

Ministry of Entrepreneurship and Crafts (MEC Croatia) (2013): **Entrepreneurship Development Strategy 2013.-2020** (draft). http://www.minpo.hr/UserDocsImages/ STRATEGIJA%20RAZVOJA%20PODUZETNI%C5%A0TVA_PRVI%20NACRT_ 06%2003%202013_javna%20rasprava.pdf. [Accessed 6.3.2013]

Nonaka, I. (1994): **A dynamic theory of organisational knowledge creation**, in ***Organisation Science****, 5 (1): 14-37.*

OECD (2012): SME Policy Index: Western Balkans and Turkey 2012 – Progress in the Implementation of the Small Business Act for Europe. http://www.oecd.org/daf/ psd/smepolicyindexwesternbalkansandturkey2012.htm

Penrose, E.T., (1959): **The Theory of the Growth of the Firm**, New York: John Wiley and Sons.

Porter, M. E. (1996): **What Is Strategy,** in ***Harvard Business Review,*** November- December, pp. 59-79.

Prahalad, C.K. & Hamel, G. (1990): **The core competence of the corporation,** in ***Harvard Business Review*** (v. 68, no. 3) pp. 79–91.

Pšeničny, V. (2002): **[Pogoji in možnosti za dinamično podjetništvo v Sloveniji], Conditions and Opportunities for Dynamic Entrepreneurship in Slovenia.** Doctoral Thesis, Ljubljana: Faculty of Economics.

Pšeničny, V. (2008): **5000 hitro rastočih podjetij je ustvarilo velik del rasti**. Ljubljana, Dnevnik, special edition, Gazela.

Pšeničny, V. (2009): **A Longitudinal Comparison of the Growth Factors of Slovenian fast growing enterprises,** ***Economic and Business Review***, Vol. 11, No. 4, pp. 265–283

Pšeničny, V., Maček, A., Vidovič, D., Novak, R., (2012): **[Podjetja z visokim potencialom rasti 2012. Poročilo o raziskavi, 1. in 2. Faza],** in ***High Growth Potential Firms 2012. Research Report, 1st and 2nd Phase*****,** Maribor: DOBA Faculty.

Roure, J. (1999): **Europe's Most Dynamic Entrepreneurs: The 1998 Job Creators**. Brussels: Europe's 500, p. 10

SIB (2013): **Slovene Industry Policy**, Ministry of Economic Development and Technology of Republic Slovenia.

Stenholm, P. & Toivonen, J. (2009): **The attributes of firm growth – why and not a firm does grow**, in ***Frontiers of Entrepreneurship Research***: Vol. 29: Iss. 13, Article 4.

Sveiby, K.E. (2001): **A knowledge- based theory of the firm to guide in strategy formulation**, in ***Journal of Intellectual Capital****, Vol 2 No 4, 2001, pp. 344-358.*

Szerb, L., Aidis, R. & Ács, Z. J. (2012): **Entrepreneurship in Hungary in the 2006-2010 time period**. MEB 2012, 10th International Conference, Budapest (June 1-2, 2012).

Šošić, V. (2012): **Poduzetništvo u Hrvatskoj: Gdje su najslabije karike?** in ***3. Zagrebački ekonomski forum 2012***. Zagreb: Friedrich Ebert Stiftung. Available at http://www.fes.hr/E-books/pdf/ZEF3_web.pdf. [Accessed 30.11.2012.]

Vidovič, D. (2011) AJPES Processing – Database of Annual Reports for the Years 2006 through 2010. Maribor: The Ministry of the Economy of the Republic of Slovenia

Wernerfelt, B. (1984): **A Resource-based View of the Firm**, in ***Strategic Management Journal*** 5, no. 2, April–June, pp. 171–180.

Williamson, O. (1996): **The Mechanisms of Governance**. Oxford University Press.

Winkelen, V. and McKenzie, J. (2011): **Knowledge Works**. New York: Wiley & Sons.

World Bank Group (2013): **Doing Business 2013: Smarter Regulations for Small and Medium-Size Enterprises.** Washington, DC: World Bank Group. DOI: 10.1596/978-0-8213-9615-5. License: Creative Commons Attribution CC BY 3.0

World Economic Forum (2012): **Global Competitiveness Report 2012/2013.** Geneva: World Economic Forum

[42]Agency for Science and Higher Education (2011), **Faculty of Economics at Josip Juraj Strossmayer University of Osijek**, https://www.azvo.hr/images/stories/Akreditacija/Osijek_izvješće.pdf [Accessed 22.02.2013]

[43]Agency for Science and Higher Education (2011), **Faculty of Economics of the University of Rijeka**, https://www.azvo.hr/images/stories/Akreditacija/izvjee_rijeka_final.pdf, pp 7, 11,12 [Accessed 22.02.2013]

[44]Agency for Science and Higher Education (2011), **Re-accreditation of the Faculty of Economics of the University of Split, Expert Commission Report**, conomicshttps://www.azvo.hr/images/stories/Akreditacija/Zavrno_izvjee_EFST_FINAL.pdf, pp 11-12 [Accessed 22.02.2013]

[45]Agency for Science and Higher Education (2011), **Re-accreditation of the Faculty of Economics and Business of the University of Zagreb, Expert Commission Report**, https://www.azvo.hr/images/stories/Akreditacija/Zavrno_izvjee_EFZG_HRV_FINAL.pdf, pp 10-12 [Accessed 22.02.2013]

[46]Agency for Science and Higher Education (2011**), Expert Commission Report on the Re-accreditation of the Department of Economics and Tourism „Dr. Mijo Mirković" of the University of Juraj Dobrila in Pula**, https://www.azvo.hr/images/stories/Akreditacija/Izvjee_Odjel_za_ekonomiju.pdf [Accessed 22.02.2013]

[47]Agency for Science and Higher Education (2011), **Expert Commission Report on the Re-accreditation of the Department of Economics of the University of Zadar**, https://www.azvo.hr/images/stories/Akreditacija/ZD-Izvjee_reakreditacija_Zadar_5-2011-final.pdf [Accessed 22.02.2013]

[48]Agency for Science and Higher Education (2011), **Expert Commission Report on the Re-accreditation of the Department of Economics and Business of the University of Dubrovnik**, https://www.azvo.hr/images/stories/Akreditacija/DU__Izvjee_reakreditacija__Dubrovnik_5-2011.pdf, pp 6 [Accessed 22.02.2013]

[49]Agency for Science and Higher Education (2011), **Re-accreditation of the Faculty of Tourism and Hospitality Management in Opatija, the University of Rijeka**, https://www.azvo.hr/images/stories/Akreditacija/Opatija_HRV.pdf, pp 11 [Accessed 22.02.2013]

[50]Agency for Science and Higher Education (2011), **Expert Commission Final Report on the Re-accreditation of the Faculty of Organization and Informatics Varaždin, University of Zagreb**, **https://www.azvo.hr/images/stories/Akreditacija/izvjestaj_foi_verzija_finalna_verzija.pdf**, pp 10 [Accessed 22.02.2013]