Towards sustainable and equitable financing of higher education in Bosnia and Herzegovina, Montenegro and Serbia

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HIGHER EDUCATION FINANCING AND SOCIAL DIMENSION IN THE WESTERN BALKAN COUNTRIES
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FOREWORDS

This monograph is a result of the TEMPUS project with a working title of Towards Sustainable and Equitable Financing of Higher Education in Bosnia and Herzegovina, Montenegro and Serbia – FINHED, which was executed in the period between 2012 and 2015 and is international. Respecting the fact that the project itself belongs to the category of structural projects, it is certain that, besides the participation of universities in the project, an important role is given to governing ministries as well.

The goal of the project is to contribute to a more efficient, effective and equal higher education financing system in Bosnia and Herzegovina, Montenegro and Serbia. More precisely, within the project, we tried to comprehensively view and analyze the existing models of system and institution financing, as well as availability and equality of higher education in these countries. That means that, within this project, the countries in the Western Balkans participated for the first time in an international comparative study that values a social dimension of higher education – EUROSTUDENT.

While analyzing the financing policy and student standard in the three abovementioned countries, we noticed a big gap between financial instruments and proclaimed higher education goals; more precisely, the systems of higher education suffer from insufficient funding, as well as from difficult access to higher education for certain groups. Also, we noticed that higher education financing policies are not comprehensive, i.e. that different aspects of financing are not compatible or discussed as a whole.

As it has been said, the students in these countries mostly depend on their parents during their studies (unlike most countries in western and northern Europe). The countries do not collect, and, what is more important, do not analyze data on student income and expenses, which is one of the reasons why this higher education segment did not receive significant attention by professional, academic or broad public. Direct support to students is limited to a very small number of students and, directly or indirectly, depends a lot on students' achievement, such as average grade and length of study. Furthermore, when we consider different aspects of higher education financing, tuition and student support, they are most often viewed separately.
We noticed a shortcoming in the sense of the consequences that introduction of tuition has on equality, or maybe it could be said that the political goal of equality in higher education is not adequately supported by financial policy instruments. Additionally, higher education financing is mostly based on entry criteria and there is no adequate control of spending (including the base funds), as is the case in the European Union. That leads to the conclusion that there are no incentives that would provide realization of any element of equality and efficiency and an effective higher education. Therefore, the papers in the monograph contain examples of implemented higher education funding policies from the aspect of the system and institutional framework of European Union universities, which served as a model for defining activities and action plans for implementation of higher education strategies.

Approaching this project with clear knowledge that there is no 'best model' that countries can simply introduce into their own higher education system, our goal was to suggest the most appropriate funding system for a specific country, respecting the specificity of its institutional and system framework, while providing a sustainable and more equitable higher education system. That brings us to the conclusion that this project represents a unique endeavor to adhere to solving the issue of financing and equality in higher education in Bosnia and Herzegovina, Montenegro and Serbia at the same time and systematically, with the goal of contributing to creation of higher education systems that are sustainable, efficient and open.

The monograph is structured in six units. The guiding idea in structuring the units of the monograph in this way was to respect the specific qualities of domestic and foreign partners and point to the special tasks they dealt with while working on the project.

The first unit of the monograph is dedicated to historical heritage, i.e. the system framework in which higher education exists, respecting the fact that higher education financing model itself has been changing, but, what is most important, it is still changing, trying to adjust to the development of the social system in which it exists. Accordingly, there are three papers that stand out within this chapter. The relationship between institutional financing and financing of the demand for higher education is the topic of the first paper, which was investigated by Miloš Erić and Mihajlo Babin. That paper also opened a discussion on the analysis of advantages and disadvantages of both approaches, since making the final decision in that sense also affects the definition of a new higher education financing model. The second paper within the first unit was written by Sladjana Barjaktarović Rakočević, Nemanja Milanović and Nela Milošević. They pointed out the responsibility of higher education institutions for the knowledge and skills that the students take from the university. That implies a definition of knowledge quality level that the education system should provide from the aspect of: setting learning outcomes, setting target measure for every learning
outcome, monitoring and control of target outcome measures and aligning tasks and activities to improve educational and learning outcomes.

The second unit of the monograph refers to research activities at the university, as well as the university that encourages entrepreneurship and contributes to sustainable economic development. Within this unit, there are also three papers. The first paper was written by Dirk De Craemer, who looked at a Flemish model of allocation of financial means for research at universities, as well as at the impact of research performance-based parameters of these allocation keys on the research policy of universities and on peer-reviewed assessment of the quality of research proposals submitted to the Fund for Scientific Research – Flanders, one of the Flemish public funding agencies. The second paper was written by Radovan Pejanović, Otilija Sedlak and Jožef Kabok, where they tried to point out the importance of innovation as a highly complex phenomenon, from multiple perspectives. It considers concepts such as innovation systems and innovation networks, innovation management, the university-industry-government triad and, finally, the prominent role of universities and higher education in innovation development.

The next, third, unit of the monograph is dedicated to social dimension of higher education in Bosnia and Herzegovina, Montenegro and Serbia. That unit is supported with the data gained through EUROSTUDENT research of the project itself, and contains four papers. The first paper was written by Dragan Stanojević, Ivana Živadinović and Jasminka Cekić Marković. Their paper deals with changes in higher education in the last two decades in the Western Balkan countries: Bosnia and Herzegovina, Montenegro and Serbia, starting with respective countries signing the Bologna Declaration in 2003 and consequently agreeing to the main goals of the Bologna Process: comparability of degrees through introduction of Diploma Supplement, introduction of two main cycles (undergraduate and graduate), establishment of ECTS system, promotion of student and teacher mobility, promotion of European co-operation in quality assurance, promotion of European dimensions in higher education. The second paper was written by Mirko Savić, Milena Kresoja and Ivana Živadinović. The goal of the paper was to point out the factors influencing the students’ decision to be involved in international mobility using the data from EUROSTUDENT V survey conducted in Serbia, Montenegro and Bosnia and Herzegovina. This research was done by developing and implementing logistic regression models for three Western Balkan countries - Bosnia and Herzegovina, Montenegro and Serbia. The third paper was written by Mirko Savić and Ivana Živadinović. The goal of this paper is to point out social inequalities, such as the absence of equal opportunities and existence of rewards for different social positions within society. In the area of higher education, it is mostly related to access to academic education, but also to possibility of success. The paper is relying on the results of EUROSTUDENT survey conducted in the Western Balkan countries. Finally, the fourth paper was written by Ivana Kvačević.
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and Jelena Andjelković Labrović. The topic of their paper is related to equality of access to higher education, respecting specific characteristics of higher education systems in Bosnia and Herzegovina, Montenegro and Serbia. According to that, the analysis in their paper is focused on an endeavor to identify differences in students' socioeconomic and education background, gender adherence, types and modes of study, as well as satisfaction with the process and further opportunities, including mobility, competitiveness at the labor market and employment.

The fourth unit of the monograph points to specific characteristics of higher education financing in Serbia. The first paper of this chapter was written by project coordinators Nevenka Žarkić Joksimović and Sladana Benković, so, accordingly, the focus of this paper is on challenges of higher education financing in Serbia, as well as on pointing out the significance of diversification of higher education financing sources, i.e. decrease of budget financing share. The second paper was written by Nevenka Žarkić Joksimović, Sladjana Benković and Miloš Milosavljević, pointing out through the paper that the economy of knowledge, omnipresent turbulences in economy and unprecedented societal changes have refocused the role of universities from teaching and research institutions towards the “third mission”.

The fifth unit points to specific characteristics of higher education in Bosnia and Herzegovina. After the introductory part, which points to the system framework in which higher education exists, the first paper by Sima Jokanović, Duško Lazić, Jelena Rožić and Vlada Davidović is dedicated to higher education financing in the Republic of Srpska, aiming to identify the system and institutional weaknesses that could help higher education institutions and authorities in the Republic of Srpska establish a more effective, efficient and equitable financing of Higher Education. The second paper by Voja Višekruna and Zlatan Buljko is a paper that was written as an attempt to point to specific qualities of the system of higher education financing in the Federation of Bosnia and Herzegovina, with special emphasis on the financing system in the Herzegovina-Neretva Canton, where there are two public universities.

Equally important is the sixth unit, dedicated to higher education financing in Montenegro. In their paper, the authors Mira Vukčević, Zdravko Uskoković and Biljana Mišović wanted to point to specific qualities of system integration and higher education financing in Montenegro, showing the advantages and disadvantages of integration (centralization) of higher education.

Finally, we conclude that this monograph represents a rare written material that argumentatively, analytically and comprehensively points to the specific qualities of higher education financing in the Western Balkan countries, while also including the social dimension of higher education.


Nevenka Žarkić Joksimović and Sladana Benković
(Scientific editors of the monograph)
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He is the administrative coordinator of TEMPUS project “Towards Sustainable and Equitable Financing of Higher Education in Bosnia and Herzegovina, Montenegro and Serbia – FINHED”. Prior to this project, he actively participated in other Tempus projects – STREW and CONCUR.

Nela Milošević is currently employed as a teaching associate and Ph.D. candidate at the Department of Financial Management and Accounting, Faculty of Organizational Sciences, University of Belgrade. Her main fields of interest are banking management, investment banking, financial management, management of financial institutions and performance measurement. Nela Milošević gained professional experience through a number of national and international projects, professional and study exchanges in Russia and case study competitions.

Outside academia, she developed her practical skills in Societe Generale Bank Serbia and Banca Intesa. Also, she participated in several scientific and commercial projects. Nela Milošević has published a significant number of scientific articles in national and international journals, monographs and conference proceedings.

Ms. Biljana Mišović is a metallurgy engineer. Her first job was at "Radoje Dakić" Factory, Podgorica, in the thermal treatment section and the laboratory. Since 2003, she has been employed at the Ministry of Education as an advisor for higher education. From 2004 to the end of 2014, she was engaged as a secretary
of the Council for Higher Education, a body responsible for quality assurance. She participated in organization and performing of reaccreditation process of higher education institutions in Montenegro. She also participates in the creation of bilateral agreements in the area of higher education and their implementation, as well as TEMPUS projects.

Since 2013, she has been the Head of the Directorate for Higher Education.

Jelena Rožić is an associate professional for International Relations at the Rectorate Office, University of Banja Luka. This office is the focal point for all University activities related to Higher Education exchange programs, both for research and teaching. She manages the database of all university educational projects, exchange programs, bilateral agreements and university networks memberships.

As an institutional coordinator for TEMPUS, Erasmus Mundus, CEEPUS and Erasmus+, she has actively participated in several TEMPUS and other international projects and is a coordinator of 4 Erasmus Mundus projects (JoinEU-SEE III, IV, PENTA and SUNBEAM). As a deputy coordinator, she was involved in 7 TEMPUS projects:

1. Towards Sustainable and Equitable Financing of Higher Education in Bosnia and Herzegovina, Montenegro and Serbia (530550-TEMPUS-1-2012-1-RS-TEMPUS-SMGR)
2. Benchmarking as a Tool for Improvement of Higher Education Institution Performance (530696-TEMPUS-1-2012-1-BE-TEMPUS-SMGR)
5. Center for Curricula Modernization and Lifelong Learning (511354-TEMPUS-1-2010-1-ES-TEMPUS-SMHES)
6. Building Capacity for Structural Reform in Higher Education of Western Balkan Countries (511355-TEMPUS-1-2010-1-RS-TEMPUS-SMHES)
7. Strengthening Quality Assurance System within Western Balkans HEIs in Support of National and Regional Planning (158999-TEMPUS-1-2009-1-ES-TEMPUS-SMGR)

In the last eighteen years, she has continuously done trainings and workshops, and delivered consulting and advising services for public and private companies organized by the Management Center and Innovative Center of the Faculty and the University.

She has participated in numerous national and international conferences, seminars, trainings and continuously conducts different workshops and sessions.
Ph.D. Mirko Savić is employed at the Faculty of Economics, University of Novi Sad, as a professor at the Department of Business Informatics and Quantitative Methods, and also engaged in the Centre for Applied Statistics at the same University. He is a lecturer at undergraduate studies for courses in Statistics and Business statistics, at master studies he teaches Multivariate analysis, Statistics and econometrics of financial markets and Official statistics, and at Ph.D. studies he teaches Methods of multivariate analysis.

He has participated in numerous national and international symposiums and conferences and published over 70 scientific papers in the field of quantitative methods in economics and higher education, and three textbooks in the field of statistics. Also, professor Savić has participated in several national and international projects, like development of a master's program in applied statistics in Serbia (2010-2013), EUROSTUDENT (2011-2015), TRAIN: Training and Research for Academic Newcomers (2014-2015), etc. Several times he was engaged as one of the reviewers in the accreditation process of higher education institutions in the Republic of Serbia.

Professor Savić is the member of the Association of European Operational Research Societies (EURO), European Association of Labour Economists (EALE), Italian Association of Labour Economists (AIEL), and Statistical Society of Serbia.

Ph.D. Otilija Sedlak is a professor at the University of Novi Sad, Faculty of Economics Subotica, working within the Department of Business Informatics and Quantitative Methods. She is involved in realization of the teaching process at undergraduate studies, master studies, as well as at Ph.D. studies for the courses close to her scientific interests: Operational Research, Financial and Actuary Mathematics, Mathematics for Economists, Quantitative Methods in Economy and Management, Risk Management. Otilija Sedlak has been employed at the University of Novi Sad, Faculty of Economics Subotica since the beginning of her work career, after graduation.

She has worked as the vice dean of studies, as well as ECTS coordinator. She is a member of the following scientific and professional associations in specific scientific fields – quantitative economy: AEORS (Association of European Operational Research Society), EuROMA (European Operations and Management Association), EDEN (European Distance and E-learning Network).

Otilija Sedlak is an author and co-author of several textbooks, notes and compendiums. She published or co-published over 30 scientific and professional papers in both national and international journals. She also presented her scientific and professional papers at more than 80 scientific meetings that were published either in whole or partly in monographs or journals. She has worked on national and international projects (TEMPUS, INTERREG, IPA).
Mr. Dragan Stanojević is a Ph.D. candidate at the Department of Sociology, Faculty of Philosophy, University of Belgrade. He works at the same department as a teaching assistant for the following courses: Sociology of Family, Socio-cultural Anthropology, Research Design. For the last eight years he has been involved in various social research projects, both in Serbia and the South East Europe region.

His work focuses mainly on research activities and policy analyses related to family relations, youth and children, higher education, reproduction of social inequalities and social integration, social inclusion and life cycle patterns. He possesses strong expertise and extensive experience in designing and implementing quantitative and qualitative surveys, including multilevel and structural equation modelling.

He is the author of numerous scientific papers, analytical reports and policy papers.

Ph.D. Zdravko Uskoković (Ph.D. in technical sciences/electrical engineering), presently a professor at the faculty of Electrical Engineering, has now been in higher education for over 40 years. Presently, he is a full professor at the Faculty of Electrical Engineering. During his academic career he also occupied the position of a vice dean and dean of the Faculty of Electrical Engineering, as well as Vice Rector for financial affairs. His main research fields are control systems and signal processing. He has published numerous scientific papers in international journals and conferences, dealing with large scale control systems, decentralized control, optimization, and signal processing. He held a position of Visiting Research Fellow at the University of Illinois, Urbana, USA, and delivered invited lectures at the Princeton University and Virginia Polytechnic Institute. He is a member of International (IEEE) and regional (ETRAN) professional associations.

He has been involved, either as a team leader or a member, in many national and international scientific projects. He coauthored several textbooks and research monographs. He has been involved in numerous projects dealing with higher education, and was a member of working groups for preparation of the Higher Education Law in Montenegro.

Ph.D. Vojo Višekruna was born in Oton (Croatia) on 12th June, 1949. He graduated from primary and mechanical technical secondary school in Mostar and studied at the Mechanical Engineering Faculty at the University of Mostar, obtaining the degree in 1973. He received a Master of Technical Sciences degree from the University of Zagreb in 1978 and later on a Ph.D. degree, upon finishing a five-year doctoral dissertation at the University of Mostar in 1983. Mr. Višekruna got his first job at the Air Conditioner Factory SOKO in Mostar. Today, he is working at the Mechanical Engineering Faculty in Mostar, where he started teaching courses in the field of design of technology processes in 1975. Since1990, Mr. Višekruna has been a
full professor at the Faculty, responsible for courses such as the design of production systems and manufacturing systems, as well as manufacturing processes.

He has written more than 100 articles, two books with examples of problems and their solutions and 2 books about fundamental knowledge in the design of production systems. Before the war in Bosnia and Herzegovina, he participated in four scientific-research projects financed by the Government of the Republic of Bosnia and Herzegovina as a Project Manager. In addition to that, he has participated in 14 development and research projects for various enterprises. He has been involved once as a mentor for doctoral degree thesis, 9 times as a mentor for master's theses, 20 times as a member of the Board for Master Exams and 8 times in doctorate presentations. As a reviewer, he reviewed many scientific and research articles, books, projects and researches. In the period from 1983 to 1987, Mr. Višekruna was the Dean of the Mechanical Engineering Faculty in Mostar. Since 2000, he has been the Vice Rector, Rector and today he is the Vice Rector at the University of Mostar.

Ph.D. Mira Vukčević (Ph.D. in technical sciences/material sciences) has extensive experience in higher education (30 years). Actually, she holds the position of a full professor at the Faculty of Metallurgy and Technology. During her academic career, she also held the position of a vice dean and dean of the Faculty of Metallurgy and Technology, as well as vice rector for international cooperation. Her main research field is powder metallurgy, as well as nanostructures. She has published more than 50 papers in research publications in the field of powder metallurgy, composites based on metallic matrix, biomaterials, and nanostructures. She is a member of: European Materials Research Society (EMRS), American Powder Metallurgy Institute (APMI), Yugoslav Materials Research Society (YUMRS), International Editorial board of a Serbian publication “TEHNIKA”, edition New Materials, Editorial board of the Journal of Environmental Protection and Ecology (JEPE), Review Board of the International Journal of Nanotechnology and Molecular Computation.

Since 2003, she has been involved in more than 50 projects dealing with networking in research, higher education, life-long learning, formal and informal education, recognition of education, strategy development for research, development and technology and has published several articles of non-scientific nature, on-line media, newspapers, several reports needed for management of different projects. Prof. Vukčević has participated in most of the national bodies dealing with HE reform, as well as linking the HE with the labour market: Council for Scientific and Research Activities – President, 2006-2011, Council for Vocational Education – vice president (2005-2009), National Council for Qualification 2012-the present. She was the Coordinator of the working group for the preparation of the “National Strategy for research activities 2008-2016”, Member of the working
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group for the development of the Strategy for NQF, Member of the working group for the development of Law on NQF, Member of the working group for the referencing of NQF with EQF-EHEA, Member of national HERE team, working under the national coordination of Erasmus plus program. She was actively involved in the creation of all the University documents such as Statute, Law of Higher Education, Research Plan, Strategy of Quality Assurance at the University of Montenegro, Life Long Learning Strategy at the University of Montenegro.

Ms. Ivana Živadinović, is a researcher at the Centre for Education Policy, Belgrade. She holds an M.A. in Sociology from the University of Belgrade and is a member of CHER – Consortium of Higher Education Researcher and Educational Research Association of Serbia.

In her work, she primarily focuses on analysis of higher education policies in the Western Balkan countries, with the emphasis on the social dimension of higher education, financing, governance, and study efficiency. The primary focus of her work is application of quantitative methodology in educational research and analysis of models and channels of reproduction of social inequalities in higher education. Also, one of her main fields of expertise is the relationship between higher education and labour market and she has in-depth knowledge and expertise in conducting student and graduate surveys.

She participated in many national and international projects as a researcher and national expert, and has extensive experience in organisation and coordination of large scale quantitative surveys. During her career, she has been a member of various national bodies and working groups. In the past years, she was a member of a working group that proposed the revision of the Law on Pupils' and Students' Standard, as well as a member of the Ministry of Education, Science and Technological Development of the Republic of Serbia working group for revision of higher education financing in Serbia, specialising in student financing of higher education, student standard and access.
PART I

SYSTEMIC FRAMEWORK – HIGHER EDUCATION FINANCING MODEL EVOLUTION
INSTITUTIONAL FINANCING VS. DEMAND FINANCING IN HIGHER EDUCATION

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Abstract: Two contrasting approaches on financing higher education, institutional financing and demand financing, have been theoretically and empirically identified. Setting up a new higher education financing model is greatly affected by the decision on which of these approaches has been selected. This paper analyses systemic advantages and pitfalls of both approaches. The aim of this paper is to theoretically and empirically assess the effects of various higher education financing models. Comparative analysis of the impact of higher education financing models includes indicators such as: accountability, effective management of funds, incentives for higher education institutions and responsiveness to economic and societal developmental goals, but also their influence on higher education efficiency, effectiveness and equity.

Sequencing and phasing of higher education financing reform has a vital role in a sustainable transformation of a higher education system. Full-scale application of a new allocation mechanism has to be designed in accordance with national specificities. Throughout the process, it is necessary to achieve a balance between opposite goals and to establish a connection between allocated funds and higher education goals. Decrease of direct state support creates an additional incentive for higher education institutions to improve their quality. Introduction of contracts between the state and higher education institutions increases transparency and responsibility of the higher education institutions for their outputs and outcomes. These contracts provide a framework for assessment of institutions' performance and progress, besides providing students with relevant information.

Keywords: financing, higher education, institutions, allocation mechanisms, models, efficiency, effectiveness, equity.
1. Introduction

Both developing and developed countries search for appropriate higher education financing models in order to achieve a high quality, efficient, effective and equitable higher education. There are two completely opposite approaches to higher education financing – institutional financing and higher education demand financing. Institutional financing enables stable financing of higher education institutions, but does not provide sufficient incentives for maximization of desired outputs and outcomes. Conversely, higher education demand financing strives to generate positive outputs and outcomes by increasing the competition among higher education institutions and consequently removing the predictability and stability of institutional financing in mid- and long-term.

Higher education financing can be analyzed at macroeconomic level (Babin, 2008) and improved by introduction of fiscal rules (Babin & Erič, 2011). At system level, the crucial challenge is related to the increase of higher education government spending efficiency (Obadić & Aristovnik, 2011) in order to contribute to a more equitable higher education system (Bevc & Uršič, 2008). Active role and direct state interventions are necessary in order to achieve these goals.

Barr (1998) identifies four types of state interventions in the economy:
1. Regulation
2. Finance
3. Public production
4. Income transfers

Regulation and financing are two methods of direct state involvement in the improvement of higher education system and these types of intervention have an impact both on the public and private provision of higher education services. Legal changes precede implementation of a new higher education financing model with the aim to synchronize financing allocation mechanism and planned economic and societal outputs and outcomes.

Changes and adjustments of higher education financing models are, in fact, deliberate interventions of the state in a higher education system. Inertia and lack of initiative are immanent to higher education institutions and therefore an active involvement of state could be warranted. Elasticity of higher education institutions to the changes of financing approaches and models reflects their willingness and ability to attain sustainable institutional development. Closing the gap between institutional development priorities and societal and economic needs is one of the incessant challenges of higher education governance.

The massification process of higher education in previous decades has created entirely new types of challenges both for the states and higher education institutions. Altbach, Reisberg, and Rumbley (2009) point out that higher education systems have undergone wide and deep structural changes related to
both horizontal and vertical growth of higher education systems. The massification process has amplified the complexity of higher education governance and financing. Therefore, both the role of the state and higher education financing models had to be adjusted to the new reality.

Increased enrollment of students has been generating additional pressure for the increase of budgetary contribution and introduction of tuition fees. This issue has been addressed in different ways, based upon the fiscal stance and the political conditions in each country faced with this issue. The need for introduction of tuition fees and cost-sharing of study-related expenditure burden (Johnstone, 2004; Johnstone & Marcucci, 2010) is based on private benefits of higher education. The graduates have a better chance for employment and can expect higher income and life-time earnings in comparison to citizens without a higher education degree (Psacharopoulos & Patrinos, 2004). Nevertheless, participation of students in providing higher education funding has only a supplementary role and the key issues of higher education financing remain the jurisdiction of the state.

2. Financing the demand for higher education

A fundamental dilemma concerning higher education financing is related to the beneficiaries of higher education financing. Public funding of higher education has to provide general conditions for implementation of education and research processes. Theoretically speaking, the funds could either be streamed towards:

a) Higher education institutions – institutional financing (the supply-side); and

b) Students (the demand-side)

The financing of higher education is profoundly connected to the perception of the role of state in higher education financing. Institutional financing enables an active role of the state as a principal. Active role of the state as a principal has especially emerged during the reforms of higher education financing models influenced by new public management. Inactivity of higher education institutions and low outputs and outcomes of education and research processes inclined the introduction of performance indicators. Performance indicators had a task to switch the focus from inputs towards outputs and outcomes. Hence the input-based higher education financing models have been altered to formula financing and output-based allocation mechanisms.

Higher education demand side financing models (vouchers and student loans) emphasize the freedom of choice (Friedman, 2009; Friedman & Friedman, 1990) and stimulate competition among higher education institutions. Higher education is perceived as a perfect market that would generate efficient outcomes.
This approach does not take into account market imperfections (Štiglic, 2004) that are all the more evident in the higher education process. Higher education systems do not operate as regular markets for goods and services and, therefore, there is a strong need for state intervention. Higher education systems need to contribute to economic and societal development and these broad goals are incompatible with the primary aim of any market mechanism, which is to maximize profits.

The major difference between vouchers and student loans is the students’ obligation to repay the state support they received after they graduate. Student loan schemes have been applied in more than seventy countries worldwide (Shen & Ziderman, 2009). Having in mind the complexities of every single student loan scheme in the world, it is necessary to highlight the most important differences between student loans and vouchers. Student loan scheme entails that the students are obligated to repay the full amount or a portion of the received funds related to studying (tuition fees and various types of living costs), possibly including an interest. The advantage of student loans in comparison to vouchers is that the repaid funds from the graduates can be used for new generations of students. Student loans are rarely used as the main allocation mechanism and are often combined with one of the types of institutional financing. Still, student loans can be used as an instrument to increase the access to higher education and create a more equitable system (Ziderman, 2002).

Voucher models have a completely different structure. First of all, vouchers are a direct support of the state to students without any obligation for a repayment at any point in the future. Secondly, vouchers are intended to be the basic allocation mechanism that would rule out, at the very least, some of the institutional financing mechanisms. Finally, vouchers are closely related to efforts to increase efficiency and competition among higher education institutions and, consequently, do not aim to promote equity. If the vouchers were only disbursed to the students of lower socioeconomic background (Becker, 1995), then this financing scheme would lose the voucher identity and would actually become a student grants scheme. Lack of empirical implementation of vouchers (Jongbloed & Koelman, 2000) can lead to the conclusion that this allocation mechanism fails to deliver education policy goals.

State support is not guaranteed to any individual institution, which is not the case with institutional financing. Students have the power to choose higher education institutions and study programs they prefer, and, consequently, they influence higher education institutions’ revenues. Introduction of the demand side financing models puts pressure on higher education institutions to adapt the supply of their education services to students’ demand. Theoretically speaking, the application of demand side financing models might generate positive effects if the equilibrium between education supply and demand is reached at the higher quality level. This positive chain of events occurs if the demand for education is directed towards obtaining high quality education. However, if the demand for education has
Institutional financing vs. demand financing in higher education

the opposite goal, which is to graduate with minimum efforts, then two possible scenarios might take place:

Scenario 1:
Higher education institutions adjust their study program offer, introduce easier study programs and lower their criteria. The final outcome of this scenario is lower quality of graduates that would negatively affect economic growth and societal development in the long run.

Scenario 2:
The majority of higher education institutions decide not to reduce their curricula or corrupt the education process. The consequence of this scenario is differentiation between high and low standard higher education institutions. The final outcome would depend upon the response of the labor market and the specific process of diploma validation that could be gauged by graduates' employability and their salaries.

The state can prescribe a set of accompanying rules with the introduction of demand side financing allocation mechanisms in order to prevent negative effects portrayed in Scenario 1.

3. Institutional financing of education and research process

Various forms of direct state support, such as institutional financing (Jongbloed, 2003), correspond to the perceived obligations of the state to finance public institutions and offer free or subsidized education to students. Therefore, institutional financing decreases or completely eliminates the need for student cost sharing of higher education.

Such approach to education financing enables an autonomous position of higher education institutions and a special type of "shield protection" from fluctuations in the education market. Institutional financing enables implementation of a variety of study programs and research projects without any bias towards the demand side needs. Higher education institutions do not need to forego study programs with a decreasing number of students and they can offer study programs associated with high absolute and relative costs.

This type of higher education financing provides a solid framework for high quality education and research, based upon an institutional mission and autonomously established strategies and plans for long-term development. The development of higher education institutions is embedded within their autonomy, their assessment of the future and their own willingness to adjust the institutional development to societal and economy needs.
Institutional financing of education activities at universities might be followed by different types of institutional support of research activities. Institutional financing of research is well known as "blind delegation". Within the scope of this financing model, the role of the state is very limited and higher education institutions and research institutes are entirely independent in designing research priorities and activities. "Blind delegation" perfectly corresponds to an input-based model of education process financing at universities.

Decisions on the core elements of research process are delegated to research institutions:

a) Research goals
b) Research priorities
c) Research process outputs
d) Desired outcomes

As a matter of fact, within the “blind delegation” framework, the state delegates decision-making to higher education institutions in good faith that the institutions will opt for research projects and activities that would maximize social and economic benefits. However, “blind delegation” did not provide sufficient incentives and was gradually crowded out by the following delegation modes (Branković & Babin, 2011; Braun, 2003):

1. Incentive mode
2. Austerity delegation
3. Contract delegation
4. Network delegation

These delegation modes are based upon new public management (Gruening, 2001, p. 2), which emphasizes the need for a continuous increase of efficiency in the public sector. The new delegation modes enabled higher accountability for research results and have increased competition among institutions on the national level and the researchers within those institutions. Therefore, research financing has moved from a static dimension (rudimentary models of direct support for institutional research) to a dynamic dimension. The dynamic dimension signifies that both institutions and researchers have conditional access to public funds. The conditionality implies that researchers have to submit high quality projects, emphasize their previous results and compete for a limited amount of public funds. Project based research financing stimulates scientific excellence and evaluates the quality and potential impact of the research process. This actually means that institutional financing of research has been changed and re-directed from a guaranteed state support to a specific type of output-based financing. Evolution of research financing modes resembles the evolution of education process financing at universities.
4. Evolution of higher education institutional financing

Analysis of evolution of institutional financing allocation mechanisms and the relationship with demand side financing is the core research object of this chapter. Perception of institutional financing has changed since the 1970s to the present. Unconditional state support of higher education has been transformed into qualified financing based upon fulfillment of set indicators.

Evolution of higher education allocation mechanisms went through four stages:
1. Input based allocation mechanisms
2. Formula financing
3. Output or performance based allocation mechanisms
4. Vouchers

Input based allocation mechanisms provide the strongest financial support to higher education institutions and are an example of the traditional approach to higher education financing. Introduction of financing formulas or performance based allocation mechanisms provides a conditional institutional support in the short run. The mid and long term financing position of universities depend upon their results in the preceding period.

Historical, input-based, institutional financing is the oldest type of financing of public universities. Input-based financing includes the rules and algorithms for calculation of institutional budgets. Complexity of input-based financing varies from simple allocation mechanisms in relation to teaching and non-teaching staff figures and different types of running costs, to more complex algorithms. These algorithms create a causal relation between the prescribed inputs (e.g. number of enrolled students, structure and complexity of study programs, teaching hours) and the number of approved teaching and non-teaching staff and running costs. Internal distribution of received funds can be quite different within the same university if the recipients of the funds are faculties – such is the case in Serbia (Babin & Lažetić, 2009).

Within the input-based financing, budgetary funds are grouped into different line items. These budgetary items strictly correspond to a specific type of expenditures. Reallocations between budget lines are not permitted or are restricted to a certain percentage. Therefore, line item budgeting does not allow adjustments and effective reallocations throughout the year. Line item budgeting is related to the strong position of the state and the subordinate position of higher education institutions. Even if reallocations were allowed, the adjustments are sanctioned only after long administrative procedures. Decision-making on the acceptance of budgetary reallocations is a discretionary process and the final approval by the government administration is not predictable. Therefore, line item budgeting inhibits active management at the institutional level. Allocated funds are pre-destined and re-directing and streaming the funds towards institutional goals and needs is exceptionally restricted. Line item budgeting is not compatible with
education and research process outputs and outcomes. This sheds some light on the rationale for abolishment of input-based financing and line item budgeting. Input-based models do not provide high quality incentives for education institutions and fail to deliver desired outputs and outcomes (Hanushek, 2003).

Some of the inputs have been used as elements in formula financing, with the aim to protect institutions from cyclical fluctuations related to changes of education demand. Formula financing represents an evolved mode of input based financing and usually consists of both input and output indicators as elements for institutional budget calculation. Formula financing models are compatible with lump sum budgeting of institutional budgets. Higher education financing formulas usually consist of both input and output elements, with the aim to balance the two opposite goals:

a) Financial stability of higher education institutions

b) Increase of higher education efficiency

Inclusion of different input and output elements of the formula contributes to maintaining the majority of the existing higher education institutions and often provides incentives for institutions to increase efficiency. A portion of the institutional budgets is calculated based on input parameters (e.g. number of enrolled students, number of active classes per week, study program complexity), while the formula also contains output parameters (e.g. number of students who obtained a certain number of ECTS, number of graduated students, number and quality of scientific papers). Each side of the formula has different weights for every single input and output indicator. Institutional budget represents a sum of products of the indicators and their associated weights. Higher education institutions receive a lump sum for all current costs (teaching and non-teaching staff and running costs) and institutions have a high level of freedom to attribute funds to various individual types of current costs. Lump sum budgeting enables flexibility of revenue management, with the aim to maximize output and outcome indicators.

Evolution of institutional higher education financing is shown in Figure 1. Allocation models have been transformed from the static dimension (input based models) to the output based models based upon specific formulas. Institutional financing determined by the input based mechanisms is often adjusted annually through negotiations between funding authorities and higher education institutions. However, potential adjustments can only be incremental and do not represent a substantial change of the financing model. The competing mechanisms (e.g. tenders) have not been used as main allocation mechanisms of the education process and are mostly present in the research funding models. The final type of institutional financing is well known as output based or performance based budgeting. Institutional budgets are determined by the fulfillment of prescribed output indicators. This financing model is accompanied by a contract between the state and a higher education institution. Institutions need to fulfill quality standards and to achieve the stipulated set of indicators. A typical example of performance
Institutional financing vs. demand financing in higher education

Based budgeting is the famous “taximeter” model in Denmark that awards higher education institutions for their productivity.

The final stage of institutional support of higher education is actually a completely opposite approach. The introduction of vouchers reflects a strong decision of the state to deregulate education system and enforce market mechanisms. Vouchers represent a totally opposite approach to higher education financing in comparison to institutional financing (Jongbloed, 2004). Higher education institutions, both public and private, are at the market and the students’ choice for the most part affects the long-term sustainability of higher education institutions. Vouchers can be developed in various forms, both in pre-university and higher education, but the basic logic of financing the demand for education remains the same. Vouchers are often followed by increased inequities and reproduction of social inequalities. Therefore, some of the authors propose a limited introduction of vouchers and their targeted disbursement to poor families. This type of specific vouchers might boost the higher education enrolment of vulnerable groups by enabling smoother access to it.

Other types of state support to students, such as student loans (or state subsidies for commercial student loans), are additional allocation mechanisms. Student loans play a vital role only in the United States, as opposed to the European countries. Jongbloed (2008, p. 20) explained performance-based budgeting tendencies in several Western European countries: Denmark, the Netherlands, Czech Republic, Germany, Italy, Norway and UK (research budget is based on quality evaluations). Countries such as Czech Republic, Germany and Italy added output criteria to the input oriented allocation mechanisms and consequently created a financing formula. Evolution of allocation mechanisms in Southeast Europe (Vukasović, Babin, Ivošević, Lažetić, & Miklavič, 2009) lags behind Western European countries.

Figure 1: Classification of funding mechanisms; adapted from Jongbloed (2003)
The dilemma over the positive and negative sides of different types of institutional financing in comparison to education demand financing is reported in Tables 1 and 2. The selected indicators are:

a) Accountability
b) Effective management of funds
c) Incentives for higher education institutions
d) Responsiveness to economic and societal developmental needs;

These indicators provide a clear framework of the inherent, structural elements of four higher education financing models. Input based financing and vouchers have worse inherent characteristics in comparison with formula financing and performance based financing. Formula financing provides a stable outline for institutional development and can be similar to performance based budgeting if the output variables have weights equal to or higher than the input variables. Performance based budgeting puts emphasis on efficiency and this systemic shortcoming might have a negative influence on effectiveness and equity in the long run. Therefore, performance based budgeting might jeopardize economic and societal development.

Table 1: Higher education financing allocation mechanisms and selected indicators

<table>
<thead>
<tr>
<th>Allocation mechanism</th>
<th>Accountability</th>
<th>Effective management of funds</th>
<th>Incentives for higher education institutions</th>
<th>Responsiveness to economic and societal developmental needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input based financing</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Formula financing</td>
<td>Medium</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Performance based financing</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td>Medium(^1)</td>
</tr>
<tr>
<td>Vouchers</td>
<td>Low</td>
<td>Deregulated</td>
<td>High</td>
<td>See note(^2)</td>
</tr>
</tbody>
</table>

The analyzed allocation mechanisms have been tested on their impact on efficiency, effectiveness and equity. Input based mechanisms have the worst performance considering these indicators. Implementation of formula funding and performance-based budgeting might improve the results of a higher education system, but the breaking point refers to the structural elements of the system and the adequacy of incentives. The existence of the so-called perverse incentives (Hansen, Otley, & Van der Stede, 2003) and unintended consequences of competition based education reforms (Lubienski, 2005) might increase the quantity

\(^1\) Responsiveness is negative in the case of inadequate quality control. Also, if no restrictions are applied, institutions might close study fields with long study time and high costs.

\(^2\) Potential negative effects on equity and reproduction of social inequalities.
of outputs, but can simultaneously lead to deterioration of effectiveness and equity indicator value. Therefore, the design of the optimal allocation mechanism for a certain country needs to be aligned with the appropriate incentives and control mechanisms, in order to prevent negative effects.

Finally, introduction of vouchers definitely brings about higher efficiency and greater competition among higher education institutions. Shortcomings of vouchers emerge if solid quality assurance mechanisms are not in place and the competition threatens the quality and decreases access to higher education. A more authentic modernization agenda is needed, due to the fact that capitalist markets are clearly unachievable in higher education (Marginson, 2013).

Table 2: Impact of higher education financing allocation mechanisms on efficiency, effectiveness and equity

<table>
<thead>
<tr>
<th>Allocation mechanism</th>
<th>Efficiency</th>
<th>Effectiveness</th>
<th>Equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input based financing</td>
<td>Low</td>
<td>Low</td>
<td>Potentially high³</td>
</tr>
<tr>
<td>Formula financing</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Performance based financing</td>
<td>High</td>
<td>Medium</td>
<td>Potentially negative⁴</td>
</tr>
<tr>
<td>Vouchers</td>
<td>High</td>
<td>Disputable²</td>
<td>Low</td>
</tr>
</tbody>
</table>

The positive effects of all analyzed allocation mechanisms could be enforced if contracts are signed between the state and higher education institutions. Legal enforcement of education policy goals and their specific targets provides both obligations and incentives for higher education institutions to improve their performance.

5. Conclusion

Institutional financing enables stable financing of higher education institutions, as this analysis has demonstrated. It has been established that input based financing cannot fulfill all the conditions for implementation of high quality, efficient and effective higher education.

Introduction of formula funding or performance based financing improves the capacity of higher education to contribute to a sustainable economic and societal development. However, output indicators need to be carefully selected

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³ Equity varies according to enrollment selection criteria.
⁴ A higher education institution might adjust the admission policy and decrease the number of students from lower socioeconomic background in order to obtain more funds.
⁵ Effectiveness depends upon the quality assurance system.
in order to prevent any negative incentives and effects. Still, higher education demand financing models do not necessarily lead to better performance of a higher education system, due to its persistent and immanent imperfections, and the absence of a perfect higher education market.

Finally, the reform of higher education financing should not be based on implementation of demand financing mechanisms, while the desired outputs and outcomes can only be achieved by changes and adjustments of institutional financing mechanisms.

REFERENCES


STATE AND UNIVERSITY RESPONSIBILITY FOR EDUCATION OUTCOMES - IS THERE A NEED FOR A SUBSTANTIAL CHANGE?

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Abstract: Development of higher education that provides more employable, productive and innovative learners represents one of the key economic objectives in developing countries. In this paper, we deal with learning outcomes in higher education systems in Serbia, Montenegro and Bosnia and Herzegovina. In order to set the stage for education strategies in those countries, as well as to reveal connections between key stakeholders in this process, we have performed a research in the form of structured interviews among stakeholder’s representatives. The results of the research have shown that only close cooperation among these stakeholders could create and add value to education process and improve learning outcomes. Furthermore, education strategies should be implemented according to the best practice and principles and promoted among all relevant stakeholders. Having that in mind, the authors have created a model of establishing a new entity in Serbia that would represent the bridge between the aforementioned stakeholders.

Keywords: education strategies, education outcomes, knowledge, skills, qualifications, life-long learning, human capital, learning techniques, university-business cooperation, labor market

1. introduction

Without a doubt, education represents a large and important part of a society and higher education institutions are crucial partners in delivering state's education strategies for growth and prosperity. The quality of education has a statistically significant and a very important positive economic effect. Education outcomes directly contribute to innovation and sustainable competitiveness; on the other
hand, neglecting the quality of education limits economic growth. In this paper, we focused on several important education and learning outcomes: knowledge, transferable or generic skills in addition to subject-specific qualifications, development of science, life-long learning, highly skilled human capital and learning techniques. Learning outcomes are important tools in clarifying the results of an education system to all relevant stakeholders (students, government, employers and educators). Higher education is facing new and increasing demands for their outcomes, since it should create more employable, productive and innovative learners who contribute to competitiveness of economies.

In the process of creating valuable education outcomes, a very important moment is the synergy among state i.e. the government body that enacts and promotes education strategy, universities, as facilitators who are supposed to deliver strategies and education goals into learning outcomes, and business sector and labor market generally, which are meant to "control" the quality of the outcomes and to influence introduction of new educational needs.

According to the previously stated, this paper aims to highlight the responsibility of state and universities in creating education outcomes. In order to enlighten this goal of the paper, the authors start with comparative analysis of education strategies of three countries in the region: Serbia, Montenegro, and Bosnia and Herzegovina, and then compare the results with EU education strategies. The next phase is to research the universities with the best practice in defining and delivering education outcomes.

The results of the study show that only close cooperation among these stakeholders could create and add value to education process and improve learning outcomes. Having that in mind, the authors have created a model of organizing a new entity in Serbia that would represent a bridge between the aforementioned stakeholders. That entity would have a self-regulatory status and would have several important functions in the education system in Serbia. Those functions cover regulation, implementation, promotion and monitoring of the process of education in Serbia. Regulation implies that this body should have a strong and influential role in enacting new education strategies, policies and laws. Education strategies should be implemented according to the best practice and principles and promoted among all relevant stakeholders in order to ensure strong and active role of every important player within the education process. Constant monitoring and control of education results, and comparison between current education outcomes and the aforementioned stakeholders' requirements should be the proposed entity's activities performed on a regular basis (at least annually). This entity would be comprised of representatives from all relevant stakeholders: university, government bodies, business sector and labor market and students. The authors think that only close cooperation and joint work of stakeholders in this field within this entity could improve education outcomes in Serbia.
2. Review of references

Social and economic development of modern society is conditioned by the capacity to innovate, and one of the prerequisites of a knowledge society is a higher education system which is characterized by efficiency and innovation. Today, the quality of higher education is the key to survival and development of higher education institutions. Higher education institutions should be oriented towards students' expectations, needs and preferences, which are often defined by the learning outcomes that will be discussed further in this paper.

The primary goal of scientific research is to generate new knowledge, which will be beneficial to socio-economic and other aspects of the development of a country, and thereby raise living standards of its citizens. It is, therefore, clear why higher education institutions expect the state to be interested in restoration of universities' scientific potential. The state is responsible for creating preconditions for scientific research, but universities should be a source of ideas and suggestions for solving problems.

In their paper, Andric and Barjaktarovic Rakocavic (2006) have discussed the results of a survey, in which Serbian managers gave answers regarding the standing of human capital within organizational resources in Serbian companies, as well as the level of impact on business prosperity. In addition, the authors have pointed out that the influence of education and training programs on business success is substantial and suggested that formal and informal education programs should meet the needs of Serbian companies at the current level of development.

In his study, Islam (2013) investigated learning outcomes that are based on e-learning systems. Testing was conducted on a sample of 249 students and it showed that internet technologies and e-learning, as a learning concept, contribute to the development of science and improve the performance of students. Learning Management System (LMS) is an e-learning system that contains features for distributing courses over the Internet and online collaboration. It facilitates educator-to-student communication and secure sharing of course content online and tracks students' progress (Islam, 2013; Deng and Tavares, 2013).

In their research, Benkovic et al. (2012) pointed out that lack of legal regulations for teaching methods and techniques, non-existence of continuous training in active use of foreign languages and use of information and communication technology, but also lack of personal interest and motivation are the main obstacles for professors at the universities in Serbia to achieve the teaching standards of the leading world universities.

Nowadays universities, especially public universities, have to fight with competition in order to preserve the leading position in higher education (Barjaktarovic Rakocavic et al., 2012). References suggests that public universities
have to change their strategies and develop a new direction in academic and teaching practice.

Availability of references and predominant use of on-line libraries contributes significantly to continuous learning and faster development of problem-solving and critical thinking skills. If we analysed the 21st Century Library, we would probably come to the same conclusion as Smith (2001), who has, in addition to giving a review of references in his work, indicated that the higher education environment is changing rapidly. This author has pointed out that the concept of learning has shifted from the “teacher’s knowledge to the student’s understanding and capabilities ... it requires the faculty to bring the strength of the research paradigm into the learning process” (2001, p. 29), as well as that the mission of library must change from “a content view (books, subject knowledge) to a competency view (what students will be able to do)” (p. 32).

In order to successfully achieve the outcomes in the process of developing student competencies, educators should collect useful materials and analyze the types of data that will help students understand the field of study in the best possible way, as well as encourage students to choose and continue their line of research. Dugan & Hernon (2002) assert “student learning outcomes are concerned with attributes and abilities, both cognitive and affective, which reflect how students' experiences at the institution supported their development as individuals” (2002, p. 377).

A study conducted by Denise et al. (2014) gives an overview of the opportunities that are created when universities move away from established roles and responsibilities, and attempt to improve learning outcomes of students through interdisciplinary approach. The authors have developed a model that collects the data needed to evaluate the ability of students to find, access and assess the usefulness of expert references.

Zarkic Joksimovic et al. (2005) pointed out that developed societies become learning societies and that competitive advantage for every organization is to have strong human capital. The main purpose of their paper was to define factors of competitiveness of higher education institutions. In addition, the authors concluded that universities and schools are basic bearers of prosperity and development of economy and society. While doing research in order to find out why higher education is so important, they pointed out that the concept of quality generally, as in the services of higher education institutions, refers to several different areas: quality of output (graduated students-alumni, their knowledge and expertise), quality of the process (transfer of knowledge and adoption and usage of that knowledge) and quality as general philosophy that pervades the whole education process.

Joo et al (2013) conducted a research concerning prerequisites for achieving learner satisfaction, achievement and persistence at an online university located in
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South Korea. The research results show that the “locus of control, self-efficacy, and task value were significant predictors of learner satisfaction, while self-efficacy and task value predicted achievement” (Joo et al, 2013, p. 153).

Barjaktarovic Rakocevic et al. (2012) pointed out that, with the growing number of private universities and faculties in Serbia, the public ones faced a new issue brought by market economy – competition. In addition, the authors concluded that reputation of an educational institution, quality of its programs and courses, knowledge of students are some of the sources of competitiveness. In order to create high quality output – human capital, educational institutions in HE should preserve and increase the quality of services itself – as well as the quality of the knowledge creation process and the quality of those who transfer that knowledge.

Karan and Antoncic (2015) investigated how universities that are focusing on the economy determine the interests and achievements of young scientists and professors within different activities. In the paper, which is based on the responses from four European universities (the University of Amsterdam, University of Antwerp, University of Ljubljana and University of Oxford), the authors suggested that the academics whose field of study is related to natural sciences experience their departments much more as highly entrepreneurially oriented compared to their colleagues from social sciences.

Many universities in Europe have introduced reforms and new work policy to support and promote the transfer of technology and knowledge (Petruzzelli, 2011 and Rasmussen, 2008). A significant number of universities have changed their orientation and began to collaborate with industry through a variety of commercial and research projects (Mueller et al, 2009).

Over the past 20 years, many EU countries have shown initiative to improve the relationship between industry and universities, and have also defined ways to transfer knowledge and technology (European Commission, 2007). Production and transfer of knowledge, as key elements of universities’ entrepreneurial orientation, are a part of an overall university mission worldwide. Despite the fact that this paradigm is immanent to universities from their early days, the process and the function of knowledge transfer still lacks uniformity (Milanović et al, 2014).

The reforms have been mostly felt in the education systems of the countries which have exerted a strong influence on universities through commercialization of research (Grimaldi et al., 2011).

3. Formulation of education and learning outcomes

Education and training systems are dynamic and universities should constantly balance and rebalance priorities in response to a wide range of pressures and in order
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to develop a more competitive economy. Nowadays, employable, productive and innovative learners are the key to improving Higher Education System.

Higher education is a very important factor in a society and is constantly faced with the need to develop and improve, so that its contribution could be recognized not only in university circles, but also among other stakeholders. The importance of qualifications offered by higher education is best reflected in the labor market. The organization of educational institutions and objectives should be clearly and accurately defined and transparent, all in order to adequately apply knowledge and skills in practice.

Learning outcomes express what a person with specific qualifications is able to know, understand and perform. The concept of qualifications is a link between knowledge developed during education and demands from the world of work (Bergan 2007).

In their work, Aamodt et al. (2007) have pointed out that learning outcomes can be viewed in two mutually interconnected ways: as a measure of what students have learned during their studies, and as expectations students have about what they should learn during their studies. Some authors (Bergan, 2003; 2007; Adam, 2007) have stressed that the main objective of defining a set of necessary qualifications is a higher level of connections among universities, Ministry of Education and national and international labor market.

An active learning system (Hardy et al, 2014) implies a set of learning outcomes, as well as the existence of synergies among stakeholders. The expected results of an improved education system contribute to economic growth and development of a country, so everyone should participate in defining the strategy of higher education institutions.

Methods for defining learning outcomes vary widely among universities. Taking into account the views of representatives of the teaching staff, students, Ministries of Education and companies, learning outcomes are defined as the skills and competencies that students expect to gain after graduation. However, the interviewed representatives have categorized learning outcomes in different ways. Some divided learning outcomes in three categories: knowledge, skills and competences, while others described learning outcomes as a result of what students have learned, understood, and are able to apply in practice.

Based on the analysis of higher education strategies in highly developed countries of Europe and the reference reviews, the authors initially assumed that the most important learning outcomes are: knowledge, transferable or generic skills in addition to subject-specific qualifications, development of science, life-long learning, highly skilled human capital and learning techniques. Starting from this assumption, the idea was to confirm or deny it through interviews with students, government bodies, employers and educators, and to discover how to define learning outcomes and how to improve the system of higher education.
The expectations raised by learning outcomes approach are higher than ever and many people might see the shift towards learning outcomes as (Cedefop, 2008; European Qualifications Framework Series, 2011):

- an opportunity to tailor education and training to individual needs (to promote 'active learning'),
- a way of reducing barriers to lifelong learning,
- a way to increase accountability of education and training institutions and systems,
- a common language enabling a better dialogue between education and labor market stakeholders.

3.1. Knowledge

There are two types of knowledge (Murray, 2000): explicit knowledge that can be expressed in a formal language and exchanged between individuals, and can be used by all who it is available to; and implicit knowledge, which is personal knowledge. It is personal and expressed through individual experience and abilities of individuals. In addition, implicit knowledge includes skills and intangible factors of creativity, innovation, personal beliefs, perspectives and values. Knowledge management is highlighted as one of the main directions in the development of education systems and different industries. Having the aforementioned in mind, it is not surprising that intellectual capital and its valuation have become a frequently mentioned topic in the academia and beyond.

Some authors (Jong & Fergusson-Hessler, 1996) have tried to give a systematic description of various aspects of knowledge. In their approach, they found two dimensions that explain knowledge: the first dimension is concerned with the type of knowledge, and the second the quality of knowledge. According to Glaser (1991), task performance forms are giving the basis for identification of all relevant and necessary dimensions of knowledge. Deep-level knowledge is structured and kept in memory in order to be useful in situations demanding judgment and evaluation. The concept of knowledge is very comprehensive and there are lots of approaches to understand it better, as well as numerous assessment techniques that are suitable for measuring different types of knowledge.

3.2. Transferable and generic skills

Application of knowledge in practice is very often not sufficient if an individual does not possess the skills that help solve the problem more efficiently and in the best possible way. Crossing practice with theory has led to the conclusion that there are five major skills: team work, oral communication and presentation, problem solving, time management and commercial awareness.
Drummond, Nixon, and Wiltshire (1998) offer several broad approaches to developing skills within the curriculum (p. 21):

- Integrate generic skills within career-technical education curriculum
- Use free-standing modules that are not integrated into the curriculum, relying on the support of student tutors
- Initiate work placements or work-based projects that will help students develop employment-related skills within the context of real-world situations.

In their article, Bennett et al. (1999) tried to understand acquisition and development of core and generic skills within higher education. They state that employers and government departments are responsible for management and funding of higher education, as well as for the pressure which is put on universities and students.

### 3.3. Qualifications

Gudev et al. (2012) have found that qualifications are the way of measuring learning outcomes and achievements which students are able to recognize and apply when it is needed. In their work, these authors state and describe the qualifications that are necessary to be developed through the education system.

European Qualifications Framework (EQF) is an initiative created by the European Union in order to better understand and reference diplomas and qualifications among EU member states. The two main ideas of EQF are promotion of transferable knowledge and development of life-long learning.

Within the framework (EQF in co-operation with the ZOOM partnership, 2009) given by the European Union, qualification is described as 'formal outcome of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards'.

### 3.4. Development of science

Jong et al (2014) have stated that the new concept of open science is one of the ways to connect the theoretical framework presented in scientific publications with the practice. Double-sided benefits are realized through collaboration of science and practice, as it leads to improved company performance, while, on the other hand, theoretical models can have practical use.

Problem solving, construction of a hypothesis and experiment, and technical innovation are drivers for improvement in the field of science. Lin et al. (2003) have suggested that previously given drivers need a specific form of scientific creativity.
3.5. Life-long learning

Life-long learning is a concept that deals with improvement of programs in an education system in order to constantly develop the potential of individuals. Independence and proactive behavior at the labor market helps graduates to excel and get the desired job. However, they have to be aware of the fact that the diploma does not mean the end of learning, because competition in today’s world is so large that only the ones who recognize the need to invest personal initiative in the process of developing skills and advancing knowledge can survive.

Bloom (1956) identifies three complex domains of learning:

- cognitive,
- affective and
- psycho–motor.

His work is most developed in the cognitive domain, where he drew up a classification, or taxonomy, as it is given in references, of thinking behaviours. The cognitive or thinking domain is composed of six successive levels (from the simple recalling of facts up to evaluation): knowledge – comprehension – application – analysis – synthesis – evaluation.

The concept of life-long learning led to an idea of a high-skill learning economy and more internationally active and capable nations (Duke, Hinzen, 2014). Universities and government bodies are responsible for defining which outcomes should be put to use by reference to real needs and problems. According to Duke and Hinzen (2014), education system can no longer be a semi-closed profit-seeking industry in a competitive commercial environment. There are also lots of moral and political arguments for this (Garlick and Matthews, 2013).

3.6. Human capital

Today, human capital is considered to be one of the key determinants of competitiveness and economic development. Valuation of intellectual capital varies from country to country, but they all share the opinion that it should be task-related and that static view of human capital should be abandoned. It is widely believed that human capital should investigate the processes of learning, knowledge acquisition, and transfer of knowledge to entrepreneurial tasks. In their research, Unger et al (2011) suggested that skills and knowledge are the outcomes of human capital investments and explained education and experience as human capital investments.

Individuals should be engaged in an open education system in order to develop cognitive, affective and action potentials of their personalities. Companies are able to recognize those who put time and energy to build strong, independent and creative personalities. Those are hard-working people with self-education
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capacities, willing to improve their competencies and apply various education forms and strategies. Manea (2014) says that 'due to the permanent and accelerated changes that nowadays society crosses, the human being is also subject to the same transformative process, which determines an active and pro-active attitude at the educational level'.

3.7. Learning techniques

Psychologists are constantly finding new and improving existing learning techniques to help students acquire knowledge easily and quickly. The Association for Psychological Science (APS) has published a monograph which presents and explains 10 most important learning techniques. The techniques include: elaborative interrogation, self-explanation, summarization, highlighting (or underlining), keyword mnemonic, imagery use for text learning, rereading, practice testing, distributed practice, and interleaved practice. The authors have pointed out that, in the selection of learning techniques, it is very important to take into account the conditions of learning, students' characteristics, and materials that are available for learning.

Currently, higher education institutions and research institutes worldwide are working on the topics of describing and formulating, measuring and evaluating learning outcomes. In the future, there will be a range of examples of assessment criteria and measurement indicators in order to interpret the results of an education system to all relevant stakeholders (students, government, employers and educators).

4. Comparative analysis of education strategies of three countries in the region: Serbia, Montenegro, and Bosnia and Herzegovina

4.1. Serbia

At a session in 2012, The Government of the Republic of Serbia adopted the Education Development Strategy in Serbia until 2020, which is concerned with identifying the purpose, goals, directions, instruments and mechanisms of the development of the education system (Strategy of higher education system (HES) development in Serbia up to 2020, 2012).

The Strategy defined the mission of the education system of the Republic of Serbia in such a way that the education system should provide the basic foundation of life and development for each individual, the society and the state, based on
knowledge. The goals of long-term development of education, which are obligatory for the whole education system and all of its parts, are defined by the Strategy as:

- Increasing the quality of the process and outcomes of education;
- Increasing the coverage of the population of the Republic of Serbia at all levels of education, from preschool education to lifelong learning;
- Achieving and maintaining relevance of education;
- Increasing the efficiency of the use of all educational resources, i.e. completion of education within the stipulated time, with minimal extension of the duration and reduced dropout.

In addition, for each part of the education system, additional and specific objectives of their development have been determined. To achieve the established goals of education, concrete strategic policies, actions and measures for each part of the system have been determined respectively. The basic orientation of the Strategy is that the circumstances which exist in the environment of the Republic of Serbia, especially in the European Union, clearly show that the Republic of Serbia requires a highly organized and quality development of the education system, as it is one of the key conditions for the development of the Republic of Serbia towards a knowledge society that is capable of providing good employment to the population. In order to achieve it, one of the key mechanisms is a well-designed, precise, clearly defined and realistic action plan. The Action Plan for the implementation of the Strategy specifies individual activities (actions), which were defined by the objectives and priorities of the Strategy and elaborates the ways of implementation, deadlines, key holders and executors, instruments for monitoring and indicators of progress, as well as the procedures for reporting and assessing the effects of the planned strategic measures.

4.2. Montenegro

The new Law on Higher Education has enabled the reform of higher education, primarily in order to increase the efficiency of studies and harmonization of the system with European trends in higher education, based on the principles of the Bologna Declaration and the Lisbon Convention (Strategy of Development and Financing of Higher Education in Montenegro 2011-2020, 2011). Obligations deriving from joining the Bologna Process and the Lisbon Convention were primarily directed towards the achievement of objectives which are of primary importance for the promotion of the European higher education system, such as:

- Adoption of a system based on three study cycles, undergraduate, graduate and doctoral study;
- Introduction of ECTS (European Credit Transfer System) as a measure of the scope of the study;
- Adoption of a system of easily readable and comparable academic degrees;
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- Promotion of mobility of students and teaching staff;
- Establishment of accrediting agencies;
- Introduction of quality assurance system;
- Involvement of students as partners in the education process;
- Establishment of opportunities for realization of “lifelong learning” (LLL).

The most important resource of a country is knowledge, which is, in a broader sense, related to the quality of education. In this respect, the new and reformed institutions of higher education will serve the public interest best if they focus on a pre-defined group of objectives, the implementation of which contributes to the efficient development of society. Flow of information, creation and implementation of new technologies through exchange of knowledge and expertise is crucial to a sustainable development of society.

4.3. Bosnia and Herzegovina

At the state level, there is no Ministry of Education and Science in Bosnia and Herzegovina, as is the case in other countries of the world, but only sectors in the State Ministry of Civil Affairs: Department of Education and Department of Science and Culture, whose role is limited to coordinating the work of entity and cantonal ministries in the field of higher education. Jurisdictions over education and scientific policies, funding and supervision of institutions of higher education are divided on a geographical basis between the entities at lower levels of government - in the Republic of Srpska at entity level, and in the Federation of Bosnia and Herzegovina at cantonal level. Brcko District, as a separate administrative unit, also has jurisdiction over education policy. The consequence of this state system is a lack of uniformity of legislation, or an open possibility for the absence of it, in certain constitutionally defined areas of Bosnia and Herzegovina, which is a unique example of regulating the academic area of a country in the world.

During 2005 and 2009, SWOT analysis was done in the area of Bosnia and Herzegovina in relation to the University of Sarajevo as the most important institution of higher education in Bosnia and Herzegovina and the Sarajevo Canton. On this occasion, basic limitations of the education system in Bosnia and Herzegovina were indicated, concerning inertia and reluctance to change, and insufficient involvement of stakeholders in the process of improving higher education. However, the University of Sarajevo has great potential, which is best reflected in the increased interest of the economy and international institutions to initiate and fund research projects on the territory of Bosnia and Herzegovina.

In addition to internationalization, as one of the key strategic goals in the period that follows, higher education institutions in Bosnia and Herzegovina are planning to take the following roles within the community in which they work (Framework Law on Higher Education in Bosnia and Herzegovina, 2008):
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- Be the main drivers of the development of lifelong education system in the society;
- Strengthen the scientific and technical education programs relevant to the economy and social development, which will also be attractive and competitive at the European labor market;
- Be the key drivers of the establishment and ongoing development of research within doctoral studies in Bosnia and Herzegovina, which are also internationally relevant;
- Be a recognized centre of scientific and artistic work, which will bring together teams of local and international experts and artists around major projects in domestic, regional and broader social contexts.

As stated above, the process of defining and implementing strategic documents that direct development of higher education is also decomposed according to geography. Legislative reform of higher education in the Republic of Srpska started in 2006 with adoption of the Higher Education Law. Reforms were conducted in accordance with the Framework Law on Higher Education in Bosnia and Herzegovina starting from 2008, focusing on reorganisation, accreditation and licencing of higher education institutions. These reforms were incorporated in the Strategy of Education Development in the Republic of Srpska 2010-2014. Definition and adoption of a new strategy of education development in this entity is still in progress. The area of strategic development of higher education in the Federation of Bosnia and Herzegovina is partially covered in a comprehensive document (Strategy of Development of the Federation of Bosnia and Herzegovina 2010-2020, 2010). At this point, there is no unique national strategy for developing higher education. This fact, along with poor feedback from the industry, and uncontrolled expansion of higher education at the expense of the quality of teaching are the primary hazards in the environment. Nevertheless, the Council of Ministers of Bosnia and Herzegovina adopted a document which can be considered the biggest step towards a strategic document which deals with education development in Bosnia and Herzegovina as an internationally recognized country. Thoroughly specified strategic direction regarding this matter can be found in Strategic directions of education development in Bosnia and Herzegovina with implementations 2008-2015, 2008.

4.4. European Union

Faced with huge changes brought about by globalization, aging population, challenges of the new knowledge-based economy, as well as the expected accession of new members, the EU has defined objectives and instruments to ensure competitiveness in the changed conditions and to improve the standard of its citizens (Education and Training Monitor, 2014). The key component is the development and advancement of knowledge, which implies greater investments in education and professional training, scientific and technological research and innovation.
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*The Education and Training Monitor* is an annual series that reports on the evolution of education and training systems across Europe, bringing together the latest quantitative and qualitative data, recent technical reports and studies, policy documents and developments. The third annual *Education and Training Monitor* gives an overview of basic learning outcomes, measured by skills and competences, and suggestions for their improvement.

Respecting the principle of national specificities of higher education and research, as well as institutional autonomy of higher education institutions, international cooperation in higher education is strengthening, and it has been recognized that it deserves the support of the EU, contributing to the development of competencies for working in an international open environment, in constructive interaction with people of different ideas and attitudes. With international direction of stakeholders (teachers and researchers, administrative staff and management staff), it is easier to achieve participation in international networks of higher education, which integrate joint research and realization of innovative projects that are focused on the challenges of general importance.

Currently, Serbia has the right to participate in all EU programs devoted to education, but not in the same capacity as the Member States. However, the most important thing is that there is an initiative and room for initiation and realization of the ideas that will strengthen and improve the education system in Serbia and the region.

5. Research background and interview process

The study is based on exploratory approach where the main representatives of key stakeholders relevant to the higher education systems (HES) in Serbia, Montenegro and Bosnia and Herzegovina were selected for a case site. Stakeholders with the strongest influence on HES in education outcomes context were divided into four groups: university, students, government and employers. As a part of an exploratory study, structured interviews were conducted in the three investigated countries, with one representative of each abovementioned key stakeholder: representative of selected university management, students' association, business entity, and highly positioned public servants in the corresponding government body responsible for enacting education strategy. Representatives of university management, students' association and government bodies responsible for education were chosen among participants in the project Towards Sustainable & Equitable Financing of Higher Education Reform in Bosnia and Herzegovina, Montenegro and Serbia – FINHED, which aims to contribute to ensuring a more efficient, effective and equitable financing of higher education in the Western Balkans. In regards to business entities as key stakeholders, respondents were selected from representatives of companies highly involved in cooperation with universities.
The interview covered several questions regarding key education outcomes perceived by every interviewed stakeholder, roles and responsibilities of each stakeholder in defining and creating education outcomes, action plans for improvement of their position in the process of defining and delivering education outcomes, with emphasis on joint cooperation of stakeholders. A simplified structure of the interview is given below.

1. Please explain the meaning of the term Learning and Education Outcomes. Indicate at least three outcomes you consider to be the most important.

2. Evaluate the significance of the following Learning and Education Outcomes from the perspective of the institution you represent. (5 – very significant, 4 – significant, 3 - neither significant nor insignificant, 4 - insignificant, 5 - completely insignificant)

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td></td>
</tr>
<tr>
<td>Transferable or generic skills</td>
<td></td>
</tr>
<tr>
<td>Qualifications</td>
<td></td>
</tr>
<tr>
<td>Development of science</td>
<td></td>
</tr>
<tr>
<td>Life-long learning</td>
<td></td>
</tr>
<tr>
<td>Highly skilled human capital</td>
<td></td>
</tr>
<tr>
<td>Learning techniques</td>
<td></td>
</tr>
</tbody>
</table>

3. Indicate the main roles and responsibilities of the following stakeholders in creating Learning and Education Outcomes.

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Roles</th>
<th>Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>University</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business sector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government body</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4. Evaluate the level of cooperation among stakeholders in the field of joint realization of *Learning and Education Outcomes*.  
(5 - excellent, 4 - good, 3 - neither good nor bad, 2 - bad, 1 - very bad)

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>University</td>
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<tr>
<td>Business sector</td>
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<tr>
<td>Students</td>
<td></td>
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<tr>
<td>Government body</td>
<td></td>
</tr>
</tbody>
</table>

5. Evaluate the compatibility of university study programs with labor market in your country.  
(5 - excellent, 4 - good, 3 - neither good nor bad, 2 - bad, 1 - very bad)

6. Please propose activities that should be implemented to improve relations among stakeholders in order to efficiently deliver *Learning and Education Outcomes*.

The analysis of interviews is structured into four segments, following the aforementioned classification of key stakeholders with the strongest influence on higher education system in the context of learning and education outcomes.

5.1. University

This research also aimed to investigate the attitudes of universities towards issues related to learning and education outcomes. Representatives of universities enrolled in FINHED project were selected as a case site. The interviewees defined the term 'learning and education outcomes' as “precise descriptions of the critical mass of knowledge that each student has to gain until graduation”. Besides the outcomes which were suggested in the interview questions, the respondents emphasized the importance of the following outcomes: understanding of key terms, ideas and theories in the field of interest, linking various knowledge bases related to the field of studies, applying the obtained knowledge in practice, presentation skills and working in multidisciplinary teams.
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When asked to evaluate the significance of the suggested learning and education outcomes from their perspective, university representatives ranked knowledge, transferable or generic skills and qualifications as equally significant outcomes. In the group of slightly less important outcomes, they classified development of science, life-long learning, highly skilled human capital and learning techniques. The respondents suggested that the university itself should make more efforts to clearly define learning and education outcomes as a foundation of study programs and to verify that each university department or faculty is competent to deliver the defined outcomes. In the process of defining and formulating the learning and education outcomes, university representatives expect business sector entities to help in defining the outcomes in order to harmonize them with the needs of the business sector and the labor market. Students should actively manage their learning process and explicitly indicate if learning and education outcomes delivered by a particular course are not consistent with study program outcomes. According to the university representatives, government bodies responsible for higher education must take the role of controlling and guiding learning and education outcomes in accordance with the National Framework of Qualifications and the labor market.

The interviewed university representatives evaluated cooperation with business sector and students as "good", while they pointed out that cooperation among university departments or faculties is "neither good nor bad". It is interesting to mention that the interviewees expressed negative opinion about collaboration in the field of joint realization of learning and education outcomes with government bodies responsible for higher education, evaluating it as "bad". Depending on the university they represent, the respondents evaluated differently the compatibility of university study programs with labor markets in their countries, emphasizing that the alignment between study programs and labor market needs should be re-evaluated more frequently. Regarding recommendation of the activities that should be implemented to improve relations among stakeholders, university representatives suggest organization of annual round tables, where the abovementioned stakeholders should jointly analyze the learning and education outcomes delivered by each study program, and propose further improvements of this complex process.

5.2. Government bodies responsible for higher education

The interviews conducted with the representatives of government bodies responsible for education in Bosnia and Herzegovina, Montenegro and Serbia showed that they highly relate the term Learning and Education Outcomes to the definitions stated in the part of this study that deals with formulation of these outcomes, such as knowledge, development of science and intellectual capital. It
is interesting to note that the respondents also pointed out the importance of soft skills - innovativeness and teamwork. Regarding the significance of learning and education outcomes suggested in the interview, the respondents unambiguously indicated that the most important outcome from their perspective is knowledge. Slightly less importance was given to qualifications, while the remaining proposed outcomes were ranked as following: learning techniques, life-long learning and development of science. It is very important to emphasize that these representatives saw highly skilled human capital and transferable or generic skills as “neither significant nor insignificant” learning and education outcomes.

This study also identified a high level of response uniformity regarding roles and responsibilities of stakeholders with the highest influence on learning and education outcomes. The main identified roles and responsibilities in creating learning and education outcomes of institutions they represent were the following: formulation of learning and education outcomes, creating education policies, control of learning and education outcomes formulation process and mediation between universities and business sector. Furthermore, each respondent pointed out creation of national framework of qualifications as one of the most important roles and responsibilities of their institutions. As government body representatives agreed upon, their roles were considered to have strategic importance for formulation of learning and education outcomes. In addition to the perception of their own institution’s roles and responsibilities, the respondents were asked to identify the main roles and responsibilities of other stakeholders. The interviews revealed that university, as a stakeholder, should assist ministries in formulating learning and education outcomes and implementation of strategic education policies. Creation of study programs and development of necessary knowledge, skills and competencies were also mentioned as the most important roles and responsibilities of universities. In their opinion, feedback on the adequacy of the defined outcomes and applicability of acquired knowledge, skills and competencies should come from students, which interviewees indicate as their most important role and responsibility. Finally, the respondents stated that the business sector should give valuable inputs for formulating learning and education outcomes to universities through joint study programs and student internships, where identification of labor market needs and final valorisation of delivered knowledge, skills and competencies are of great importance.

Regarding relations with other stakeholders, universities were indicated as the stakeholder they have the most fruitful cooperation with. In their opinion, more efforts should be made in deepening collaboration with the business sector. Nevertheless, the attitude towards cooperation with students is undetermined, which can be explained by the fact that the responsible ministries consider universities to be stakeholders with the most intensive and important interaction
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with students. Each of the interviewed representatives of government bodies evaluated the compatibility of university study programs with labor markets as “neither good nor bad”, transferring the responsibility for this issue to universities and business sector entities.

This study also aimed to investigate potential recommendations on the activities that should be implemented to improve relations among stakeholders in order to efficiently deliver learning and education outcomes. It is very interesting to note that the respondents from this research segment connected most of their recommendations with the role of business sector in joint creation of study programs with universities. In their opinion, companies should be more engaged in providing inputs for formulating curricula, such as job qualifications and professional and education requirements for the needs of a specific position, which are not sufficiently transparent. From the other side, these respondents propose that universities should intensify their cooperation with business sector, especially in the field of enabling students to acquire practical skills and university-business collaboration projects.

5.3. Students

The interview was conducted with the members of student representative committees who participated in the abovementioned TEMPUS project. When asked to define the term Learning and Education Outcomes, student representatives mentioned the following outcomes: expert knowledge, foreign languages, and teamwork and innovativeness. Regarding the significance of learning and education outcomes suggested in the interview, the respondents distinctly identified knowledge as the most important outcome. Slightly less importance was given to transferable or generic skills, qualifications, highly skilled human capital and learning techniques. It is important to note that, in the student representatives' opinion, development of science and life-long learning are noticeably the least important learning and education outcomes.

Regarding the roles and responsibilities in creating learning and education outcomes, student representatives indicated that the most important role and responsibility of universities is to define outcomes and to enable students to gain knowledge, skills and competencies. Furthermore, they suggest that the business sector should have a greater role in defining learning and education outcomes, especially knowledge, skills and competencies. Transfer of skills and professional trainings for students were also mentioned as business sector responsibilities. Student representatives indicated that government bodies responsible for higher education should also put more effort in defining learning and education outcomes, and take the role of a mediator between higher education and business sector entities.
While other interviewed stakeholders clearly defined their roles and responsibilities, it is interesting to remark that student representatives could not distinctly identify their own roles and responsibilities in creating learning and education outcomes. The level of cooperation between the identified stakeholders in the field of joint realization of learning and education outcomes was graded as “good”, but specific activities that should be implemented to improve relations among stakeholders in order to efficiently deliver learning and education outcomes were not proposed. Students are very specific and the most numerous stakeholders in higher education context. Nevertheless, the authors of this research suggest that another separate and extensive research must be conducted in order to thoroughly investigate the attitudes of student society towards the issues of learning and education outcomes.

5.4. Business sector

For this part of research, the respondents were selected from representatives of companies highly involved in cooperation with universities. These stakeholders are considered to be less familiar with defining learning and education outcomes than the other abovementioned stakeholders, but they represent the final evaluator of students' knowledge, skills and competencies gained through study programs. These stakeholders define learning and education outcomes as knowledge and skills that each student has to gain until graduation, and their capacities to practically apply that knowledge and skills in the private and public sector. Besides the outcomes suggested in the interview, they also indicated the importance of soft skills – presentation skills, IT, team work, distant management), and the advantage of critical thinking over reproductive knowledge. Regarding the significance of learning and education outcomes suggested in the interview, the respondents indicated that the most important outcomes are transferable or generic skills, life-long learning and knowledge, respectively. The business sector representatives agree that development of science and learning techniques are the least important outcomes.

As the business sector representatives emphasized, the business sector as a stakeholder should enable students to gain experience through practical work, on the job activities, internships, mentoring, coaching and various projects, where the capacity to recognize potentials and support further professional development is of great importance. Regarding the roles and responsibilities of other stakeholders, these respondents suggested that the role of universities is providing knowledge in accordance with science and labor market needs, striving to create experts with knowledge and soft competencies for job requirements, and also for further professional and life-long development. Students should actively participate in study programs, trainings, lectures and other educational activities. They should be
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responsible for evaluating their performance, creating and implementing plans for their personal development, and providing feedback regarding adequacy of learning and education outcomes, especially to universities. Finally, the business sector representatives propose that government bodies responsible for higher education should take the role of a facilitator and mediator between universities and business entities. These bodies should create measures for improvement of attractiveness and image of universities and employability of their graduates, and control of study program quality.

It is worrying to note that, from the perspective of business entities, compatibility of university study programs with labor markets was evaluated as “bad”. In their opinion, current study programs are obsolete compared to labor market needs, and create an illusion that graduating itself makes students fully skilled, educated and efficient. In this way, the burden of facing graduates with the fact that learning and training is yet to come is transferred to business entities. This causes dissatisfaction, unreal expectations of young graduates, and difficulties in adapting to real job requirements. Some of the proposed activities that should be implemented to improve relations among stakeholders in order to efficiently deliver learning and education outcomes are: closer cooperation between universities and businesses through joint projects, legal regulation of issues related to internships, enrolment of professionals from the business sector in study programs and lectures.

6. Guidelines for improvement of higher education systems

Our research and analyses have proved, once more, that only tight collaboration among education stakeholders can create and add value to education process and improve learning outcomes. Since the aim of this paper was to highlight the responsibility of all education stakeholders in creating learning outcomes, we have presented that as a new, sustainable model of the education system in Serbia.

This model represents a new entity in Serbia that would create a bridge between the abovementioned education stakeholders: universities, students, government and business and labor market. The main idea behind this model is to create synergy in the field of education in Serbia in order to improve learning outcomes that would finally lead to significant improvement of competitiveness and economic growth of the country.

This model depicts the newly formed entity as a self-regulatory institution that would have several important functions in the education system in Serbia.
State and university responsibility for education outcomes

Those functions should cover regulation, implementation, promotion and monitoring of the process of education in Serbia. Considering regulation, this body should have a very significant and influential role in enacting new education strategies, policies and action plans. Education strategies should be implemented according to the best practice and principles and promoted among all relevant stakeholders in order to have a strong and active role of every important participant within the education process. Constant monitoring and control of the education results, and comparison between current education outcomes and aforementioned stakeholders' requirements, should be the activities that the proposed entity performs on a regular basis.

Those functions could not be performed unless there is joint and close cooperation among relevant stakeholders. In that way, this entity should include representatives of all relevant stakeholders: universities, students, government bodies and business sector and labor market. The authors strongly believe that only tight collaboration and joint work of the stakeholders in this field within this entity could improve education outcomes in Serbia. All stakeholders are partners in this process and they should address learning outcomes accordingly. The synergy among education stakeholders gives more value and competitive advantage to the whole process of creating highly skilled and employable workforce.

Improving the education system, as well as reaching the defined learning outcomes, definitely leads to development and growth of economic potentials in a country.

Stakeholders' cooperation in this process and within this model must be continuous and every phase in this process influences each other's activities.

Universities are “in charge” of study programs and creating curricula, but also of up-to-date teaching methods (solving business case studies, discussions, project work etc.) This process should be done in close cooperation with the business sector. Namely, labor market and business sector should give an insight into market needs and necessary qualifications students have to adopt. The connection between universities and businesses in the early stage of the development and delivery of curriculum enables learning outcomes to be in the function of business sector development and economic growth.

On the other hand, labor market and business sector (employers) should provide feedback on the quality of learning outcomes and, together with universities and government bodies, act in helping to improve the alignment of learning outcomes with labor market needs. The role of the business sector in modernization of curricula is priceless considering the fact that that will provide insight into business sector needs and orientation. Collaboration between the business sector and universities will lead to a quick response to market needs,
but also foster sharing and transfer of knowledge and good practice. Companies will improve their performance by opening up to academia and students in the activities such as analyzing and solving real business problems, discovering talents while still studying, long-term partnerships on different project proposals and joint study programs. Especially important is the collaboration between universities and business sector in research and development (R&D) and also commercialisation of R&D results. All this should also lead to joint publications of academia and business sector in order to improve both theory and practice.

Government bodies' role in this process is very important in a sense that it should provide unobstructed flow of activities and create environment for a modern and flexible education system. In that sense, the government should provide large investments in education and professional training and scientific and technological research and innovation in order to create progressive and promising educational setting. Having that in mind, even for the developed countries, the issue in Serbia is the fact that the budget for scientific research is at a very low level (0.3% GDP for 2014.). Without larger state financing of science and research there would be no quality for future employees and we cannot expect any growth and development of the country.

Students are the future workforce, a link between universities and labor market and businesses. They are the outcome of the education process, but they should not be just an object in the process, but also rather be a very active and driving subject in the development as a whole. They should take the position of one of the main participants in order to design a dynamic and proactive education and learning environment in Serbia.

According to the Serbian Law on Higher Education, there is the National Council for Higher Education, the leading institution in Serbia in charge and competent for development and quality promotion of higher education.

Since we pointed out shortages within the current education system in Serbia, we have created a new model that consists of a new entity (Higher Education Council Body – HECB) competent for development of higher education, which implies setting and tracking learning goals and outcomes.

What is missing right now in Serbia and what our model emphasises is the role of the business sector and a strong connection between universities and labor market – businesses. All participants in this body – universities, students, government representatives and business sector representatives should be given the right to equally participate and make decisions within this entity. Key decisions encompass delivering learning outcomes - transfer of knowledge and skills to students and future employees.

The model of the proposed new higher education entity, along with the education process, is shown in Graphic 1.
State and university responsibility for education outcomes

Graphic 1. Model of the proposed new higher education entity in Serbia

In this model, Higher Education Council Body – HECB should perform several important actions in order to fulfil its role and function. Those actions should cover:

- Setting learning outcomes;
- Setting target measure for every learning outcome;
- Monitoring and control of target outcome measures;
- Aligning tasks and activities in order to improve education and learning outcomes.

In order to perform all these steps mentioned, HECB should be organized as mentioned – with representatives from stakeholders' groups working tightly on a regular basis in fulfilling its goals and targets. The main question and challenge in this model is how the stakeholders can interact for the benefit of education quality and learning outcomes. A very important part of this process is monitoring and controlling the target outcomes and a continuous course of improving the process and outcomes themselves. If Serbia tends to become a more competitive economy, then cooperation between businesses and universities must be significantly improved.

The cooperation between universities and the business sector is very important even for the developed markets and economies, and there is space for constant improvement of this connection. For example, the EU, under its program Erasmus +, the new EU program for education, training, youth, and sport for 2014-2020, gave significant incentives and strongly recommended cooperation between universities and the business sector. One of the priorities of the EU in the field of higher education is "strengthening the 'knowledge triangle', linking education, research, and innovation" (European Commission, 2014.)
In their research paper, Zarkic Joksimovic et al. (2005) pointed out that development of Serbian education represents one of the top priority fields that would make its economic recovery, creation of democratic society and reintegration into international community easier. In order to achieve this goal, universities should improve the quality of education and manage it properly with respect to ethnical, cultural and linguistic differences. Besides that, it is crucial to define the influence of every single factor of quality of education services, as well as factors that are used to measure the quality of output – graduate students - human capital and the knowledge that it carries.

7. Conclusion

This research is based on interviews with representatives of key stakeholders with the strongest influence on higher education system. In accordance with the relevant references, these stakeholders were categorized into four groups: university, students, government and employers from Bosnia and Herzegovina, Montenegro and Serbia. These countries were selected for a case site as representatives of abovementioned stakeholders from the countries that participated in TEMPUS project FINHED. Semi-structured interviews were conducted with representatives of each group of stakeholders from each country, making a sample of 12 respondents in total. The interviews revealed high level of discordance in different stakeholders’ responses regarding definitions and significance of learning and education outcomes. However, with the exception of the business sector, the interviewed stakeholders agreed that knowledge is the most significant learning and education outcome, followed by qualifications and skills, while ranking of other outcomes strongly differs from one group of stakeholders to another.

The respondents generally agreed that government bodies should take a strategic role in guiding and controlling learning and education outcomes in accordance with the National Framework of Qualifications and facilitate collaboration between universities and business sector. Furthermore, according to the respondents, the role of universities is to define learning and education outcomes and to create study programs which enable students to gain necessary knowledge, skills and competencies in accordance with science and labor market needs. From the other side, students are expected to actively participate in the learning process and create feedback on adequacy and quality of the defined outcomes and delivered knowledge, skills and competencies. Finally, the respondents emphasized the importance of stronger engagement of the business sector in defining learning and education outcomes by giving valuable inputs in this process through internships, mentoring, university-business collaboration projects and frequent alignment between study programs and labor market needs.
The interviewed stakeholders indicated that university study programs are not sufficiently aligned with labor market needs. In their opinion, cooperation between stakeholders in the field of joint realization of learning and education outcomes is at a low level. They proposed various activities that should be implemented to improve relations among stakeholders in order to efficiently deliver learning and education outcomes. These activities were described in the fifth section of this study.

However, the attitudes of respondents in this study cannot be considered unique to these stakeholder groups, and future research may examine the attitudes of a significantly greater sample of respondents through other research techniques, such as questionnaires and surveys. It is important to note that limitations of this study are attributable to the overall limits of the interviews as a research technique.

Considering the disadvantages in the current system of higher education in Serbia, namely defining up-to-date learning outcomes, unclear responsibilities of each stakeholder in the system and non-existence of close cooperation among some groups of stakeholders, we have prepared a new, sustainable model of higher education system in Serbia that could overcome those obstacles. This model implies creating a new entity in Serbia (Higher Education Council Body – HECB) that would represent the connection between all relevant stakeholders in the process of higher education: universities, students, government bodies responsible for higher education and business and labor market. Also, this entity should include representatives of all the aforementioned stakeholders. This entity should cover several important action plans in order to improve and give quality to the higher education system in Serbia: setting learning outcomes, setting target measure for every learning outcome, monitoring and control of the target outcome measures and aligning tasks and activities to improve education and learning outcomes.

The authors strongly believe that only very close collaboration and joint work of stakeholders in this field within this entity could improve education outcomes in Serbia. All stakeholders are partners in this process and they should address learning outcomes consequently. The synergy among education stakeholders gives more value and competitive advantage to the whole process of creating highly skilled and employable workforce. Finally, that would lead to economic growth and prosperity.

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PART II

RESEARCH, ENTREPRENEURIAL UNIVERSITY AND SUSTAINABLE ECONOMIC DEVELOPMENT
MODELS OF FINANCING RESEARCH:
PUBLIC FUNDING MECHANISMS FOR
UNIVERSITIES IN FLANDERS

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Abstract: This paper gives an overview of the models of financing research at universities in Flanders, Belgium. The Flemish government installed parallel mechanisms to distribute financial means for scientific research at the universities: research is supported via allocation of block grants to the universities based on specific interuniversity allocation keys on one hand, and via project-based funding allocated on competitive basis by public funding agencies on the other hand. The composition of the allocation key of both the Special Research Fund and the Industrial Research Fund and the impact of the research performance-based parameters of these allocation keys on the research policy of universities and on the peer-reviewed assessment of the quality of research proposals submitted to the Fund for Scientific Research – Flanders, one of the Flemish public funding agencies, are discussed.

Keywords: allocation key, block grant funding, research performance-based parameter, competition-based funding, project-based funding

1. Introduction

Funding is a crucial factor in performing excellent scientific research. It allows principal investigators to set up their research activities by hiring potential young researchers, by getting access to up-to-date research infrastructure, databases and libraries, and by acquiring the necessary consumables to do the experiments and all other types of research activities in a proper way. It is up to the principal investigators to look for the most appropriate funding opportunities and to submit
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an excellent research proposal. In their search for research funding, they can appeal to the staff members at the central administration of their institution dealing with the follow-up of a number of funding opportunities. Staff members at the research coordination offices, technology transfer offices and international relation offices are best placed to inform and support the university principal investigators in their attempts to acquire research funding.

Van Dalen et al. (2014) distinguished 3 types of funding contracts between governments and public research performing institutes: ex-post funding (corresponding to block grant funding based on research performing output), ex-ante funding (corresponding to project-based funding) and fixed funding (a specific type of block grant funding for which the government does not monitor output and leaves control concerning the allocation of funds to the institute). Seen from the point of view of the university policy makers, the public research funding landscape shows two main types of funding schemes: block grant funding and project-based funding. Block grant funding allows the institution to set its own research priorities while the government, in most cases, monitors research efforts and research output closely. Project-based funding allows the funding agency (and in case of a government funding agency, the government behind it) to set its own priorities and offers principal investigators the opportunity to respond to these priorities.

Decentralization and devolution of the Belgian federal policy authority towards the regions and communities in the country as from the early 90s made it possible for the science and technology policy to become a major component of regional policy making. In Flanders, which is the Dutch-speaking part of the country, geographically situated in the northern half of the country, the Flemish government installed several parallel mechanisms to distribute financial means for scientific research at the universities (Debackere & Glänzel, 2004). Fundamental research at the universities is supported via 1) distribution of funding through the Fund for Scientific Research – Flanders, which is a funding agency launching competitive calls for proposals for doctoral and postdoctoral fellowships, research projects and initiatives to set up international research consortia, among others, and 2) allocation of a block grant to the universities based on a specific interuniversity allocation key composed of merely research performance-based indicators: the so-called Special Research Fund (Bijzonder Onderzoeksfonds; BOF). A similar parallel mechanism has been installed to fund strategic and applied research at universities: 1) a competition-based distribution via several funding agencies that launch competitive calls for proposals for a variety of initiatives on a regular basis and 2) a research performance-based distribution of a block grant to the universities called the Industrial Research Fund (Industrieel OnderzoeksFonds; IOF). To determine the yearly share of financial means of the Industrial Research Fund for each Flemish university, a specific interuniversity allocation key has been developed. Some of the
Models of financing research

Several authors and international organisations investigated the research policy measures of national and regional governments by comparing the funding mechanisms used to support and stimulate research activities at university level (European Commission, 2008; Auranen & Nieminen, 2010; Butler, 2010; Lewis & Ross, 2011; Ecker et al., 2012; Hicks, 2012; van Dalen et al. 2014). These studies show that several national and regional governments apply a variety of performance-based funding methods for research at public universities.

In this paper, a number of specific funding schemes of the Flemish government are considered. Their description, goals and priorities, and modalities will be discussed in order to give the readers an insight into their specificities and accents put forward by the government and/or the funding agency. In the first part, the Special Research Fund (Bijzonder OnderzoeksFonds; BOF) and the Industrial Research Fund (Industrieel OnderzoeksFonds; IOF), two block grants offered by the Flemish government to allow universities to set up and support their own research policy, will be described. The allocation of funding to the universities for each of these two university research funds is based on a specific allocation key consisting of research performance-based parameters (BVR, 2009; BVR 2012).

The second type of block grant that will be discussed in this paper deals with the funding principles of the autonomous Institute for Biotechnology (Vlaams Instituut voor Biotechnologie, VIB). The VIB is one of Flemish strategic thematic research institutes that has been set up over the years in Flanders. This institute is included in this study because it is set up as a virtual research institute: apart from the central administrative unit, all the other units (research departments) are integrated within universities. For more than 1300 researchers of these research departments, the mechanisms used to fund this virtual strategic research institute are at least as important as the mechanisms used to fund research at universities (block grant funding methods, as well as competition-based funding methods). The VIB is not the only virtual research institute in Flanders. Another research institute is iMinds, Flanders’ digital research center. Its research departments are also integrated within the universities. More than 850 researchers conduct strategic and applied research in areas such as ICT, Media and Health.

The third type of research funding is based solely on competition among individual research proposals submitted by the professorial and research staff of the universities. As an example, the Fund for Scientific Research – Flanders (Fonds voor Wetenschappelijk Onderzoek – Vlaanderen; FWO) is introduced. This funding agency signs a management agreement with the Flemish government every 5 years in which the modalities by which the funding agency has to distribute funds through competition-based funding are described. In the implementation of these
modalities, the FWO launches several calls for proposals per year and sets up a competitive selection procedure based on peer review in order to fund only the best research proposals.

The composition of the allocation keys set up by the Flemish government is of vital importance to the strength of the research policy of each university. The characteristics of the parameters and the use of weighting factors were decided by the government after consultations with the interuniversity council (comprised of all vice-chancellors of Flemish universities). As the size of the universities in Flanders differs considerably, the allocation keys have to be the result of a well-balanced combination of the interests of each of the universities. Besides the two full-fledged universities (KU Leuven and Ghent University), there are also two medium-sized universities (Vrije Universiteit Brussel and the University of Antwerp) and one small-sized university (University of Hasselt). The allocation keys have to provide an incentive to improve the research performance of the whole higher education segment in Flanders, as well as to meet the needs of the individual universities to support their own research policy.

2. Allocation key of the Special Research Fund

The aim of the BOF allocation key is to distribute public research and development funding among Flemish universities. It is up to each university to use the R&D funding to set up and support a university-wide research policy with emphasis on fundamental research. For this purpose, each university established a research council with a two-fold mission: 1) to prepare research-related university-wide policy measures and 2) to organize intrauniversity funding allocation systems based on peer-review mechanisms to support individual research initiatives in accordance with the current research policy measures. At Ghent University, a portfolio of funding initiatives (projects, PhD fellowships, postdoctoral fellowships, small-scale research infrastructure, mobility schemes, etc.) has been developed. Annual or biannual calls for proposals are launched within the university. In that sense, the university is its own research funding agency using the research council and its specific evaluation panels as entities in the selection of the “best” research proposals.

2.1. First version of the allocation key

The Special Research Funds have been installed at each Flemish university by a Flemish Resolution in 1994 (Debackere & Glänzel, 2004). Up until 2002, the allocation key consisted of three parameters: university share in the total number
of PhD degrees awarded during a moving time frame consisting of the four most recently completed academic years (50%), university share in the total number of academic (master) degrees awarded during the same moving time frame (35%), and university share in the total university basic allowance of the most recently completed calendar year (15%).

The PhD degrees were weighted to reflect the differences in research costs among research disciplines. The coefficients of weight used were 1, 2 or 3 in order to differentiate between the Arts, Humanities and Social Sciences, the Natural Sciences and (Bioscience-) Engineering, and the (Bio)medical Sciences respectively. The use of university share in the total basic allowance was included as a parameter to take into account the differences in size among Flemish universities. The parameter considering university share in the total number of academic (master) degrees awarded had a similar function, while it was also considered to be an input parameter to measure the pool of young people who had the potential to start a research career at the university. A moving time span of four academic years was installed to avoid too strong fluctuations between two subsequent budgetary years, as this could hamper the continuation of the implementation of the research policy of individual universities (Debackere & Glänzel, 2004; Spruyt & Rons, 2008).

2.2. Modifications to the allocation key over the years

In 2003, the Flemish government decided to adapt the BOF allocation key in order to stimulate scientific output at the universities and to enhance the visibility and impact of their scientific results. This resulted in the introduction of 2 new parameters: university share in the total number of scientific publications and university share in the total number of citations to these publications. Only publications indexed by the databases of Thompson Scientific (Web of Knowledge – Science Citation Index Expanded) were eligible. A moving time frame consisting of ten most recent calendar years was implemented in order to obtain sufficient robustness in these parameters, as too strong fluctuations among subsequent budgetary years had to be avoided. Another concern had to deal with citation period of publications, which varies significantly between scientific disciplines. A time frame of ten years was installed in order to capture a significant number of citations that otherwise would have been "lost" in those disciplines with a rather slow citation rate in the first years after publication (Debackere & Glänzel, 2004).

The share of each of these two parameters was 5% in 2003 and increased up to 15% each in the budgetary years 2005 and 2006. At the same time, the total share of the other three parameters was proportionally reduced.
Starting from 2007, an additional parameter (with a starting share of 6% at the expense of the parameter based on university share in the total university basic allowance) was included in the BOF allocation key: the diversity and mobility coefficient (Spruyt & Rons, 2008). The decision to introduce this parameter was based on the observations that few women were part of the professorial staff at Flemish universities and that only a minority of the professorial staff members obtained their PhD degree at another university, not the Flemish university which appointed them. Therefore, the new parameter took into account university share in the total number of newly appointed female professors in Flanders, as well as university share in the total number of all newly appointed professors who did not obtain their PhD at the appointing university among all newly appointed professors. The goal of this new parameter clearly was 1) to speed up the inflow of women in professorial staff, 2) to reduce the “inbreeding” of young postdoctoral researchers at the level of professorial staff and 3) to stimulate national, as well as international mobility prior to an appointment as a professor.

It became clear after a few years that this parameter did not show sufficient robustness (Spruyt & Engels, 2013). This was due to too small numbers that had to be taken into account each year causing strong fluctuations among university shares over the years. In order to solve this unwanted side effect, the focus of the parameter was reduced to concentrate solely on the gender aspect. The adapted parameter only takes into account university share in the total number of postdoctoral female academic (professorial + research) staff members (expressed in full time equivalents) measured over a moving time frame of four calendar years. The share of this parameter in the BOF allocation key has simultaneously been reduced to 2%.

Starting from 2008, quality assurance aspects were introduced at the level of the publication parameter of the BOF allocation key: instead of counting the total “raw” number of publications, the parameter was redesigned to also take into account (for 50%) the impact factor of the journals in which the scientific results are published. This modification is based on the assumption that the impact factor of a scientific journal is a good approximation of the particular quality of the results published in that journal. As a result of this assumption, the absolute impact factor of the journals in which publications of Flemish university researchers appeared was taken into account to determine the share of each university in this parameter.

Whether publication in a journal with a high impact factor contains, by definition, excellent research results is food for discussions. One can even pose the question whether a journal with a high impact factor is the most appropriate journal for researchers active in the research domains that are covered by that journal to publish in. A journal which focuses on a limited number of specific research domains (but with a lower impact factor) might have better visibility in
these specific research domains and, as a consequence, might yield more citations to the published work in that research domain.

As of 2008 onwards, the publications in journals covered by the Social Science Citation Index (SSCI), the Arts and Humanities Citation Index (AHCI), the Conference Proceedings Citation Index-Science (CPCI-S) and the Conference Proceedings Citation Index-Social Sciences & Humanities (CPCI-SSH) were also taken into consideration in the framework of this parameter. This was the first step in further spreading of research disciplines from which publications were taken into account in the BOF allocation key (Spruyt & Rons, 2008).

The second step in further spreading of research disciplines was taken in 2011, as a regional database was set up to obtain full coverage of publications of Flemish social scientists and humanities scholars: the Flemish Academic Bibliographic Database for the Social Sciences and Humanities (‘Vlaams Academisch Bibliografisch Bestand voor de Sociale en Humane Wetenschappen’ (VABB-SHW)). Publications indexed in this database (excluding the publications indexed in the before-mentioned Thomson Reuters' databases (SCEI, SSCI, AHCI, CPCI-S and CPCI-SSH)) were from then on also taken into account to determine the share of the universities in the BOF allocation key. This new academic bibliographic database was set up after the example of an academic bibliographic database set up in Norway (Schneider, 2009; Sivertsen, 2010). The main (and only) goal of this Flemish database is to nourish and expand the publication parameter of the BOF allocation key towards the Flemish scientific peer-reviewed output in the fields of Arts, Humanities and Social Sciences, regardless of the language of the scientific publication or of its geographical dimension. The added value of this database, when compared to the Thomson Reuters' databases, is that the VABB-SHW is not limited to scientific contributions written in English, as is mainly the case for the Thomson Reuters' databases. In contrast to lingua franca of most scientific publications in the fields of Natural Sciences, (Bioscience-) Engineering and (Bio-) Medical Sciences, publications in the Arts, Humanities and Social Sciences are more often written in the local language of the researchers or appear as books or book chapters by (regional) scientific publishers. So, in order to be able to take into account all qualitative (i.e. peer reviewed) scientific contributions of the researchers active in the fields of Arts, Humanities and Social Sciences in Flanders, this specific database had to be set up. The objectives, design and selection process of this Flemish academic bibliographic database have been described in detail by Engels et al. (2009), Chesquièrre et al. (2011), Ossenblok et. (2013), and Verleysen et al. (2014).

The VABB-SHW database only accepts publications of Flemish authors affiliated to universities (and non-university institutes of higher education), on condition that at least one of the co-authors is affiliated to a university unit linked to Arts, Humanities or Social Sciences. In order to distinguish between different types of publications, weight factors for each publication type were introduced.
The coefficients of weight at the onset of the VABB-SHW database range between 4 (book (co-)author), over 2 ((co-)editor of a book) and 1 ((co-)author of a book chapter, an article in a scientific journal or a conference proceeding) (Engels et al. (2009)).

In 2014, the minimum share in the subsidy of the Special Research Fund for the three smallest universities was guaranteed: 2.91% for the University of Hasselt, 10.12% for the Vrije Universiteit Brussel and 11.75% for the University of Antwerp. These minimum shares may increase to 4%, 10.5% and 13% respectively, on condition that a number of specific research performance-based goals are reached in the near future (but not earlier than 2017). It is believed the universities concerned will reach these goals within a timeframe of four years, leaving only 72.5% of the subsidy of the Special Research Fund submitted to the characteristics of the allocation mechanism of the BOF allocation key.

2.3. The current BOF allocation key

The BOF allocation key used in the budgetary year 2015 contains six parameters. The parameters are bundled in two parts: the so-called structural part A and the bibliometric part B (BVR, 2012).

The structural part of the allocation key is the weighted average of three parameters:

- **Parameter A1**: the share of each university in the total number of undergraduate (master) degrees awarded by Flemish universities;
- **Parameter A2**: the share of each university in the total number of PhD graduates (PhD degrees awarded) by Flemish universities;
- **Parameter A3**: the share of each university in the diversity parameter.

A moving time span of four academic years (parameters A1 and A2) and of four calendar years (parameter A3) is taken into consideration to determine the share of each university in each of these three parameters.

The bibliometric part of the allocation key consists of three parameters aiming at the stimulation of productivity and international quality of the scientific research at the universities in Flanders. The parameters are:

- **Parameter B1**: the number of publications of the types ‘Article, Letter, Note, Review, or Proceedings paper’ in peer reviewed journals covered by the Science Citation Index Expanded (SCIE), the Social Science Citation Index (SSCI), the Arts and Humanities Citation Index (AHCI), the Conference Proceedings Citation Index-Science (CPCI-S) and the
Conference Proceedings Citation Index-Social Sciences & Humanities (CPCI-SSH). These databases are managed by Thomson Reuters. All Flemish higher education institutions have access to these databases.

- **Parameter B2**: the number of publications covered by the Flemish Academic Bibliographic Database for the Social Sciences and Humanities, excluding the publications indexed in the before-mentioned Thomson Reuters' databases.

- **Parameter B3**: the number of citations to the publications indexed in the before-mentioned Thomson Reuters' databases.

A scientific publication is assigned to a university as soon as the university is mentioned in the address of at least one of the authors of the publication. In the case of Flemish interuniversity collaboration, the publication is assigned as one “full” publication to each of the universities involved. Publications realised in a moving time span of ten calendar years are taken into consideration to determine the share of each university for the parameters B1, B2 and B3.

### 2.3.1. Parameter A1: bachelor’s and master’s degrees

This parameter in the BOF allocation key is seen as a measure for the research potential of each university based on its own undergraduates. This parameter also reflects the investment in scientific research in the fields of the education offered to the students (Spruyt & Rons, 2008).

The share of each university in the total number of undergraduate degrees awarded by Flemish universities is counted over the period of the four most recent academic years for which the degrees have been ratified by the government. This parameter takes into account two types of academic degrees: the initial master’s degrees awarded by all universities, as well as the initial bachelor’s degrees awarded by universities that do not have the authority to organise the subsequent master’s program. The latter type of degrees has been included to reward the efforts of incomplete universities to educate and teach students in the programs for which they only have the authority to offer the bachelor’s training. In fact, these students are counted twice: the first time when they obtain their bachelor’s degree and the second time when they obtain, at another university in Flanders, their subsequent initial master’s degree.

Weighting factors linked to discipline-related differences in the costs of offering excellent education and of performing research activities are used in the formula to calculate the share of each university. The weight of this parameter within the BOF allocation key has evolved over the years and attains 24% in 2015 (Figure 1) and will be reduced to 23% in 2016 (BVR, 2012).
2.3.2. Parameter A2: PhD degrees

PhD degrees have been taken into account from the onset of the allocation key in 1995. In 2015, the share of each university in this parameter is determined using a combination of two counting methods: on one hand, the total number of PhD degrees counted over a time span of four recent academic years, on the other hand PhDs are weighted using a (1,2)-weighting criterion depending on the discipline in which the PhD occurs, and then counted over the same time span. The share of each university is determined by considering the university share in the total number of non-weighted PhD degrees for 25% of the parameter and the university share in the total number of the weighted PhD degrees for 75%.

For the purpose of this parameter, a PhD in Arts, Humanities, Social Sciences or Behavioral Sciences has a weight of 1, whereas a PhD in Natural Sciences, Engineering, Bioscience Engineering, Veterinary Sciences, Biomedical Sciences, Pharmacy, Medicine or Health Sciences has a weight of 2. These weights are based on the differential cost estimates of doing doctoral work in the various research disciplines. These weights are the same for all universities.

The occurrence of this parameter in the allocation key from its very start is considered to be the onset of taking into account the first aspect of the scientific output of university research activities. The weighting criteria within this parameter have been simplified over the years, but the weight of the parameter in the allocation key remained relatively stable. This parameter accounts for 35% in 2015 (Figure 1) and subsequent budgetary years (BVR, 2012). For the BOF budgetary year 2015, a share of 35% in the BOF allocation key corresponds to approximately EUR 50 million.
Figure 2: Number of PhD degrees awarded in Flanders per academic year for the period starting with the academic year 1991-1992 until academic year 2012-2013. (retrieved from Vandevelde et al. (2013) and Smet (2014))

The evolution of the total number of PhD degrees awarded in Flanders is shown in Figure 2. A significant increase in the annual number of PhD degrees awarded is observed over the years: while in the academic year 1991-1992 501 PhD degrees were awarded, the number of degrees more than tripled in recent years reaching 1678 PhD degrees in the academic year 2012-2013 (retrieved from Vandevelde et al. (2013) and Smet (2014)).

Figure 3: Total number of PhD degrees taken into consideration per budgetary year of the Special Research Fund (BOF).
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The number of PhD degrees that are taken into account for parameter A2 of the BOF allocation key per budgetary year also shows a continuous increase (Figure 3). For this parameter, the total number of PhD degrees awarded over a moving time frame of four academic years is considered: for the budgetary year 1997 of the Special Research Fund, 2,200 PhD degrees were included, while for the budgetary year 2014, 5,711 PhD degrees were already taken into account. This represents an increase of 260%.

2.3.3. Parameter A3: gender

The third parameter in this section of the BOF allocation key deals with the gender aspect of the professorial and postdoctoral research staff at the universities. The share of each university in the total number of female professors and female postdoctoral staff members (expressed in full time equivalents) at Flemish universities is calculated over a moving time span of four recent calendar years for which registered and audited personnel data are available. The Flemish government maintained this parameter in the recently adjusted allocation key in order to keep on stimulating universities to take up female postdoctoral researchers in their professorial staff.

The weight of this parameter has been set to 2% in 2014 and will remain unaltered in the next years (BVR, 2012).

2.3.4. Parameter B1: publications indexed in Thomson Reuters' databases

The weight of each of the five publication categories (articles, letters, notes, reviews, and proceedings papers) within parameter B1 is determined by the proportion of each category in the total number of publications. For this purpose, the publications listed in the Conference Proceedings Citation Index-Science (CPCI-S) or in the Conference Proceedings Citation Index-Social Sciences & Humanities (CPCI-SSH) are taken into account with a coefficient of weight of 0.5.

A unique classification model is used to calculate the share of each university in the total number of publications of Flemish university researchers in scientific journals with an impact factor (BVR, 2012):

- all journals indexed in the SCIE and SSCI are grouped in 68 research disciplines and ranked according to an average impact factor calculated over a moving time span of ten years. The years for which no impact factor of the journal is known are not taken into account to determine the average impact factor. A journal occurring in more than one research discipline is only retained in the research discipline list for which it has the relative highest ranked position.
- once all journals are ranked in one of the 68 research disciplines, each journal list is divided into 20 equally sized parts. A specific coefficient
of weight is assigned to each of the 20 parts of these ranked lists. The coefficients of weight are identical for all 68 research disciplines and range from 10 (for the journals with the highest average impact factors (top 5% journals)) to 0.1 (for the parts containing the journals with the lowest average impact factors) (Figure 4).

- publications appearing in a journal indexed in the SCIE and SSCI are weighted according to the coefficient of weight of the part of the journal list to which the journal belongs.

![Graph showing the coefficients of weight](image)

**Figure 4:** The coefficients of weight used in the framework of parameter B1 of the BOF allocation key.

The goal of this parameter is to encourage publications in highly cited journals within the most relevant research discipline in which one is active. The impact factors are only used to rank the journals within the research discipline. This differs from the counting method used in the past: for several years until 2012 the absolute impact factors were used as weighting criterion. This had the unwanted side-effect that research performed in disciplines with journals with high impact factors appeared to be of more value to the universities than research performed in other disciplines. The new counting method is discipline neutral and encourages all researchers to aim at publishing in the best journals in their research field (= journals with a high impact factor) regardless of the absolute impact factor of the journal concerned.

The share of each university in the total number of publications in the journals indexed in the Arts and Humanities Citation Index (AHCI), the Conference Proceedings Citation Index-Science (CPCI-S) and the Conference Proceedings Citation Index-Social Sciences & Humanities (CPCI-SSH)) is calculated without using any weight factors: only the gross number of publications are considered.
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The weight of this parameter in the BOF allocation key is increasing from 15.36% in 2013 to 16.60% from 2016 onwards (BVR, 2012). In 2015 the weight of this parameter is 16.19% (Figure 1).

2.3.5. Parameter B2: publications indexed in the VABB-SHW database

The share of each university in the total number of publications that are indexed in the VABB-SHW (and that are not indexed in the Thomson Reuters' databases to avoid that these latter publications are counted twice, as these are already playing a role in parameter B1) is calculated using weight factors linked to the type of publication considered. As of 2015, books as author are assigned a weight factor of 4. Three other types of publications are assigned a weight factor of 1: edited books, book chapters and journal articles. Conference proceedings are assigned a weight factor of 0.5.

Scientific publications in the Social Sciences and Humanities need to meet a number of basic criteria to be eligible to be indexed in the VABB-SHW: the publications are publicly accessible, are identifiable by an ISBN or an ISSN number, contribute to new insights (or applications resulting from these insights) and underwent a demonstrable peer review procedure prior to publication (Ossenblok et al., 2013). The authors have to prove that peer review was performed by independent peers who are expert in the field of study concerned. As research policy studies are part of the broad field of Social Sciences, publications of policy advisors at the central administration of universities are also qualified to be indexed by the VABB-SHW, on the condition that their contributions meet all the criteria mentioned.

A minimum number of four pages is also implied in order to arbitrarily differ between articles, conference proceedings and book chapters on one hand and short communications on the other hand. The latter does not represent an eligible publication category in the VABB-SHW.

The weight of this parameter in the BOF allocation key is increasing from 6.28% in 2013 to 6.80% from 2016 onwards (BVR, 2012). In 2015, the weight of this parameter is 6.62% (Figure 1).

2.3.6. Parameter B3: citations

This parameter deals with the share of each university in the total number of citations to articles, notes, letters, reviews and conference proceedings indexed by SCIE or SSCI and authored by at least one staff member belonging to the university concerned. Citations are assigned to a university as soon as the university is mentioned in the address of at least one of the authors of the cited publication. The number of citations is determined using a moving time span of maximum ten calendar years. For each cited publication the time span starts with the year of publication and lasts up to ten calendar years.
No difference is made between self-citations and other citations to a publication: a study of Debackere and Glänzel (2004) showed that different Flemish universities have highly similar self-citation rates and that these rates are relatively stable when a time span of several years is considered. Based on this observation, it was decided not to correct for self-citations when determining the share of each university for this parameter.

The weight of parameter B3 in the BOF allocation key is increasing from 15.36% in 2013 to 16.60% from 2016 onwards (BVR, 2012). In 2015, the weight of this parameter is 16.19% (Figure 1).

3. Allocation key of the Industrial Research Fund

The Industrial Research Fund (“Industrieel Onderzoeksfonds”; IOF) represents the second research block grant allocated by the Flemish government to the universities. This public research funding initiative has been installed in 2004 to stimulate applied research and innovation initiatives at all institutes for higher education in Flanders.

The IOF block grant is allocated to associations of higher education institutes. An association is a legal entity established by a consortium of one university and at least one non-university institute for higher education (“hogeschool”). The latter higher education institutes offer, on an exclusive basis, professional bachelor’s programs (180 ECTS). In contrast, universities offer, on an exclusive basis, academic bachelor’s programs (180 ECTS) and academic master’s programs (ranging between 60 and 180 ECTS). The main goal of the associations is to stimulate collaboration between consortium partners in the fields of education, research and services to society. The associations do not have the qualifications to offer education, to perform research activities or to provide services to society. These tasks remain the core business of the member institutes of the associations.

The aim of the IOF allocation key is to distribute public research and development funding between the Flemish associations. Within each association, the R&D funding is used to set up and support their own innovation policy. For this purpose, each association established a so-called IOF Council with a two-fold mission: 1) to prepare innovation related association-wide policy measures and 2) to organize intra-association funding allocation systems based on a peer-review mechanism to support individual innovation initiatives, in accordance with current innovation policy measures. At Ghent University Association, a portfolio of funding initiatives (several types of innovation projects, business development centers headed by business development managers) have been developed and annual or biannual calls for proposals are launched within the association. The IOF Council acts as an entity in the selection of the “best” innovation proposals.
A specific allocation key has been set up to distribute the available funds among the five associations in Flanders (BVR, 2009). As from 2011, this allocation key consists of six parameters.

The first two parameters take into account the scientific performance of the partners within the associations:

- Parameter 1: the share of each association in the total number of PhD graduates (PhD degrees awarded by Flemish universities) during a moving time span of four recent academic years. This parameter resembles parameter A2 of the BOF allocation key.
- Parameter 2: the average share of each association in the total number of publications of its members on one hand and in the total number of citations to publications authored by at least one staff member belonging to a university or non-university institute for higher education on the other hand. The calculation of association shares for each item of this parameter is based on the calculation method used to determine university shares in the parameters B1 and B2 (publications) and the parameter B3 of the BOF allocation key (citations). For this IOF parameter, more publications and citations are taken into account than for the corresponding parameters in the BOF allocation key, as not only the publications of the researchers at Flemish universities, but also the publications of the researchers of Flemish non-university institutes for higher education are counted as well.

The next two parameters deal with the degree in which the members of the associations are successful in attracting external research funding:

- Parameter 3: the share of each association in the total amount of external funds raised by the partners of all associations through agreements with profit organisations (research and development agreements, clinical trials (limited to stages 1 and 2) and licensing agreements) counted during a moving time span of four most recent calendar years.
- Parameter 4: the share of each association in the total amount of European research funds obtained through the most recently closed Framework Programme. For 2015, the results of the Seventh Framework Programme will be used for the first time, because the final results of the revenues of universities and non-university institutes of higher education in Flanders via participations in projects funded through the Seventh Framework Programme were available at the time of the assignment of the IOF block grant 2015 among the associations.

The last two parameters take into account the innovation and valorization capacity of the partners in the associations by measuring the numbers of patent applications, granted patents and spin-off companies during a moving time span consisting of four most recent calendar years:
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- Parameter 5: the share of each association in the total number of patents granted by the United States Patent and Trademark Office, patents granted by the European Patent Office and applied patents, and patents applied for according to the Patent Cooperation Treaty. The patents and patents applications are weighted using a coefficient of weight of 1 for both types of granted patents and a coefficient of weight of 0.5 for patent applications.
- Parameter 6: the share of each association in the total number of spin-off companies established by all partners of the associations.

The share of each of the six parameters in the allocation key remained constant as of 2011. In the IOF 2015 allocation key, the shares range from 10% (parameter 4) over 15% (parameters 1, 2, 5 and 6) to 30% (parameter 3) (Figure 5).

![Pie chart showing the share of each parameter in the IOF allocation key 2015]

Figure 5: The share of each parameter in the IOF allocation key 2015

4. Block grant funding of the Flemish Institute for Biotechnology

The Flemish Institute for Biotechnology\(^1\) is a virtual research institute in a sense that, apart from a central administrative unit, all the other units (research departments) are integrated within universities. The researchers of this institute conduct strategic basic research in life sciences, including molecular biology, cell biology, developmental biology, structural biology, genetics, biochemistry, and

\(^1\) [http://www.vib.be/en/Pages/default.aspx](http://www.vib.be/en/Pages/default.aspx)
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microbiology, genomics and proteomics. The research departments each consist of several research groups and are fully embedded in Flemish universities. As a consequence, these research groups acquire research funding through both the VIB and the host university, as well as through external sources (regional, federal and international funding agencies, companies, ...).

The Flemish government yearly allocates a block grant to the VIB. In return, strategic goals are established in a management agreement between the government and the strategic research institute. During the life span of the agreement, the goals have to be reached. Every 5 years, an international panel of peers assesses not only the scientific impact of the work done by the researchers, but also the economic and social impact of it. Based on the assessment report, the government decides on the renewal of the management agreement for the next five years and on any change in the yearly block grant (Kieft et al., 2011).

The procedure set up for the assessments of the Flemish strategic research centres resembles the new country wide evaluation procedure that has been set up in the UK to assess the quality of research at every higher education institution: the 'Research Excellence Framework (REF)' evaluation that took place for the first time in 2014\(^2\). The evaluation panels use a combination of peer review and metrics to look not only at the scientific impact, but also at the economic and social impact of the work performed by the higher education institutions.

In the management agreement, the strategic goals are translated into concrete operational goals linked to a number of key performance indicators. For the time span 2007-2011, the key performance indicators listed in the management agreement were (Kieft et al., 2011):

- 150 publications / year in peer reviewed journals with an impact factor of at least 5, of which 55 publications / year in journals with an impact factor of at least 10;
- 40 PhD degrees awarded to junior VIB researchers / year
- 25 patent applications / year, of which is expected that half of them will be granted;
- 6 million euro revenue / year through collaborations with industry
- 1 spin-off company / year

Within the VIB, the key performance indicators are spread among the research departments and specific targets for each of the individual research groups are defined based on these key performance indicators. As the research departments of the VIB are integrated into research departments at Flemish universities, the key performance indicators of the VIB are at least as important for the researchers of these departments as the mechanisms used to fund research at universities (block grant funding methods, as well as competition-based funding methods).

\(^2\) http://www.ref.ac.uk/
VIB research groups that underperform have to leave the VIB. In 2012, this was the case for 7 out of the 72 VIB research groups (Kieft et al., 2011). In principle, these research groups do not disappear, as they continue to work within their host university. However, they have to deal with a lower basic budget, as the funding flow from the VIB stops.

In the current management agreement, a new approach to get an approximation of the quality of the VIB publications was introduced. Instead of using strict impact factor cutoffs (e.g. journal impact factors of 5, 10, or even more), the tier journals for each VIB research field were identified by means of a ranked list of peer reviewed journals based on their impact factors. This allows the researchers to zoom in on the top journals in their specific field of research (top 25% (Tier25), top 5% (Tier5) and top 1% (Tier1)), instead of solely focusing on journals with high impact factor (VIB, 2013). This procedure to rank scientific journals within research disciplines is similar to the procedure that has been introduced in the BOF allocation key (parameter B1).

5. Competitive funding through the Research Foundation - Flanders

The Research Foundation - Flanders (FWO)\(^3\) is a Flemish funding agency that supports ground-breaking fundamental research at the universities of the Flemish Community. It grants fellowships to excellent and promising researchers, as well as research project funding to established researchers on the basis of an interuniversity competition and an evaluation by renowned national and international experts. For this purpose, calls for several types of research proposals (projects, fellowships, mobility, international cooperation ...) are launched each year.

Peer review evaluation is carried out by national and international experts and is exclusively driven by scientific excellence. There are 30 mono-disciplinary panels and 1 interdisciplinary panel, together covering all research disciplines present at the universities in Flanders. Each panel counts 16 to 18 members. They are selected on the basis of their scientific expertise. At least half of the members of each panel are not affiliated to a Flemish university. The panels meet twice a year to evaluate the submitted proposals. For postdoctoral fellowships and research projects, the panel members have at their disposal evaluation reports from remote external referees. The panels submit a ranked list of excellent proposals in the form of a scientific advice to the Board of Trustees of the FWO that decides on the allocation of funds.

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The evaluation is based on the assessment of the research proposal, as well as on the excellence of the previous achievements of the applicant(s) or, in case of an application for a PhD fellowship or postdoctoral fellowship, on the potential to become an excellent researcher in the near future. With regards to the applicant, the evaluation is based partly on the assessment of the number and type of scientific publications and of international visibility of the work of the applicant within the research discipline involved (e.g. citations, invited talks at international conferences, etc.). It may be clear that the research performance-based parameters of the BOF allocation key indirectly play an important role in the quality assessment exercise of research proposals under the auspices of this Flemish funding agency.

Figure 6 shows the success rate of the candidatures for PhD fellowships and postdoctoral fellowships at the Fund for Scientific Research over the last 15 years: a decrease in success ratio for the applications for PhD fellowships is observed. As of 2010 onwards, the success ratio to obtain a PhD fellowship from this funding agency ranges between 21 and 24%.

With regards to the applications for postdoctoral fellowships, the highest success ratios (> 40%) were obtained in the years 2000 until 2002. From then on, the success ratio dropped below 40%. Between 2010 and 2013, the success ratio was even lower than 30%.

As the number of yearly available PhD fellowships and fellowships for postdoctoral researchers remained relatively stable, the decrease in success ratio is
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ascribed in full to an increase in the number of applications. This is confirmed by the
data published in the annual reports of this funding agency.

Figure 7: the evolution of success ratio in the calls for project proposals
at the Fund for Scientific Research – Flanders. The success ratios are
based on the number of submitted versus the number of allocated projects
(black line), as well as on the total budget of all submitted proposals versus
the total budget of all granted projects (dotted line). Data retrieved from
the annual reports of the funding agency.

The success ratio in the framework of the call for project proposals at the
Fund for Scientific Research – Flanders is shown in Figure 7. When one focusses on
the number of allocated projects, a clear decrease in success ratio is observed: while
more than 50% of the submitted projects could be granted in the years 2000-
2003, the success rate dropped down to less than 30% for the most recent years

Figure 7 shows the total budget that was granted to funded research projects
compared to the total budget that was requested in the project applications. While
until 2008 the total budget allocated to the selected projects represented at least
25% of the total budget requested, this percentage dropped below 20% as of
2010. The yearly difference observed between both success rates indicates that the
evaluation panels, in an attempt to grant as much research projects as possible, also
reduce the requested project budgets.
6. Some reflections on the public funding mechanisms in Flanders

In 2015, the Flemish government plans to allocate up to EUR 156 million via the Special Research Fund and approximately EUR 27 million via the Industrial Research Fund. In addition, the BOF allocation key and the IOF allocation key are used as a combined allocation key to distribute a total amount of approximately EUR 23 million among the associations for medium-scale and large-scale research infrastructure. On top of that, most parameters of the BOF allocation key are also part of another allocation key used to distribute, at Flemish level, 45% of the total amount of the university basic allowance among the universities. In 2015, this represents a sum of nearly EUR 322 million. It is evident from these figures that the university policy makers pay a lot of attention to the parameters in both allocation keys, especially the parameters dealing with PhD degrees, publications and citations.

Van den Berghe (2014) investigated the effect of national allocation models on the internal allocation systems used by four European universities (Ghent University, University of Göttingen, University of Groningen and Uppsala University). Although the universities are dealing with substantially different national/regional allocation models, it was found that at each university the internal allocation system mirrors to a large extent the state funding allocation system, although some tailor-made adaptations were introduced. Their internal models to distribute the basic allowance among the faculties/schools/departments have mainly the same basic architecture and contain the same parameters (or parameters derived from them) as the allocation keys used by the government.

As Flemish universities aim to increase their share in the allocation keys for research block grants, individual researchers experience growing pressure to publish more and in "better" scientific media (journals, books via renowned scientific publishers) and to attract more graduate students and to better guide and supervise them, so that they are successful in obtaining a PhD degree. The funds for the costs linked to the activities that will lead to new research output have to be obtained via various funding sources. For Flemish researchers focusing on fundamental research, the Special Research Fund within the home university and the Fund for Scientific Research – Flanders are the obvious funding sources. Each university decides autonomously on the way the allocation of the money of the Special Research Fund is organised. For at least part of the available funds within the special Research Fund, all Flemish universities developed a set of funding initiatives most of which are based on project-based competition. At Ghent University, less than 10% of the Special Research Fund is not allocated through competition. However, the allocation of even that portion of the available research funds depends on meeting
the performance-based goals that were agreed beforehand and are known to all researchers who can be promoters of PhD graduates.

Researchers also have to consider the best publication media to reveal their research results. The fact that, for several years, only a particular segment of publication types (i.e. articles in journals indexed by the Thomson Reuters' databases) was taken into account for determining a partition of the subsidy in the framework of the Special Research Fund and Industrial Research Fund incited researchers to switch their publication behavior. Ossenblok et al. (2012) showed that parameters used in a performance-based funding system influence publishing patterns of researchers in the Social Sciences and Humanities: in contrast to their Norwegian colleagues, Flemish researchers in these research disciplines switched their publication pattern to articles in journals indexed by the Thomson Reuters' databases. In a recent study, Michels & Schmoch (2014) reported that German authors adapt their publication behavior to aim for journals that are more internationally known and have a foreign publisher. A similar observation is made by Schuermans et al. (2010), who studied publication practices of Belgian academic geographers over the last 40 years. They observed that Belgian geographers are currently publishing more in the English-language journals and in journals indexed by the Thomson Reuters' databases than their colleagues in the seventies or eighties. The number or publications in the local languages (Dutch and French) and in Belgian geographical journals was decreased. Whether these publication shifts are problematic, as is suggested by Schuermans et al. (2010) in the field of academic geography, remains to be clarified by future studies. Derudder (2011) published some reflections on the dominance of Journals indexed in the Thomson Reuters’ databases in academic human geography. It is clear that external factors, like the use of scientific output-related parameters in public funding mechanisms, influence publication behavior of researchers.

Spruyt & Rons (2008) estimated the average annual financial return of a PhD degree in Humanities over a period of three years (2005-2007) at 4 600 EUR. Taking into consideration the coefficients of weight used to differentiate among research disciplines on the basis of the assumed differences in the cost of the research activities, the authors concluded that the average annual financial return of PhD degrees in other disciplines was twice to three times as high (9 200 EUR and 13 800 EUR). At a request of the Ghent University Research Council, a similar calculation is made yearly focusing on the financial return of PhD degrees in the framework of the Special Research Fund. The average financial return of a PhD degree (regardless of the disciplines in which the degrees are awarded) amounted to 12 500 EUR in 2009, which is likely to be higher than the average that can be assumed from the results mentioned by Spruyt & Rons (2008) for the years 2005 until 2007. This is explained by a financial injection of approximately EUR 40 million by the Flemish government between 2005 and 2009 (ref: Van der Weken et al., 2013).
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Figure 8 shows the evolution of the number of PhD degrees that are taken into account to determine the share of each university in the framework of parameter A2 for the BOF budgetary years 2009 until 2014 on one side, and the average financial return per PhD degree that is counted for the same budgetary years on the other side. The value of both variables for the budgetary year 2009 is set to 100% (corresponding to 4,092 PhD degrees and 12,502 EUR of financial return per PhD degree). In the budgetary year of 2014, the number of PhD degrees increased to 140% (representing 5,711 PhD degrees), while the financial return per PhD degree dropped to 83% (10,376 EUR). During the period of 2009-2014, the share of this parameter A2 in the allocation key remained unchanged at 35% and no alterations were made in the way the PhD degrees are taken into account. The different course of the curves of both variables has to be ascribed to another cause.

A similar observation is made for parameter B1 (publications in scientific journals indexed by the databases of Thomson Reuters): the average financial return per publication amounted to 295 EUR in 2009 and decreased to 247 EUR in 2014 (-16%) (unpublished results).

Based on the data published by Van der Weken et al (2013), the gross amount of the Special Research Fund did not increase as much as the number of PhD degrees in recent years: between 2009 and 2013 an increase of only 13.5% has been recorded. In 2014, only a minor additional increase (of ±1%) of the Special Research Fund was foreseen by the Flemish government.

An important aspect linked to a different course of the curves observed in Figure 8 deals with the closed financial envelope that is being applied by the Flemish
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government with regards to the Special Research Fund (and the Industrial Research Fund): the amount of money that is distributed among the universities via different allocation keys does not follow the increase in university output. As a consequence of this, a growing competition among Flemish universities takes place in order to increase their share in each of the allocation keys. In fact, all universities show an increase in numbers of contributions to scientific literature and PhD degrees. This is shown by several contributions in Debackere & Veugelers (2013). Despite the efforts to realize a continuous growth in scientific output and to safeguard, at the same time, the excellence level of the scientific output, the reward for each university is minimal, if present. In fact, due to the closed envelope principle, an increase in university share in the allocation keys can only be obtained on condition that the other universities do not achieve an increase in output as strong as the university considered. As a consequence, an increase in the share of one university necessarily induces a decrease in the share of at least one other university.

This issue has already been discussed several times with the authorized Flemish ministers. One of the ideas to overcome the lack of budgetary adjustment linked to the growing research output consists of installing thresholds for each of the parameters of the allocation keys: as soon as the total output in the framework of one of the parameters of an allocation key exceeds the threshold, an additional amount of money could be added by the government to the block grant. The implementation of this principle guarantees that the universities continue to be rewarded for the efforts made to improve the output and visibility of the research activities performed by their research staff. However, a short-term solution is unlikely due to the economic climate forcing the Flemish government to save on subsidies, including those to promote scientific research.

A similar issue deals with the reduction of success rates of research applications submitted in the framework of call for proposals launched by the Fund for Scientific Research – Flanders. The reduction is ascribed to the fall back of available funds to spend on excellent research initiatives by this Flemish funding agency in comparison to the growing number of applications submitted to this agency.

The number of publications and the impact factors of the scientific journals in which one publishes are parameters, among others, that are also used by peers to assess the quality and the expertise of project promoters and of candidates for research fellowships in the framework of the evaluation of applications. Although these parameters are not used in a strict arithmetic approach, they do play an important role in the assessment of the individual applications and in the ranking of applications according to their excellence. The recent introduction of 68 research disciplines in the BOF allocation key, to rank scientific journals according to their impact factor, introduced a proper recognition of the top journals in research disciplines in which the impact factors are considerably lower than those of the top
journals in other research disciplines. In their study on the publication behavior of German scientific authors, Michels & Schmoch (2014) observed a trend from more specialized journals to journals with a broader scope, raising the question whether the compartmentalization of journals in predefined research disciplines used to perform bibliometric analyses leads to undesired shifts in the conducted research or in the choice of the most obvious publication media.

The division of research landscape into research disciplines (68 research disciplines in the case of parameter B1 of the BOF allocation key) can never be perfect: researchers active in small or in niche research disciplines have the feeling that their work is underappreciated. In case there are only a few specific peer-reviewed journals available to publish in, these journals are irrevocably added to a list of journals covering a much broader range of research disciplines. This might result in a suboptimal ranking of these journals (including the top journal of the niche research discipline) and consequently in a low coefficient of weight for each of the publications by these researchers at the time the publications are taken into account to determine the university shares in the framework of parameter B1. A similar issue is raised by researchers performing mainly interdisciplinary research: due to the lack of already established journals focusing on the new awaking research discipline, the researchers are obliged to publish in journals belonging to the more established research disciplines linked to the new research discipline. As the research topic of their work only partially matches the research focus of the journals, these researchers face significant hurdles to publish in high-ranked journals.

As every attempt to classify research disciplines in categories to be used for metrics purposes and allocation keys irrevocably shows a certain grade of imperfection, the only alternative to assess quantity and quality of scientific output and research potential is through labor-intensive peer review. However, also the peers will have to use the same and similar criteria and parameters to evaluate research initiatives projects. The only difference is that peers interpret the data before assessing them, while the software developed for metrics and allocation purposes only uses the data in a strict arithmetic approach.

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INNOVATION AND KNOWLEDGE

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Abstract: Knowledge-based society, also referred to as post-industrial society, has placed reconsideration of the relationship between development and education into the focus of interest. Reforms of education are essential and necessary for building an education system for sustainable development. Education can nowadays be regarded as a factor of sustainable economic and social development. Owing to their ability to generate new knowledge and skills, modern-day universities are increasingly seen as a key factor in strengthening the competitiveness of economy on a worldwide scale. This article is an attempt to present and study innovation, as a highly complex phenomenon, from multiple perspectives. It considers concepts such as innovation systems and innovation networks, innovation management, the university-industry-government triad and, finally, the prominent role of universities and higher education in innovation development. Although we know much less how innovations come about than where they lead, the main finding in the references on innovation is that organisations innovate in broad interaction with their environment rather than in isolation, so that terms such as “system” and “network” have been introduced in order to understand innovation. Human resources development implies: mapping human resources for innovation; professional strengthening of the personnel in charge of research and development; establishing standard competencies and career development models: strengthening the area of organisation, management development area and organisation area. The key conclusion of the analysis given in this paper is the inevitability of development, and developing higher education and universities so as to attain beneficial conditions for innovative changes.

Keywords: knowledge-based society, innovation driver, innovation management, competitiveness in education
Introduction

Sustainable development is the key determinant of the modern development theory, which is highly positioned in EU documents – such as “Europe 2020”, “EU strategy for the Danube region”, “Horizon 2020”.

“Europe 2020” development strategy emphasizes three interrelated priorities: (1) sustainable growth, which implies promotion of resource-efficient, green and competitive economy; (2) smart growth, which means society development based on knowledge and innovation; (3) inclusive growth, that involves economies with a high employment rate, which contributes to social and territorial cohesion.

According to the abovementioned, the European Commission defined seven leading initiatives that should encourage progress within each priority: (1) “Innovation Union”, which means development of innovative ideas that can be turned into products and services that will bring economy growth and jobs; (2) “Digital Agenda for Europe” aims at accelerating the use of internet and creating possibilities of utilization of the unique EU market; (3) “Youth in action” refers to improvement of the education system and enabling access to the labor market for young people; (4) “A Resource Efficient Europe” should promote energy efficiency, as well as support the transition to renewable energy sources; (5) “An Integrated Industrial Policy for the Globalization Era” is focused on the improvement of business environment, especially for small and medium enterprises, as well as on supporting the development of a strong, sustainable and competitive industry; (6) “Agenda for new skills and jobs”, with the aim of modernization of labor market in terms of developing new skills and jobs that require dynamic technical-technological changes and all in order to better coordinate the supply and demand of labor, including labor mobility; (7) “European platform against poverty and social exclusion”, which should ensure social and territorial cohesion, meaning that poor people should feel the benefits of economic growth as well. All these strategic goals are interrelated.

1. On the importance of innovation and the meaning of the term “innovation”

Innovations are a necessary condition for economic and social development, new scientific knowledge is a necessary condition for innovations and scientific

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1 This term first appeared in the 1980s, in official documents of the OUN, it has been written about at great length until today, bearing in mind that it is a multi-disciplinary and multi-dimensional phenomenon.

2 The basis of changes brought about by the redefined education strategy in the EU consists of two major skill groups necessary at the labor market: (1) skills related to adaptation to constant changes and (2) skills related to real needs of specific jobs.
research is a necessary condition for gaining new scientific knowledge. Compliant synergy of universities, economy and state government is an important condition for innovative and sustainable, progressive socioeconomic development.

![Figure 1: Academic articles with the word "innovation" in their titles](Taken from Fagerberg, J., D.C. Mowery & R.R. Nelson (2004). The Oxford Handbook of Innovation p.2)

The increase of importance attributed to innovations graphically indicates the growth in the number of academic articles (period from 1956 until 2004) with the word “innovation” in the title. (Figure 1):

Baregheh, Rowley and Sambrook (2009) have published an analysis of the content of 60 definitions describing innovation suggested from 1934 until 2007 in various areas (economy, technology, organizational studies, marketing, knowledge management and others) and have found six main attributes in the definitions: (a) nature of innovation (something new or improved), (b) type of innovation (result of innovation – e.g. process, product or service), (c) phases of innovation (during the innovation process), (d) social context (social entity, system or group involved in the innovation process), (e) means of innovations (resources necessary for innovation) and (f) objective of innovation (the result intended to be achieved by innovation) (pp. 1331-1332). Aiming to include all the discovered attributes in their definition of innovation, these authors defined innovation as a multi-phase process through which organizations transform their ideas into new/improved products, services or processes in order to successfully promote, compete and differentiate themselves on the market (p. 1334).

Innovation includes change. It is necessary to bear in mind that not all changes are developmental changes, nor are all developmental changes progressive changes. Unlike descriptive terms such as "change" and "development", the term "progress" is a value, normative concept. It is inseparably connected with a goal and it is necessary to determine a set of values that will constitute the criteria for
evaluation of the progressivity of developmental changes. Innovation includes developmental changes: from improvements to a thorough - hitherto not known - novelty, from gradual improvement to sudden novelty.

Whether gradual or thorough, according to the understanding represented by Tidd and Bessant (2009), innovation can include the following: change of product/service, change of process – way of production/service performance (“process innovation”), change in context in which the products/services have been introduced (“position innovation”), change in mental models that frame whatever the organization does (“paradigm innovation”), or some combination of products/services, processes, context and mental models (p. 21).

The contemporary concept of development links economy and culture involving economic, cultural, technological and social aspects of development; economy is a part of culture. In that development concept, creativity, knowledge and access to information are key (Peters & Besley, 2013, p. 6; United Nations, 2013, p.15; 24). Peters and Besley ask a very valuable question: what roles do universities have or should have in that development concept? Innovation is essential for economic and technological growth, new scientific knowledge is essential for innovation and scientific research led by competent and inventive researchers are essential for gaining new scientific knowledge. Carlsson (2011, p. 214) insists that new knowledge, especially economically useful knowledge, is the main driver of innovation and innovation is what generates economic development. Compliant synergy of universities, industry (including cultural) and state government is an important condition for innovative and sustainable, progressive socioeconomic development. According to some beliefs, cultural and creative industries not only drive growth through creating values, but they also become key elements of the innovative system of the whole economy; their main importance lies not only in the contribution to the economic value, but also in the way they encourage creation of new ideas or technologies and transformative changes (United Nations, 2013, p. 21).

There are objections to this approach: (e.g. Weber, 2013, pp. 161-162) believes that knowledge is understood as a central reference point for action in institutional strategies of change and innovation – institutions have been transformed into an "epistemic area". Raising the issue of rationalities presented through today’s policies and strategies for higher education therefore means “mapping" the epistemic area of today's university, says Weber and applies the methodology of discourse analysis with the aim of deconstructing these ways of rationality. In this paper, discussions and conflicts between supporters of modernism and postmodernism shall not be further analyzed – there are scientists who believe that science and the scientific method are objective (P. Gross, N. Levitt, A. Sokal, L. Wolpert and others) and scientists in the field of social sciences, sociologists, historians and others who study "science studies", “studies of science and technology” (e.g. B. Latour and S. Woolgar) and who argue that science is
impartial and can approach the truth. There are valuable reasons for expecting that the excesses inherent in one of the conflicting parties will be significantly reduced by excesses inherent to the other side.

The University is known for a firm, systematic, methodological application of intellect, not only for understanding the natural world, but also for understanding the cultural worlds invented by men, states Opie (2013, p. 53). The creative university reaffirms the concept of innovation and creativity based on culture (now dislocated with the prevailing emphasis on scientific research and their corporative commercialization) (p. 54).

2. Innovation management

There is no organization that started with a perfect model of the innovation process, but they all build it through a process of learning by trying new behaviors and relying on those that have proven to have been successful. (Bessant, 2013, p. 3). Tidd and Bessant (2009, p. 74-75) suggest a simple typology of organizations with respect to their power of organizing innovation processes and management: (1) type A organizations that are passive and inherent to the unconscious need for innovation, (2) type B organizations that are reactive – they recognize the challenge for change, but it is unclear to them how to treat the process in the most effective way, (3) type C organizations that are strategic – they have a well-developed sense of need for change, are powerful in implementation of new projects and have a strategic approach to the process of continuous innovation, and (4) type D organizations that operate on the verge of international knowledge and have a creative and proactive approach towards exploiting technological and marketing knowledge in order to gain competitive advantage; they achieve this through widespread and diverse networks.

Tidd and Bessant (2009, p. 54) state that innovation is a core process in an organization and it can be managed by following the framework that includes: (i) searching – scanning of the internal and external surroundings with the aim of looking for valuable signals on disadvantages and advantages for change and processing of significant signals, (ii) selection (based on a strategic view on how an organization should best develop) of which of those signals need to be responded to, (iii) implementation – transferring of potential in a moving conception into something new and placing it in an internal or external market, and (iv) abstraction of the value of innovation.

Since having a full understanding of the complexity and change in uncertain conditions is impossible and since our conception of the present and prediction of the future is unavoidably limited, as Tidd and Bessant (2009, pp. 168-169) write
in their work, successful practitioners pursue “incremental” strategies that imply the organization can have only imperfect knowledge about its surroundings, its strengths and weaknesses, as well as the size and direction of future changes. Therefore, they are bound to adjust their strategies to newly gained information and new understandings they steadily tend to achieve. In such circumstances, as believed by Tidd and Bessant, the most efficient procedure involves: (1) undertaking changes aimed at a set goal, (2) assessment and measurement of the effects of those changes, and (3) adjustment (if necessary) of the goal and deciding on the following change (e.g. – for engineers working on product development and process innovation: design — development — test — design adjustment — retest — operating).

When it comes to assessing and measuring innovation, Reddy (2011, p. 32) points at the differences between universities and industry in terms of orientation and system of values according to which the academic-university and industrial researches have been managed: innovation based on university research is assessed and measured according to criteria such as (1) knowledge improvement, (2) providing funds for new researches, and (3) improved and deepened process of understanding (“know how”, “know why”, “know what”) and, on the contrary, prevailing values in the assessment and measuring of commercial innovations are related more to market success than to originality and novelty.

2.1. Innovation systems and innovation networks

Innovation is a highly complex phenomenon that needs to be studied from multiple perspectives. Though we know less about how innovation occurs than about where it leads to, the basic finding in references on innovation is that organizations do not innovate in isolation, but in wide interaction with their surroundings and therefore, terms such as “system” and “network” have been introduced (Fagerberg, 2004, p. 20).

Initial papers concerning innovation systems referred to national innovation systems, but they inspired innovation system research on regional, sectorial, technological and corporative level. What these studies have in common is that they departed from the linear approach to technological progress and placed innovation into micro, mezzo and macro level as a driving force of growth (Lundvall, B. A., J. Vang, K. J. Joseph & C. Chaminade, 2009, p. 2). Lundvall and associates add that, from the very beginning of research of innovation systems, they took two different perspectives: a narrower one, that equals innovation with science and technology and a wider one that includes learning, innovation and competence building on different levels of aggregation.

Niosi, Saviotti, Bellon and Crow (1993, p. 212) defined a national system of innovation as a system of interaction between private and public companies,
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universities and state agencies aimed at science and technology production within national borders. Interaction between these subjects can be technical, commercial, legal, social and financial, as the goal of interaction can be development, protection, financing or regulation of new science or technology (p. 212). Legler, Rammer and Schmoch (2006, p.5) gave a schematic illustration of the main components of a national innovation system:

![Figure 2 Elements of the heuristic model of a national innovation system](image)

Figure 2 Elements of the heuristic model of a national innovation system
Taken from: Legler, H., C. Rammer & U. Schmoch (2006, p.5)

According to the view proposed by Malerba (2004, p. 10), sectorial innovation system has three components: knowledge and technology, stakeholders and networks and institutions. The advantages of innovation analysis on a sectorial level, according to the belief the author is inclined to, are the following: better understanding of the structure and sector boundaries; agents and their interaction; learning and innovation processes specific to that sector; types of sectorial transformations, and factors that are basically various performances of organizations and states in the sector in question.

Reddy (2011, p. 34) points out that innovation system serves for generation, dissemination and use of technology and that the essence of an innovation system framework is in the following: (a) organizations do not innovate in isolation, for innovation is a collective process which includes other organizations, firms,
universities, research centers, state agencies etc., (b) innovation capacities of an organization are shaped by policies, legal regulation, (c) learning and multidisciplinarity are key determinants of innovation.

Tidd and Bessant (2009, pp. 283-284) find the main reasons for increased innovation networking in collective efficiency, collective learning, collective risk taking and in the intersection of sets of various knowledge. They note the difference among different authors in terms of acceptance of various meanings, levels of analysis and innovation network properties: authors in continental Europe are focused on social, geographic and institutional aspects of innovation networks, while Anglo-Saxon studies aim at determining how it is best to shape innovation networks and how to best manage and use them, all from a systemic perspective.

3. Innovation, three missions of universities and the university-industry-state government triade

Innovation, according to Fagerberg (2004, p.20), has the tendency to group in some industries/sectors which, as a result, demonstrate rapid growth implying structural changes in production and demand and, possibly, organizational and institutional changes.

Etzkowitz and Leydesdorff (2000) have introduced the “triple helix" model into the discussion on innovation. This model includes three main actors: university, industry and state government. The “triple helix" thesis states that university can play a larger role in innovation in knowledge-based societies (Etzkowitz & Leydesdorff, 2000, p.109). The Analytical innovation model – the “triple helix" model adds the explanation of their dynamics to the description of various institutional arrangements and political models (p.112). Etzkowitz and Leydesdorff (2000, p. 114) have presented three united dynamics in the "triple helix" model on the university-industry-state government relation: institutional transformations, evolutionary mechanisms and a new position and mission of the university.

The increase in the number of new firms from academic researches and locations of science-based industries close to universities is one of the forms of expressing the relation of the “triple helix" in knowledge-based societies. Innovation is increasingly taking the "triple helix" form of relations and entities of new innovation types, which are the results of inventions through those interactions, and include incubators, science parks and firms that invest capital (Etzkowitz, 2008, p. 7). Organization of the triple helix usually begins when universities, industry and state government enter into mutual reciprocal relationships in which everyone seeks to strengthen the performance of the other. According to the interpretation proposed by P. Reddy (2011, p. 36), the triple helix model attributes equal roles in
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Innovation to all actors and ignores sectorial differences, as well as the proportional contribution made by each of the entities.

There are beliefs about universities best fulfilling their mission by limiting themselves to education and research and refraining from a wider role in economic and social development. According to this view, university best fulfills its third mission by fulfilling the first two missions – education and research. However, there is an increased interest in following practical implications of research, even among academics skeptical towards knowledge capitalization (Etzkowitz, 2008, p.4).

Without denying that analytical frameworks such as the “triple helix” somewhat illuminate the roles of the university, Mowery and Sampat (2004, pp. 234-235) find that these frameworks serve as limited guidelines for policies and evaluation. These analytical frameworks, according to their view, diminish the importance of real tension between different roles of universities that are strengthened due to political pressures demonstrated upon universities in order to accelerate their production of tangible, measurable outcomes from researches and transfer those to the commercial area. As Mowery and Sampat see it, emphasizing countable rather than valuable aspects of the university-industry interaction may have unfortunate consequences for innovation policies in industrial countries and industrially developing countries.

Goransson and Brundenius (2011, p. 5) note that the profit from science and technological policies, as well as from innovation policies, is more long term than short term, more widespread than gathered, but it is always important if the goal is economy development based on production power and knowledge use. They emphasize that the scientific knowledge available is not always easy to understand and adapt to local conditions without the “inexpressible (tacit) knowledge”. Goransson and Brundenius believe that inexpressible knowledge can occur through local research powers and that the global knowledge system can be connected with local conditions if it plays a role in the development process. They are confident that universities function as a bridge between global science flows and technology on one hand, and local conditions and economic development on the other hand (p. 5).

In response to the need to examine changeable conditions within which universities around the world define their roles, the UnivDev research project was launched in 2005 to examine variable roles of universities within the contexts of innovation and economic growth, with the aim of establishing a new conceptual connection between the work of development agencies and the methodology and innovation policies approach, as well as innovation agencies. The overall objectives of the UnivDev project were as follows: (1) to contribute to a better understanding of the changeable role of academic institutions within national contexts, and (2) to contribute to the initiation of the process of learning and exchange between countries on different levels of economic development. Cases from 12 countries
have been chosen for “cross-intersection” study purposes: Brazil, China, Cuba, Denmark, Germany, Lithuania, Russian Federation, South Africa, Sweden, Tanzania, Uruguay and Vietnam.

While some of the countries from the sample within the UniDev project aim at establishing balance between the narrow focus on industry and wider orientation on social environment of the university third mission, most countries from this sample practically interpret the university third mission as transfer of technology into industry (Brundenius & Goransson, 2011, p. 350). Brundenius and Goransson add that there is no universal or ready model that could be a guideline in those changes: every country has its specific economic, social, cultural and political conditions, and therefore discussions among participants in search for an optimal role of the university in a country are highly necessary.

Nonetheless, the research conducted within the UniDev project has showed a strong belief that the newest imported concepts are the cure for problems in the innovation field. Contrary to this view, it can be stated that imported and sometimes previously untested systems prove themselves as unsuitable and inflexible when taken from environments characterized by completely different conditions (Brundenius & Goransson, 2011, p. 351).

According to the observations set out by Benner (2011, p. 20), modeled after the USA practice, where a smaller number of elite universities is taken into account as a driver of innovative activities, with the expectation of becoming knots of the global research network, research management in the Nordic states, continental Europe and Anglo-Saxon states strives to a pattern of concentrating resources on a smaller number of areas and smaller number of recipients, while the universities are expected to connect resources with scientific contribution on one hand and direct resources towards maximization of their interaction with the market on the other hand. Peters and Besley (2013, p. 6) note that the state support for universities, especially in prolonged recession conditions, steadily decreases and the state government encourages university-business partnerships and radical forms of “outsourcing” and learning from a great distance, while emphasizing the responsibility of universities for contribution to economic growth.

Brundenius and Goransson have found, through the mentioned empirical research, that a university’s activities are less focused on the needs for knowledge in a society and social innovative processes than on technological. Brundenius and Goransson (p. 351) conclude that there is a need for better understanding of the relations and interactions among the participants, as well as of the ways signs on needs and powers are communicated in order to produce more comprehensive social innovations.

In today’s “innovation institutionalization”, the degree to which an innovation process depends on the availability of new and excellent scientific knowledge is higher than ever before (Viale, 2013, p.322). Not only that innovations are based
on science and shall be based on science in the future, but they shall be a result of various scientific disciplines – overlapping of different scientific and technological knowledge in a joint innovative process that is expressed by the acronym NBIC (Nano Bio Info Cogno) (pp. 322-323). Hybrid technologies and the convergence of nanotechnologies, biotechnology, information-communication technologies and cogno-technology strengthen the central role of the university because in these new innovation processes, the longer the transfer chain between research institutions and the business area is, the harder it is to achieve an effective transfer of all the different components of scientific and technological knowledge (both explicit and implicit - inexpressible) (p.323).

Caraca, Lundvall and Mendonca (2009, p. 866) convincingly argue that science remains the fundamental source of innovation and that the interaction between science and industry is a valuable aspect of innovative ecology. Furthermore, they state that ever expanding segments of industry shall depend on science as a strategic input in innovation, but they also warn that it would be inappropriate to subordinate universities and basic knowledge to the market or political dictates. According to them, when policy makers assume that science is the direct, or even the only source of innovation, they place too great a burden on science, including universities, and when they do not see the results that would suit their excessive expectations, they tend to assume that the cause lies in universities being “ivory towers”, so they aim at transforming them into equally unacceptable “business towers”.

It is justifiably emphasized that values and ethical principles constitute the essence and main force of European universities and provide a sound basis for sustainability and profitability (in both material and immaterial sense) of higher education activities in forms of education, research and service to society (EUA, 2007, p.20). Mechanisms and processes of quality indicate what is valuable and what is not valuable in higher education; they reflect the value system all ethical and strategic choices should be based upon, they have the potential to strengthen creativity and innovation (p. 32). In addition, if we wish for our universities to be more innovative, responsive, adaptable and agile, it is necessary to examine all the obstacles in agility and shape new, more agile processes and shaping those requires innovation and agility itself. (Twidale & Nichols, 2013, p.47).

4. Knowledge based society

"A knowledge based society" or “postindustrial society“ led the reviewing of relationships between development and education into focus of interest. Education reforms in the direction of creating an education system for sustainable development are necessary and required. Namely, education today
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can be considered as a factor of sustainable economic and social development. Today, universities are increasingly seen as a key factor in strengthening the competitiveness of the economy on the global level due to their ability of generating new knowledge and skills.

The key lesson that emerges from the modern theory of social development is that there are important direct and indirect connections between creating human capacities, i.e. human capital, dynamics of technological changes (i.e. economic growth), employment and income, as well as improvement of living conditions. In other words, there is a strong link between technological progress and human development. In times of economic crisis and uncertain market situations, knowledge is becoming an increasingly important resource. At the same time, science is the foundation of education on all levels.

Today’s practice of knowledge acquisition and development requires a fundamental redesigning of the learning and education process, in line with new technological, economic and cultural patterns of conducting business and life, but primarily towards the sustainable model recognized as knowledge based economy.

Higher education, in conjunction with research and development, should have an essential role in personal development and sustainable development of the society, as it should provide, in the first place, qualified and competent cadre. At the same time, it should imply the need for creating new jobs.

The EU experience shows that national systems of higher education in EU countries must effectively adapt to the demands of knowledge economy, so the country would not lose global competitiveness in education, research and innovation.3

The European strategy for growth until 2020 emphasizes education policy as the most important area where the significance of cooperation between the EU and its members (and potential members), as well as the positive influence on creating new jobs and sustainable development is pointed out.

Education policy is defined by EU Agenda (from 2011) solely as an integral part of the EU employment strategy, while encouraging lifelong learning and improvement of education system qualities are classified in the EU education policy guidelines.

3 The European system of higher education has fostered traditional, international, in fact cosmopolitan knowledge character. We recall that knowledge has appeared within the west European cultural model. However, university today is somewhere between the traditional and market based way of thinking. Unlike the traditional approach, which implies that universities engage in educational and research work and thus provide professional education for young people who become integrated in the social community, today all these principles have been brought into question. The modern approach points out that universities should, without anyone’s help, compete with their competitors on the global education market where their survival is not guaranteed. Whichever way they go, it shall be hard for them to preserve their identity, for they are facing global changes, says Victor Perez Diaz, member of the American Academy of Sciences („Danas“, 16, XII 2013, p. 5).
The EU education policy reform, as an integral part of the EU employment strategy, is aimed at increasing the number of highly educated people, improvement of quality of the education process, but also at maximizing direct effects of the education system on the development of the EU economy. In order to neutralize the effects of the financial crisis, determining priority areas in which the Union members should intensify their efforts to achieve goals and modernize their policies is insisted on. Agenda proposals on the reforms of European education policies cover a multidimensional ranking of European universities.

EU policies in the scientific-research and innovative activity areas aim at strengthening scientific and technological basis on sustainable development in order for the economy of the entire EU to be as competitive as possible on the global level. For this reason, the EU set science, research and technological development as their three priorities. In order to meet these objectives, the EU encourages cooperation and collaboration between universities, research centers, private and public companies on different research and innovative activities both in all member states and potential member states.

Support to educational scientific-research and research-developmental work, innovations and innovation activities is the key of the strategy that the Council of Europe adopted in Lisbon in 2000, with the aim of becoming a dynamic economy based on knowledge, competitiveness, sustainable economic growth and a higher number of new jobs. At the same time, the Council of Europe appealed to EU members that they increase their allocations for research and development to 3% GDP. Horizon 2020 highlights increased investments into research and innovation as one of the basic preconditions for further development and progress.

The mentioned processes, changes and reforms taking place in the EU should serve as guidance, encouragement and model for our adjustments and reforms that are needed in all segments of society, especially in the area of higher education and universities. Unfortunately, Serbia has made little progress in the field of education. This applies to the symbolic reach of national education policy as well. It is essential that national priorities in education, science and technological development be followed by constant increase of budget allocations. Intensifying international projects is one of the most important priorities in the forthcoming period. What also needs to be addressed in the future is further improvement of the educational and scientific research work quality.

4.1. The role of the university and higher education in the development of innovation

Important initiators of innovation can be classified into four groups that provide the energy source of the education system for creating favorable conditions for innovative changes: (1) scientific research, (2) horizontal linking between those
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who create and those who use the knowledge, scientific achievements (users and practical applicability), (3) modularization, holistic approach to module connections (modular structure), (4) information-communications technologies and their application.

The evaluators have classified EU countries into four groups, according to innovativeness: (a) Innovation leaders – significantly higher level of innovative results than the average rate in the EU (Denmark, Finland, Germany, Great Britain, Sweden), (b) Innovation followers – somewhat higher level of innovative results than the average rate in the EU (Austria, Belgium, Cyprus, Ireland, Estonia, France, Luxembourg, the Netherlands, Slovenia), (c) moderate innovators – somewhat lower level of innovative results than the average rate in the EU (Czech Republic, Greece, Hungary, Italy, Lithuania, Malta, Poland, Portugal, Slovakia, Spain), (d) Modest innovators– significantly lower level of innovative results than the average rate in the EU (Bulgaria, Latvia, Romania, Croatia) (Figure 3).

![Figure 3: Innovativeness of EU member states](image)

Figure 3: Innovativeness of EU member states Taken from: Innovation Union Scoreboard 2014 (2014, p.5)

Higher education institutions should become regional knowledge centers whose goal is research and development. They shall represent a base for creating knowledge, innovation and human resources of the local economy. They shall become a base for creating and strengthening a society based on knowledge and shall have a primary role in supporting transfer of technology and knowledge.

The overall objective of a state strategy is that the economy be driven by knowledge and innovation and companies appear with competitive products and services at the global market. The choice of five priority areas is necessary: (1) development of an accepting culture and culture of applying results of scientific researches, (2) an efficient innovation system whose initiators are: quality, efficiency and applicability, (3) creative, innovative work force that meets the
Innovation and knowledge needs of a knowledge based economy, (4) economic and legal environment that encourages generation and application of knowledge, (5) entrepreneurship that provides competitive products and services at the global market.

Education policy and research in the education field shall support innovation and enable increasing efficiency in case it, together with Government measures, imposes regulatory, institutional and organizational frameworks through: mobilizing stakeholders; review of sectorial regulators from the innovation point of view; organizational charting; strengthening relationships between researches, practice and vocational policy; cooperation among networks, providing support to practical communities; creating a financing model that is adapted to goals and priorities.

Development of human resources implies: mapping of human resources for innovation; professional strengthening of people whose task is research and development; establishing standard competencies and a career development model; strengthening of managing organizations and organizational development. In order to ensure quality of higher education, the following are necessary: strengthening of the function of quality assurance and evaluation; connecting innovation policies and standards of sectorial policies; defining quality standards based on practical needs; use of the potential originating from international cooperation on quality.

Developing knowledge management at the university is essential and it implies: dynamization of communication and cooperation among participants in a scientific triangle; elimination of knowledge gaps; national and international cooperation in the research and development area; supporting exchange of knowledge and knowledge dissemination; exchange of practical experiences; training educators. It is necessary to take advantage of technological possibilities during management: make new educational technologies available; financial constructions that support development; replace outdated technology; encourage the use of new applications; introduce a system for technology assessment, as well as systems for accreditation; support development of competencies for the use of technological solutions; innovative approach to ICT teaching strategy.

5. Activities at the University of Novi Sad for support of innovation

The following structures/services are established at the University of Novi Sad with the aim to support knowledge transfer, research and innovation:

1. EEN – Enterprise Europe Network (CIP project) – University of Novi Sad, Financed by Competitiveness and Innovation Framework Programme;

2. Business Incubator Novi Sad – Faculty of Engineering (aka Technical Sciences) of the University of Novi Sad;
3. The Best Technology Innovation Competition – Faculty of Engineering (aka Technical Sciences) of the University of Novi Sad, with support from the Ministry of Education, Science and Technological Development of the Republic of Serbia;
4. UNESCO Chair for Entrepreneurial Studies (UCES) - University of Novi Sad;
5. Science and Technology Park of the University of Novi Sad, part of the Faculty of Engineering (aka Technical Sciences);
6. Center for competitiveness and clusters – Faculty of Engineering (aka Technical Sciences) of the University of Novi Sad;
7. Center for Development in Financial Sector - Faculty of Engineering (aka Technical Sciences) of the University of Novi Sad;
8. The University Center for Intellectual Property (IP Center) - Faculty of Engineering (aka Technical Sciences) of the University of Novi Sad;
9. Numerous projects realized at the University of Novi Sad: IPA (COMPLEXIM, ECORYS, COMP-COMP, MORDIC), TEMPUS (S&T Park, KNOWTS) and others.

The University of Novi Sad has the University Center for Intellectual Property (IP Center) whose mission is to educate and inform academic, research, business and student society in Novi Sad and Vojvodina in order to promote the role of intellectual property and raise awareness about the importance of IP in a knowledge based society. The overall goal of the IP Center is to help in IP protection, mainly through writing patent documentation and tracking procedures, as well as to support transfer and commercialization of the knowledge developed through research and creative work at the University of Novi Sad.

5.1. Clusters, science and technological parks, business incubators at the University of Novi Sad

Vojvodina ICT Cluster - VOICT provides a single point of contact with the best companies in Serbia, with the total workforce of 1,700 experienced IT professionals. We build long-term relationships based on trust and quality, bringing expertise, experience and passion for excellence to each and every project. Vojvodina ICT Cluster is a business association founded through a bottom-up initiative of ICT companies and several supporting institutions. It is a fast-growing organization, strongest in its field in Serbia.

Vojvodina Metal Cluster - VMC was created as an initiative of companies from the metal sector in Vojvodina and that is the main strength and value of the cluster. The project “Vojvodina Metal Cluster - VMC" is financed from technical assistance of the European Union, the regional socioeconomic program RDEPR2. The University of Novi Sad - Faculty of Engineering (or Faculty of Technical Sciences) is one of the partners and founders of this cluster.
Creative Industries Cluster of Vojvodina (CICV) was founded in 2010 as a business model in creative economy. The Creative Industries Cluster of Vojvodina (CICV) will act as a generator of economic empowerment of small and medium-sized enterprises from the field of creative industry by documenting the economic impact and contribution of these industries to Vojvodina and Serbia. It provides business services for small to medium businesses and events. The cluster offers business review and other strategic development services. The review is a complete diagnostic of business taking, including HR, marketing, finance and strategy. The reviews are conducted by specialists who have extensive experience in business management and creative industries. CICV gives business support for creative businesses of all sizes. In collaboration with its partners, this cluster provides a central point for creative businesses to access business development opportunities, information, events and resources related to: commercialisation and finance; education and training; research and technology; and industry knowledge and networks. Creative Industries Cluster of Vojvodina is dedicated to supporting the potential of Serbia’s creative businesses. Creative Industries Cluster of Vojvodina is supported by the University of Novi Sad and Center for Competitiveness and Cluster Development as part of its commitment to supporting Vojvodina’s creative industries.

The Creative Industries Cluster of Vojvodina therefore aims to improve networking and innovation in the cultural and creative industries sector in Vojvodina, and enhance the image and profile of creative industries at regional and international market. Its mission is to develop a regional framework for creating new products and services with high profit potential and become a regional coordinator of business initiatives and policies of creative industries.

The Center for Competitiveness and Cluster Development was founded in 2007. Formed by the Faculty of Engineering (or Faculty of Technical Sciences) in June 2007, with the aim to actively participate in the programs of promoting the competitiveness of the industry in the Republic of Serbia. The strategic goal of the Center is to create environment which can support the creation of added value by strengthening material products and services sector, raising competitiveness of companies, promotion and introduction of all forms of quality management systems, securing of full functionality of cluster networking, and have positive influence on their sustainability.

UNESCO Chair for Entrepreneurial Studies (UCES) was established at the University of Novi Sad in 2006, as a part of UNITWIN program, with the aim to promote and encourage education, research and exchange of academic staff and to create a platform for information exchange in all of the most important UNESCO activities. UCES aims to become a center of excellence in teaching and research in the field of entrepreneurship and tends to work on capacity building at different levels.
Business Incubator Novi Sad was founded by the Municipality of Novi Sad, Vojvodina Investment Promotion fund, the Faculty of Engineering and the public company Informatika. The main goal of this institution is to provide business help to young entrepreneurs with good ideas. Most of the companies in Business Incubator are from ICT Cluster of Vojvodina.

5.2. Events devoted to promotion of innovation at the University of Novi Sad

The Best Technology Innovation Competition (BTI) (http://www.inovacija.org/) is one of the ways by which the Faculty of Engineering (or Faculty of Technical Sciences), at the University of Novi Sad, has started education process of high-tech would-be and existing entrepreneurs in Serbia in order to change the current entrepreneurial knowledge and innovative culture. Since 2005, it has gained continual support from the Ministry of Science of the Republic of Serbia and Serbian Chamber of Commerce. Thus, BTI has become a national open competition for inventors, small high-tech entrepreneurs, researchers, etc. The mission of BTI Competition is promotion of innovativeness, education of its participants on how to enter into the market and it strives to ensure media promotion and financial support.

Tesla fest (http://www.teslafest.com/) – international festival of innovation and patents is held annually in Novi Sad, Serbia. Many exhibitors from all over the world take this festival as a chance to present their patents, technological achievements, technical solutions, etc. Members of the Jury for the Tesla Fest are usually professors from the University of Novi Sad, Serbia.

5.3. The most successful centers / laboratories / offices / teams at the University of Novi Sad

Overview of the successful centers / laboratories / offices / teams at the University of Novi Sad:

• The main objective of the “AlfaNum” team is to reaffirm the leading position in the development of quality speech technologies for most South Slavic languages and their applications in the Western Balkans.

• BioSense center aims to provide necessary and currently unavailable state-of-the-art ICT solutions for agriculture, water management, forestry and environmental protection in line with EU regulations, that will help integration of Serbia into EU; aims to be a regional networking institution and to present a backbone of the regional GEOSS and national LTER (Long-Term Ecosystem Research and Monitoring in Europe) network; aims to be recognized as a preferred networking
partner of other European institutions; aims to foster substantially new research directions, which could lead to scientific and technological breakthroughs; aims to develop a systematic approach to management and exploitation of Intellectual Property Rights (IPR), and aims to serve as a lighthouse in this field to other institutions in the region; aims to be a strongpoint of technological development, eco-innovation, and knowledge & technology transfer in the region, as well as in Europe, contributing to the European economy and growth.

• In the frame of fundamental areas of chemical technology and environmental protection, the research activities of the Chemical Technology and Environmental Protection Section are directed towards the study of water treatment processes; waste treatment technologies; environmental monitoring; remediation and bioremediation of contaminated soil, sediment and water.

• Center for Integrated Microsystems and Components, CIMC is recognized as a regional leader in the fields of design and optimization of high-performance integrated micro- and nano-systems and components, such as inductors, varistors, termistors, electromagnetic interference (EMI) suppressors, sensors, super-compact high-performance microwave passive devices, novel integrated hybrid circuits, MEMS, nanotubules, etc. It is also acknowledged to be one of the two leaders in the country in the emerging field of metamaterials and their microwave and optical applications. The research performed at CIMC also incorporates integrated digital systems and embedded systems, such as programmable, configurable and reconfigurable components. CIMC staff is active in scientific research and publish regularly in recognized international journals and at leading conferences.

• The main objectives of the Chair include intensive development through promotion of new fields and continuous improvement of competencies and skills within core activities - education of students, research and development, and cooperation with industry. Activities include: measurement coordination; computer aided inspection (CAI), computer aided quality assurance (CAQ), statistical process control (SPC), Quality Management (QMS) reverse engineering design; design of fixtures and cutting tools; planning and design of maintenance, measurement and control of pollution in living and working environments; environmental management systems (EMS), life cycle assessment (LCA), eco-design and eco-labeling.

• The main objectives of the Group for Artificial EM Materials and Microwave Engineering are innovative research and development of microwave circuits and devices for wireless communication and sensing applications. Special focus of our research is development of artificial electromagnetic and
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acoustic materials (metamaterials) and their application in the design of novel, miniature passive microwave and acoustic devices with improved performances such as filters, resonators, antennas etc.

- The main objectives of The Institute for Lowland Forestry and Environment – ILFE is development and application of new technologies in forestry and agroforestry systems, sustainable forest management, environmental application of forest trees, research of climate change impact on forests and adaptation.

- Laboratory for investigation of natural resources of pharmacologically and biologically active compounds (LAFIB) is a part of the Department of Chemistry, Biochemistry and Environmental Protection, at the Faculty of Sciences, University of Novi Sad. LAFIB is a recognized, highly qualified and very promising research unit focused on: isolation and chemical characterization of natural products originating from medicinal, edible, seasoning and poisonous plants and fungi, determination of biological activity of isolated compounds, plant extracts, essential oils and herbal formulations, consulting and quality control services in the LAFIB`s field of research for small and medium enterprises.

- Laboratory for nano and printed electronics deals with latest research issues in the field of nanoelectronics and flexible electronics. We mainly focus on modeling and design of flexible electronic devices, as well as modeling and simulations of their response. A part of research activities focuses on generation and synthesis of metallic nanoparticles for conductive inks, which is used as a material for ink-jet printed device fabrication. In addition, we perform different material characterization techniques for determination of their electronic and mechanical properties.

Conclusion

The main lesson from the analysis presented in this work is the necessity of development, as well as development of higher education and universities. Sustainable development should be the key determinant of the reform at our university; that is a condition not only for development, but for its subsistence as well.

Strategic reasoning is therefore necessary when it comes to place, role, reforms and the development of universities and higher education development in the Republic of Serbia.

Former and current development of our universities has not been (with honorable exceptions) based on principles and philosophy of sustainable development, but, on the contrary, that development has been characterized by
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its randomness, disorganization⁴, “brain drain”, unfair competition, corruption, inefficient studying, domination of personal, group, party, “tycoon” and other interests over social i.e. national interests. Social crisis (economic, ecological, political, moral, crisis of ideology, demographic, spiritual crises) have resulted and still result in crisis of the university.

That is why we need deep and comprehensive reforms of the entire society, including universities. First, institutions should be built through these reforms. There are two key institutions in a society, and when it comes to university – market and state that must experience radical changes.

We need a regulated market of higher education in which healthy competitiveness, but also partnership, shall dominate. We need a modern and efficient country with competent, professional (not only party members) people. We need a country that creates “firm rules” and controls their implementation. A country with stable, efficient and predictable finances,⁵ that shall encourage, stimulate and support rather than stop and obstruct development. A country with a stable political system and efficient judicial institutions.

We need an integrated university in which communion, connection, coordination, efficient organization, team work, integration rather than disintegration processes dominate.

Last but not least, we need a “transition in our heads”, according to a series of questions, both from state universities and those from private ones.

All these are elements of sustainable development of the university we need to aspire to, following the example of developed counties in the EU that have paved their roads by the cited and other strategic documents. The objective of sustainable development of the university should be creating a profiled identity i.e. its recognizability as an important factor of its competitiveness.

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PART III

SOCIAL DIMENSION OF HIGHER EDUCATION IN BOSNIA AND HERZEGOVINA, MONTENEGRO AND SERBIA
STUDYING AND WORKING: ASPIRATIONS AND NEEDS OF STUDENTS IN BOSNIA AND HERZEGOVINA, MONTENEGRO AND SERBIA

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Abstract: Based on the results of EUROSTUDENT survey conducted within the framework of FINHED Tempus project in Bosnia and Herzegovina, Montenegro and Serbia, this paper will try to answer the following questions: who are the working students, in relation to their social and economic background; whether, for most students, employment has the main purpose of filling the financial gap between the existing public and private financial support or the majority of students are utilising employment not only to improve their living standard, but also their future labor market prospects. Labor market situation will be analyzed within the concept of reproduction of cultural, social and economic capital. Using regression analysis, we will show the correlation between students’ socioeconomic status and three main types of student employment: (1) employment as a privilege and preparation for the labor market (2) employment as a necessity and (3) mixed type. The main contribution of the paper is discovering multidimensional aspects of student employment in Bosnia and Herzegovina, Montenegro and Serbia in the light of the existing social inequalities that are reproduced in several ways for different groups of students, who are differentiated mainly on the basis of their social and economic background.

Keywords: social inequalities, EUROSTUDENT, higher education, working and studying, employability, economic capital, cultural capital, social capital, financing, labor market

Introduction

The changes in social and economic environment, development of science and technology became key factors in societies that are (or aspire to be) driven
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by and based on knowledge. Knowledge-based society needs educated and skilled individuals ready to respond to the constantly changing demands of social development. This is a request placed before any society, regardless of its level of development or the degree to which its economy is integrated into European or international area. Consequentially, higher education and higher education institutions have found themselves facing the new challenges.

By 2010, 47 countries cooperated and participated in the Bologna process. The Western Balkans countries, Bosnia and Herzegovina, Montenegro and Serbia joined the Bologna process in 2003. These three countries have accepted the main objectives of the Bologna process: comparability of degrees through introduction of Diploma Supplement, introduction of two main cycles (undergraduate and graduate), establishment of ECTS system, promotion of student and teacher mobility, promotion of European co-operation in quality assurance, promotion of European dimensions in higher education (Bologna Declaration, 1999), aiming at enabling comparability of degrees at the European level, promoting mobility within the European Higher Education Area (EHEA), increasing the attractiveness of higher education in Europe, and providing a framework for development of lifelong learning. Consequently, the process of changing the higher education system in Bosnia and Herzegovina, Montenegro and Serbia has primarily demanded harmonization of these systems with the requirements of the Bologna Process. Despite national specificities, the higher education reform process in all three countries had the same course (all in accordance with the abovementioned main objectives of the Bologna Process): massification of higher education, introduction of three cycles of studies (undergraduate, master’s and doctoral studies), changes in organization with introduction of the European Credit Transfer System (ECTS) and increased efficiency of studying.

Activities related to increasing participation of underrepresented groups of students to the level at which the population in higher education (including enrolment, studying and completion of studying) reflects the general structure of the population are an integral part of the Bologna process, and they still represent a challenge in the countries to which this paper refers to. That is, the statement from Bergen (2005) says that the social dimension of the Bologna process is an integral part of the EHEA and a necessary condition for increasing the attractiveness and competitiveness of the EHEA, and that higher education should be made equally

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1 At the 2007 Ministerial Conference in London, Montenegro confirmed its participation in this process as an independent state.

2 Massification of higher education is the increase of the student population both by the increase in the number of students enrolled in the first year of study and the increase of the pass rate, i.e. the increase in the number of students who enroll each subsequent year of study. Increase of the number of students who complete their studies is articulated through strategic document adopted by all three countries, and whose core is Europe 2020 and South East Europe 2020 strategy (European Commission, 2010 & Regional Cooperation Council, 2013)
accessible to all by providing conditions and taking measures that contribute to removing barriers stemming from social or economic status of students.

Also, apart from insisting on the social dimension of higher education, as the social and economic context changed, the priorities of the Bologna process have also changed over time, so much so, that, as a priority in further implementation of the Bologna process, employability came into focus, in addition to mobility and quality (Statement from Bucharest, 2012). The Statement from Bucharest (2012) emphasized the importance of higher education in Europe’s ability to cope with the economic crisis, to contribute to development and employment and, as one of the most important objectives, organization of the first cycle of studies in a way that would allow them to have an equal or greater visibility in the market of higher educated labor compared to a bachelor’s degree acquired in the pre-Bologna system.

The structure of the education system as such and the legal framework that governs it are the factors that can influence effects, equity and quality of education. That is, if we analyze the relationship between education and economy, political and cultural system of a society through the prism of class relations in a society, power in schools and influence of parents with high incomes, it becomes clear that education is linked with the economy system in two ways. First, the access and full utilization of the opportunities provided by education depend largely on the economic resources of an individual. Second, schools and colleges are the main means of selection and stratification at the labor market because distribution of economic goods is essential to the quality of education and educational institutions are critical for our “life choices” Therefore, the inequality in education cannot be considered separately from economic inequality (Lynch & Baker, 2005). At the same time, this means that if the education system is established so that everybody has equal access to it, and to high quality education, it ceases to be a channel for reproduction of social inequality.

When it comes to the Western Balkan countries, it is important to emphasize that the reform of higher education, in some aspects, is still in its initial stages. More specifically, legal, strategic and educational-political framework in the mentioned countries does not provide fully accessible higher education to certain groups of students, although the countries covered by this paper are implementing various support measures for specific under-represented groups of students (Improving the Social Dimension of the EHEA in South Eastern Europe - Regional Report, 2012). The reform of higher education funding, which refers not only to rationalisation of state funding in general, but also to equitable redistribution of funding that will aim at improving student standard, although mentioned in the national development strategies (such as the Strategy for the Development of Education in 2020 in Serbia (2012) and the Strategy for Development and Financing of Higher Education in Montenegro from 2011) is yet to be implemented. All three
analyzed countries provide financial support to students by covering tuition costs (so-called *budget students*), and offering student loans, scholarships and various subsidies for accommodation, meals, transportation, etc. However, state support is primarily excellence based\(^3\), and has proven to be insufficient for a significant number of students, who are then supported by family members or someone else, or are forced to work while studying. It is, therefore, clear that higher education is only a limited right for which the state pays the majority of costs, but is also a privilege paid by individuals and families (Nolan, 2010).

Student employment has been vastly researched for decades in many European countries, while in the Western Balkan countries this area is still insufficiently explored. One contribution to evidence in this area was a graduate survey conducted in 2014 in Bosnia and Herzegovina, Montenegro and Serbia within the CONGRAD Tempus project that provided an important insight into the career patterns of graduates starting their employment during studies. The results suggested that the first significant employment or self-employment within the region is a difficult and, often, time-consuming process, which is additionally hampered by a deepening social and economic crisis in all economic systems of the region, but also that the vast majority of graduates still manage to find a job (that lasts longer than six months) in the period of five years after graduation. The results also showed that employment of graduates largely depends not only on the program of studies that they have completed and socioeconomic status of students, but largely on the previous work experience (Lažetić at al, 2014).

However, student employment, based on the existing research and diversified experience, raises several important questions\(^4\): to what extent is employment beneficial during studies; what are the consequences of employment for the success of studies; whether employment is reproducing existing inequalities among students and, if so, in what way. Based on the data gathered through EUROSTUDENT survey, this paper will try to shed light on student employment situation in Bosnia and Herzegovina, Montenegro and Serbia.

1. **Importance of student employment**

The question of employment of students is not a new one. A great number of studies in recent years aimed at measuring different dimensions and potential benefits of student employment. The newest researches show that employment

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\(^{3}\) Excellence based, as opposed to need based support, relies primarily or entirely on student’s success during studies that is usually measured through the number of ECTS grades.

\(^{4}\) Although the applied methodology and approaches give very different results in different contexts (more about this in Riggert et al 2006).
Studying and working: aspirations and needs of students

during studies may have multiple benefits. The necessary practice, practical knowledge and skills that are gained through work, as well as professional competences (in cases where employment is related to the study program), will enable students to find a better position at the labor market after graduating compared to the less experienced colleagues. Also, employment can influence development of generic competences (such as analytical thinking, learning ability, foreign language skills etc.), which is true also in cases in which respective employment is not connected to the study program. In all cases, employment during studies can significantly contribute to acquiring skills and knowledge that will enable better positioning at the ever-changing labor market. Wats and Pickering (2000) came to similar conclusions as they recognised the importance of generic competences, such as: team work, organisation of work, time management that students are acquiring during their employment. One of the probable consequences of such work is the possibility of building a career within the organisation in which the student is working, but also developing a social network of co-workers, which increases the social capital of an individual.

A study on the chances of students at the labor market, after completing their education, indicates that work during studies is a very good predictor of easier employment after graduation (Blackwell et al, 2013). The authors conclude that it is more likely that students will find employment more easily after graduation if they perform work that is connected with what they were studying and when the study program is practically oriented or allows students to learn from practice.

If we observe the usefulness of employment during studies through the prism of the direct effects of work on study success (measured in grades), numerous researches confirm that if the work is related to the study program, and if it is part-time, there are positive relationships with both the study success and the general feeling of satisfaction among students. Appelgate & Daly (2011) researched the relationship between work and study in Australia and found that work, to a certain extent, affects the increase of achievement (grades are higher). However, a big workload (a working week over 22 hours) has negative effects.

Positive and negative effects are recognized by McKechnie, Dunleavy & Hobbs (2005), finding that students in Scotland who work longer have slightly lower education results and report a bigger work load that affects studying. Similar results were obtained in studies of student work in Wales (Joanes & Sloane, 2005) and the USA (Tessemà et al, 2014). The latter study identified a correlation between the employment of students, their academic performance and the general satisfaction they feel. That is, it was shown that students who work up to 10 hours

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5 The research of generic competences in Europe and Latin America was conducted as part of Tuning project (http://www.unideusto.org/tuningeu/), while the research of generic competences of higher education graduates in Bosnia and Herzegovina, Montenegro and Serbia was conducted as a part of CONGRAD Tempus project (www.congrad.org).
Finding the right path

a week have better grades and higher levels of satisfaction, but a working week of over 10 hours leads to negative effects in both dimensions. Research has shown similar effects of work during studying on academic performance in post-socialist countries; the latest research conducted in Russia (Yanbarisova, 2014) indicates that students who are working, while studying, at jobs not closely related to what they are studying have lower academic achievement.

Students who work do not necessarily have a problem with attending classes, but may be under pressure to adequately prepare for lessons, conduct research work, and use the available resources (such as libraries). Working while studying can create additional stress, which increases the chances of a burn-out and dropping out (Lingard, 2005). An additional problem created by working while studying (especially if it is a full time job) is the exclusion from all extracurricular activities (for example: socializing with friends), which is an important source of social capital and social integration (Tinto, 1993, cf. Riggert et al, 2006: 65). Another study that showed that working while studying resulted in a reduction in the time available for meeting study requirements, is the study conducted in Slovenia, which found that working while studying has a negative effect on academic achievement if the number of working hours per week exceeds a certain limit (in the case of students in Slovenia, the researchers concluded that this number is 18 hours per week). The authors concluded that moderate working arrangements do not affect academic achievement adversely; on the contrary, the positive effects of working while studying outweigh possible negative effects (Kosi et al, 2013).

A particular issue addressed in the scope of student employment is: which students are working during their studies? While the effects of working while studying on the effectiveness of study are more or less similar in different contexts, the question of sociological profiles of the students who are working is much more influenced by social conditions, work culture, way of growing up and upbringing, etc. In the United States, Roxa (2011) recognizes that students who come from lower social classes, as well as those whose parents do not have a university degree, often have to work during their studies (and often more hours than other students who work), which will have negative consequences on their studies. Metcalf (2003) recognizes a similar trend in the United Kingdom. Students with no financial support from their families and students who are beneficiaries of the so-called external donations will suffer greater pressure to engage in work. Also, students whose parents (fathers) do not have a university degree are more likely to be working during studies. A study conducted in Serbia in 2012 came to a similar conclusion that, among students in Serbia, there are only 20% of those whose parents have not acquired higher or secondary education, and that a child whose parents have not completed middle school is five times less likely to become a college student compared to a child whose parents have completed middle school and has 18 times less chance compared to a child whose parents graduated from university (TEMPUS EQUIED, 2012).
Similar results were obtained in the last cycle of EUROSTUDENT survey, with participation of 30 European countries and 385 000 students (EUROSTUDENT, 2015). General trend in most EUROSTUDENT countries is that students whose parents have not completed higher education are more likely to work in order to finance the cost of living, while the students whose parents have a university degree work in order to gain experience (EUROSTUDENT, 2015).

The context of post-socialist countries may indicate somewhat different trends. Beerkens, Magi and Lill (2010) explored the trends of working while studying in Estonia and came up with the result that, with very high levels of employment of students during their studies (61%), there is no difference between those who do and those who do not work while studying, compared to family background (educational or socioeconomic). They further noted that the students who come from families with higher social status are more often employed full time. While recognizing that the majority of students are financially dependent on their parents, the authors interpret this situation through existence of financial pressures to which students are exposed to regardless of family heritage.

The presented results of different studies raise several questions. First, what job opportunities are available to students? These options depend primarily on the labor market development level and flexibility, as well as on the extent to which study programs are linked with the labor market. In cases in which the labor market is not flexible (not offering enough part-time jobs) and under-developed (with a very high percentage of the unemployed, especially youth), the potential for employment is limited. On the other hand, if the programs have mandatory attendance, and if they are not flexible (or do not offer special options for students who work), the potential for employment while studying will again be limited.

Another question is whether the inequalities generated during studies, including the access to the labor market, among others, are the result of inequalities that have risen even before entering this level of education. If, at the lower levels of education, there is discrimination by social background, the differences between those who enrol in college may be smaller. Thus, the degree of differences at every level of education will depend on the inclusiveness/exclusiveness of the education system.

The third issue are the consequences of working while studying. Is working an obstacle to a continued and successful studying, or is it a framework for acquiring the competencies that cannot be acquired during studies, and creating a better position at the labor market?

Bearing in mind the research context, the cited theoretical thoughts and the results of various studies that have dealt with the issues of student work in the context of the social dimension of higher education and higher education financing, and the increasing focus on the issues of student employability, this paper will try to answer the following questions:
1. Who are the students who are working while studying, in respect of their social and economic origin?

2. Does, for the majority of students, working while studying play an instrumental role in overcoming the financial gap between public and private (family) sources of financial support, or is working while studying for the majority of students a way to raise their standard of living and increase their future prospects at the labor market?

3. How are the processes of studying and work related?

The goal of this paper is to present multidimensional aspects of the employment of students in Bosnia and Herzegovina, Montenegro and Serbia, in the light of the existing social inequalities, based on the results of EUROSTUDENT survey, conducted in the scope of FINHED Tempus project in Bosnia and Herzegovina, Montenegro and Serbia.

2. Comparative perspective of student work in the western balkan countries and selected EU countries

Out of 30 countries that participated in EUROSTUDENT V survey, Bosnia and Herzegovina, Montenegro and Serbia are among the countries where students have very low levels of work experience prior to entering university/college (in Montenegro 12%, in Serbia 8%, and in Bosnia and Herzegovina 5%, compared to the countries with the highest share of students who worked prior to entering college: Norway with 46%, Sweden with 39% or Denmark with 38% of students who had a job before enrolling into a higher education institution) (EUROSTUDENT, 2015). At the same time, these countries are among the countries with high mean participation of students who make a study pause of at least one year during studying - 12% in Montenegro, 9% in Serbia and 7% in Bosnia and Herzegovina) (EUROSTUDENT, 2015) and more frequently admitted to a university immediately after middle school, compared to their counterparts in other European countries that participated in this research. These data actually suggest a predominantly traditional educational path students take in these three countries, i.e. the lack of alternative routes to higher education that would allow individuals to reintegrate into the education process.

Comparison of EUROSTUDENT V countries further shows that Bosnia and Herzegovina and Serbia are in the group of countries with lowest percentage of students who worked during the last semester (4.5% in Bosnia and Herzegovina, 8.4% in Serbia, while Montenegro is among the countries with medium participation with 29.6% of working students (Table 1).
Studying and working: aspirations and needs of students

Table 1: Employment rate during semester of students in %

<table>
<thead>
<tr>
<th>Country</th>
<th>not working during the whole semester</th>
<th>working during the whole semester, less than 5 hours per week</th>
<th>working during the whole semester, 5 hours or more per week</th>
<th>Country</th>
<th>not working during the whole semester</th>
<th>working during the whole semester, less than 5 hours per week</th>
<th>working during the whole semester, 5 hours or more per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA</td>
<td>95.5</td>
<td>0.2</td>
<td>4.3</td>
<td>RO</td>
<td>70</td>
<td>7.8</td>
<td>22.2</td>
</tr>
<tr>
<td>RS</td>
<td>91.5</td>
<td>0.1</td>
<td>8.4</td>
<td>SK</td>
<td>68</td>
<td>0.7</td>
<td>31.3</td>
</tr>
<tr>
<td>IT</td>
<td>90.1</td>
<td>0.2</td>
<td>9.6</td>
<td>LV</td>
<td>65.4</td>
<td>0.6</td>
<td>34</td>
</tr>
<tr>
<td>LT</td>
<td>87.7</td>
<td>0.2</td>
<td>12.1</td>
<td>PL</td>
<td>65.2</td>
<td>1.1</td>
<td>33.7</td>
</tr>
<tr>
<td>FR</td>
<td>86.7</td>
<td>2.4</td>
<td>10.8</td>
<td>CZ</td>
<td>64.9</td>
<td>2.7</td>
<td>32.3</td>
</tr>
<tr>
<td>GE</td>
<td>85.9</td>
<td>0.5</td>
<td>13.7</td>
<td>EE</td>
<td>62.1</td>
<td>1.9</td>
<td>36</td>
</tr>
<tr>
<td>FI</td>
<td>85.8</td>
<td>1.7</td>
<td>12.5</td>
<td>AT</td>
<td>60.8</td>
<td>1.5</td>
<td>37.7</td>
</tr>
<tr>
<td>RU</td>
<td>84</td>
<td>3.8</td>
<td>12.2</td>
<td>DE</td>
<td>60.3</td>
<td>3</td>
<td>36.7</td>
</tr>
<tr>
<td>SE</td>
<td>80.6</td>
<td>1.8</td>
<td>17.6</td>
<td>CH</td>
<td>57.5</td>
<td>5.7</td>
<td>36.8</td>
</tr>
<tr>
<td>HU</td>
<td>78.6</td>
<td>0.4</td>
<td>21.1</td>
<td>DK</td>
<td>56.8</td>
<td>4.3</td>
<td>38.9</td>
</tr>
<tr>
<td>AM</td>
<td>78.3</td>
<td>1.2</td>
<td>20.5</td>
<td>HR</td>
<td>55.8</td>
<td>7.2</td>
<td>37</td>
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<tr>
<td>SI</td>
<td>74.7</td>
<td>1.9</td>
<td>23.5</td>
<td>NO</td>
<td>53.7</td>
<td>1.4</td>
<td>44.8</td>
</tr>
<tr>
<td>UA</td>
<td>74</td>
<td>15.4</td>
<td>10.7</td>
<td>MT</td>
<td>51.3</td>
<td>12.8</td>
<td>35.8</td>
</tr>
<tr>
<td>IE</td>
<td>70.7</td>
<td>0.6</td>
<td>28.7</td>
<td>NL</td>
<td>38.1</td>
<td>8.2</td>
<td>53.7</td>
</tr>
<tr>
<td>ME</td>
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<td>0.3</td>
<td>29.6</td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: http://dev.his.de.klient.veebimajutus.ee/site

The average number of working hours per week that students set for work in Serbia and Bosnia and Herzegovina is lower than the European average. These two countries are differentiated by a fairly low workload of students who live alone and of those living with their parents, while Montenegro is among the countries with a higher workload. In Serbia, the students living with parents work on average 5 hours a week, and those who live independently work 6 hours; Bosnia's workload is lower, so that those who live with their parents work for 2 hours, and those who live alone 3 hours a week; Montenegro students who live with their parents work on average 13 hours a week, and those who live independently work 15 hours (EUROSTUDENT, 2015).
Given that the participation of working students is relatively low in all three countries compared to other EUROSTUDENT V countries, it is not surprising that the students' sources of income are usually not personal. All three countries are among the countries where the highest percentage of students who do not live with their parents are financially dependent on them. The share of income from public sources is also very low, while the percentage of students who support themselves in all three countries compared to other EUROSTUDENT countries is very small. The percentage of the wages in the total share of the available funds for students who do not live with their parents and who work, indicates that the majority of students, although they do not live with their parents, are financially dependent on them (the parents pay for housing, and usually the entire subsistence). In Serbia, there are only 6% of students whose primary source of income is earned wages, in Bosnia there are 7% of such students, while in Montenegro the participation of students who primarily support themselves with their own earnings is 25% (Table 2).

Table 2: Dependency on an income source - students not living with parents
(Source: EUROSTUDENT V)

<table>
<thead>
<tr>
<th>Country</th>
<th>family/partner</th>
<th>public sources</th>
<th>self-earned income</th>
<th>other</th>
<th>Country</th>
<th>family/partner</th>
<th>public sources</th>
<th>self-earned income</th>
<th>other</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>80</td>
<td>6</td>
<td>10</td>
<td>4</td>
<td>IT</td>
<td>66</td>
<td>4</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>AT</td>
<td>37</td>
<td>8</td>
<td>44</td>
<td>12</td>
<td>LT</td>
<td>55</td>
<td>6</td>
<td>36</td>
<td>3</td>
</tr>
<tr>
<td>BA</td>
<td>87</td>
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<td>7</td>
<td>4</td>
<td>LV</td>
<td>52</td>
<td>5</td>
<td>38</td>
<td>5</td>
</tr>
<tr>
<td>CH</td>
<td>41</td>
<td>5</td>
<td>48</td>
<td>6</td>
<td>ME</td>
<td>66</td>
<td>2</td>
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<td>7</td>
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<tr>
<td>CZ</td>
<td>34</td>
<td>1</td>
<td>58</td>
<td>7</td>
<td>MT</td>
<td>33</td>
<td>4</td>
<td>57</td>
<td>6</td>
</tr>
<tr>
<td>DE</td>
<td>48</td>
<td>18</td>
<td>28</td>
<td>6</td>
<td>NL</td>
<td>30</td>
<td>18</td>
<td>32</td>
<td>20</td>
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<tr>
<td>DK</td>
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<td>62</td>
<td>27</td>
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<td>NO</td>
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<td>27</td>
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<td>7</td>
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<td>5</td>
<td>PL</td>
<td>27</td>
<td>12</td>
<td>57</td>
<td>4</td>
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<td>15</td>
<td>54</td>
<td>9</td>
<td>RO</td>
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<td>26</td>
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<td>IE</td>
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<td>17</td>
<td>SK</td>
<td>56</td>
<td>5</td>
<td>36</td>
<td>3</td>
</tr>
</tbody>
</table>
The situation is similar when it comes to residential independence of students. The highest percentage of students in Bosnia and Herzegovina, Montenegro and Serbia live with their parents, while 5% of students in Bosnia and Herzegovina, 10% of students in Montenegro and 7% of students in Serbia live in student campuses (Table 3).

Table 3: Students’ housing situation Share of students - in %
(Source: EUROSTUDENT V)

<table>
<thead>
<tr>
<th>Country</th>
<th>With parents</th>
<th>Alone</th>
<th>With partner/children</th>
<th>With other persons</th>
<th>Country</th>
<th>With parents</th>
<th>Alone</th>
<th>With partner/children</th>
<th>With other persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>82</td>
<td>6</td>
<td>3</td>
<td>9</td>
<td>LT</td>
<td>36</td>
<td>9</td>
<td>22</td>
<td>34</td>
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<td>AT</td>
<td>18</td>
<td>30</td>
<td>30</td>
<td>22</td>
<td>LV</td>
<td>40</td>
<td>11</td>
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</tr>
<tr>
<td>BA</td>
<td>58</td>
<td>12</td>
<td>6</td>
<td>25</td>
<td>ME</td>
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<td>15</td>
<td>12</td>
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<td>MT</td>
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<td>4</td>
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<tr>
<td>CZ</td>
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<td>8</td>
<td>29</td>
<td>31</td>
<td>NL</td>
<td>36</td>
<td>15</td>
<td>20</td>
<td>29</td>
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<tr>
<td>DE</td>
<td>24</td>
<td>22</td>
<td>19</td>
<td>36</td>
<td>NO</td>
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<tr>
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<td>RO</td>
<td>40</td>
<td>8</td>
<td>20</td>
<td>33</td>
</tr>
<tr>
<td>FI</td>
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<td>36</td>
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<td>15</td>
<td>RS</td>
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<td>SI</td>
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<td>HU</td>
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</tr>
</tbody>
</table>

When it comes to the link between the curriculum and the work they currently do, Serbia, with 32% of students whose work is (very) closely related to what they are studying and Bosnia (29%) are among countries in which work is the least related to the subject of studying, while Montenegro (44%) has mean European values. (EUROSTUDENT, 2015). These data once again suggest that work in the Western Balkans is more an expression of necessity than in other parts of Europe.
3. Methodological framework

The data used in this study were obtained during the fifth cycle of EUROSTUDENT survey (hereinafter EUROSTUDENT V), which was conducted in the scope of TEMPUS FINHED project, with financial support of the European Commission and is the first study of the social dimension of higher education in Bosnia and Herzegovina\(^6\), Montenegro and Serbia. The research was conducted on a nationally representative sample and a printed survey (Bosnia and Herzegovina and Serbia) and an online survey (Montenegro). In Bosnia and Herzegovina and Serbia, stratification of the sample was done by type of institution in relation to the founder\(^7\) and by year of study. The samples were pondered in respect to the information that was publicly available on the websites of national bureaus of statistics. The sample size and the pondering method are shown in Table 4.

<table>
<thead>
<tr>
<th>Sample size</th>
<th>Population</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bosnia and Herzegovina</td>
<td>3594</td>
<td>72 460(^8)</td>
</tr>
<tr>
<td>Montenegro</td>
<td>1629</td>
<td>23 442(^9)</td>
</tr>
<tr>
<td>Serbia</td>
<td>3780</td>
<td>238 945(^10)</td>
</tr>
</tbody>
</table>

Students covered by EUROSTUDENT survey in relation to their working status during studying were divided into two basic groups in this paper: students who did not have a job during the spring semester of the academic year 2013/14 and students who had a job that was either temporary or permanent. Methodological limitation of this question is the restriction of employment to the current semester only, and students who had a job during studying, but did not work in the semester in which the research was conducted, will be assigned to a group of unemployed students, although their employment could have had a significant impact both on their economic position and the course of their studying.

In order to measure the factors affecting employment and the effect of employment on study efficiency, it was necessary to separate the subjects that

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\(^6\) Data for Bosnia and Herzegovina refer to the Federation of Bosnia and Herzegovina.

\(^7\) Three types of institutions have been identified based on their founders: private, public and religious, while in Montenegro and Serbia there are two types: public and private higher education institutions.

\(^8\) 2012/2013 http://www.fzs.ba/god_bilteni/Visoko%20obrazovanje%20u%20F%20BiH%202012-2013.pdf


\(^10\) http://webrzs.stat.gov.rs/WebSite/repository/documents/00/01/54/01/05-Obrazovanje.pdf
are clearly differentiated in relation to the working status (working and non-working students), and to identify the motivation for working in the group of working students. For this reason, we divided the students according to their primary motivation into those students who are working to cover living expenses while studying and students working to gain experience. The first group includes all students who replied to the question “To what extent do you agree with the statement that you are working to cover living expenses?” with "Agree" and "Fully agree", and who, at the same time, stated that they did not work in order to finance the cost of living. Students who work to gain experience are all students who replied to the question “To what extent do you agree with the statement that you are working to gain working experience?” with "Agree" and "Fully agree", and who, at the same time, stated that they did not work in order to finance the cost of living. In this way, we selected two “cleaner” types of students. A third category of students appeared as residues, which have a mixed motivation for the work, which was excluded from the analysis in order to obtain a clearer picture. Therefore, the analysis compared students in respect to motivation for work, so the students who were working both to finance the cost of living and to gain experience were omitted. Table 5 shows the distribution of students in relation to the type of employment.

**Table 5: Students' work status per country**

<table>
<thead>
<tr>
<th></th>
<th>Serbia</th>
<th>Montenegro</th>
<th>Bosnia and Herzegovina</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students who work to cover the living expenses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>240</td>
<td>210</td>
<td>168</td>
</tr>
<tr>
<td>%</td>
<td>6.8</td>
<td>17.0</td>
<td>6.5</td>
</tr>
<tr>
<td>Students who work to gain work experience</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>199</td>
<td>242</td>
<td>196</td>
</tr>
<tr>
<td>%</td>
<td>5.7</td>
<td>19.6</td>
<td>7.6</td>
</tr>
<tr>
<td>Students who work both to cover the living expenses and to gain work experience</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>268</td>
<td>142</td>
<td>150</td>
</tr>
<tr>
<td>%</td>
<td>7.6</td>
<td>11.5</td>
<td>5.8</td>
</tr>
<tr>
<td>Students who do not work</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>2,808</td>
<td>640</td>
<td>2,061</td>
</tr>
<tr>
<td>%</td>
<td>79.9</td>
<td>51.9</td>
<td>80.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>3,515</td>
<td>1,234</td>
<td>2,575</td>
</tr>
<tr>
<td>%</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

We tested the assumption that indicators of students' social and economic status affect not only whether they will work during their studies, but also whether the cause of their employment would be to gain work experience or finance their living costs. Indicators used in the analysis are given in Table 6.
### Table 6: Indicators of the social and economic status of the students

<table>
<thead>
<tr>
<th>Direct indicators of the social and economic position</th>
<th>Financial dependency on the family</th>
<th></th>
<th>Direct indicators of the social and economic position</th>
<th>Level of financial difficulties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
<td>1 Very severe</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
<td></td>
<td>2 -</td>
</tr>
<tr>
<td>Parents' education level</td>
<td>Without higher education (ISCED 0-4)</td>
<td></td>
<td></td>
<td>3 -</td>
</tr>
<tr>
<td></td>
<td>With higher education (ISCED 5-8)</td>
<td></td>
<td></td>
<td>4 -</td>
</tr>
<tr>
<td>Parents' occupation</td>
<td>White collar occupations</td>
<td></td>
<td></td>
<td>5 No financial difficulties</td>
</tr>
<tr>
<td></td>
<td>Blue collar occupations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Children</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total expenses</td>
<td>Mean (EUR)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>95% confidence interval (EUR)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>Female</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Living with parents</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The effectiveness and efficiency of studying and the effectiveness of occupational activity of students in EUROSTUDENT survey could not be directly measured, as the data on the number of acquired ESP points and the years of studying were not a part of the survey. Therefore, indirect indicators that contain elements of success during studies were used as a measure of effectiveness and
efficiency of studies, such as formal status, international mobility and interruption of studying and plans to continue studying. Differentiation of working students in the context of the impact on the effectiveness and efficiency of studying was carried out in relation to indicators of stress (which include the satisfaction with working load, satisfaction with studying load and satisfaction with the overall load) and in relation to indicators of quality of work engagement, particularly in relation to the connection of work with the curriculum content and the number of hours spent at work. The indicators of effectiveness and efficiency are given in Table 7 and Table 8.

Table 7: Indicators of studying effectiveness and load

<table>
<thead>
<tr>
<th>Indicators of work effectiveness</th>
<th>(Very) high</th>
<th>Moderate</th>
<th>Low or None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection between content of the study program and employment</td>
<td>(Very) high</td>
<td>Moderate</td>
<td>Low or None</td>
</tr>
<tr>
<td>Satisfaction with amount of time devoted to studying</td>
<td>(Completely) satisfied</td>
<td>Neither satisfied nor dissatisfied</td>
<td>(Completely) dissatisfied</td>
</tr>
<tr>
<td>Satisfaction with amount of time devoted to work</td>
<td>(Completely) satisfied</td>
<td>Neither satisfied nor dissatisfied</td>
<td>(Completely) dissatisfied</td>
</tr>
<tr>
<td>Satisfaction with total load</td>
<td>(Completely) satisfied</td>
<td>Neither satisfied nor dissatisfied</td>
<td>(Completely) dissatisfied</td>
</tr>
<tr>
<td>Number of hours spent at paid work, per week</td>
<td>Mean (in hours)</td>
<td>95% reliability interval (in hours)</td>
<td></td>
</tr>
<tr>
<td>Assessment of possibility of getting a job in the country</td>
<td>(Very) good</td>
<td>Medium</td>
<td>(Very) bad</td>
</tr>
<tr>
<td>Assessment of possibility of getting a job abroad</td>
<td>(Very) good</td>
<td>Medium</td>
<td>(Very) bad</td>
</tr>
<tr>
<td></td>
<td>I cannot assess</td>
<td>I cannot assess</td>
<td>I cannot assess</td>
</tr>
</tbody>
</table>
Table 8: Indicators of effectiveness and efficiency of studying and study load

<table>
<thead>
<tr>
<th>Indicators of the effect of working on the effectiveness and efficiency of studying and study load</th>
<th>Financed from the budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal status at studies</td>
<td></td>
</tr>
<tr>
<td>Financing from the budget</td>
<td>Self-financed</td>
</tr>
<tr>
<td>A break in studying of at least 12 months after enrolling into a higher education institution</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>A break in studying of at least 12 months between two academic levels</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Studying abroad</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>No, but I plan to go</td>
</tr>
<tr>
<td></td>
<td>No, and I am not planning to go</td>
</tr>
<tr>
<td>Plans to continue studying after the completion of the current curriculum program</td>
<td>Yes, in a period of one year after the completion of studies</td>
</tr>
<tr>
<td></td>
<td>Yes, in a period longer than one year after the completion of studies</td>
</tr>
<tr>
<td></td>
<td>No, I am not planning on continuing studies</td>
</tr>
<tr>
<td></td>
<td>I don't know</td>
</tr>
</tbody>
</table>

Multinomial logistic regression will be used to compare the student groups according to their employment status in the context of the impact that social and economic indicators have on (un)employment, as well as on the types of employment. The correlation between indicators of study efficiency/study load and employment status/types of employment was measured by the single factor analysis of variance (ANOVA), chi-square-test or t-test, depending on the type of the analyzed independent variables.

4. Comparative perspective of student work in the western balkan countries

The research of the profile of students who are working while studying was conducted in three steps. In the first step, all the students who work were compared with students who do not work, and socio-economic predictors that student would be working while studying were researched. In the second step, students who do not work were compared with those who work to cover costs of living and those
who work for experience. And, thus, the key differences between students who work with different motivations and those who do not work were identified. The third step sought to identify differences in the profiles among those students who are working with a different motivation. In this way, a complete picture of the profiles of students who work while studying was reached.

4.1. Working and Non-working Students

As already mentioned, the first step in trying to explain who the students who are working while studying are and what the primary causes of work are, is a comparison to students who are not working while studying (Table 9).

It was concluded that a student in Serbia was more likely to work while studying if his/her parents had higher education, if he/she was financially independent, if he/she had more money available and if already a parent. In Montenegro, the student was more likely to work if his/her parents have non-manual occupations, if he/she was not primarily financially dependent on the parents, if he/she had more money available, if already a parent or if sharing living space with parents. In Bosnia, the situation is similar to that in Montenegro, with the difference that the amount of money he/she has at their disposal is not a significant predictor of student employment.

<table>
<thead>
<tr>
<th>Students who work</th>
<th>Ref. Students who do not work</th>
<th>B</th>
<th>Std. Error</th>
<th>Exp(B)</th>
<th>B</th>
<th>Std. Error</th>
<th>Exp(B)</th>
<th>B</th>
<th>Std. Error</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td></td>
<td>-1.04</td>
<td>0.24</td>
<td>0.36</td>
<td>0.29</td>
<td>0.28</td>
<td>1.34</td>
<td>-0.30</td>
<td>0.26</td>
<td>0.74</td>
</tr>
<tr>
<td>Total expenses</td>
<td></td>
<td>0.00**</td>
<td>0.00</td>
<td>1.00</td>
<td>0.00**</td>
<td>0.00</td>
<td>1.00</td>
<td>0.00</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Occupation of parents</td>
<td></td>
<td>0.31</td>
<td>0.18</td>
<td>1.36</td>
<td>0.60**</td>
<td>0.22</td>
<td>1.82</td>
<td>0.57*</td>
<td>0.20</td>
<td>1.77</td>
</tr>
<tr>
<td>Education of parents</td>
<td></td>
<td>0.37**</td>
<td>0.12</td>
<td>1.45</td>
<td>0.11</td>
<td>0.17</td>
<td>1.12</td>
<td>0.06</td>
<td>0.16</td>
<td>1.06</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td>-0.49**</td>
<td>0.12</td>
<td>0.61</td>
<td>-0.11</td>
<td>0.16</td>
<td>0.90</td>
<td>-0.35*</td>
<td>0.15</td>
<td>0.70</td>
</tr>
<tr>
<td>Family support</td>
<td></td>
<td>-1.35**</td>
<td>0.19</td>
<td>0.26</td>
<td>-2.36**</td>
<td>0.21</td>
<td>0.10</td>
<td>-2.08**</td>
<td>0.21</td>
<td>0.13</td>
</tr>
<tr>
<td>Living with parents</td>
<td></td>
<td>-0.12</td>
<td>0.12</td>
<td>0.88</td>
<td>0.39*</td>
<td>0.17</td>
<td>1.48</td>
<td>0.32*</td>
<td>0.15</td>
<td>1.38</td>
</tr>
<tr>
<td>Children</td>
<td></td>
<td>0.74*</td>
<td>0.25</td>
<td>2.09</td>
<td>0.97*</td>
<td>0.41</td>
<td>2.63</td>
<td>3.16**</td>
<td>0.42</td>
<td>23.65</td>
</tr>
</tbody>
</table>

* p<0.05
** p<0.01
4.2. Types of Working Students and Non-working Students

In the second step, we compared two groups of students who work with those students who do not work while studying (Table 10). In all three analyzed countries there are significant differences between students who have worked or are working while studying (both to finance the cost of studying and living and to gain experience) and students who did not work while studying. Table 10 shows the importance of the selected predictors and the likelihood that students will be in one of the two categories of working students compared to students who did not work during the studies. Multinomial logistic regression was used to compare the abovementioned groups of students. Data were analyzed for all three countries: Bosnia and Herzegovina, Montenegro and Serbia.

4.2.1. Parents' Occupation and Education

In all three countries, parents' education and occupation correlated with students working while studying. In contrast to expectations that students from families of lower socioeconomic status would more often be working (EUROSTUDENT, 2015), the data indicate that, in Montenegro and Serbia, the children of parents with higher education or children who come from families of parents with non-manual jobs were more likely to be more active at the labor market. The comparison with students who are not working while studying, however, confirmed these expectations in Bosnia and Herzegovina. When compared to those students who do not work in Serbia, it is more likely that students who work for a living have parents that are doing jobs that belong to the group of non-manual jobs. Seemingly contradictory, compared to students who do not work, it is more likely that the students who work to gain experience have parents with higher education. In Montenegro, both groups of students who work are more likely to come from families with parents with higher level of education and social status compared to students who do not work, while the situation is different only in Bosnia and Herzegovina, where the students who will be working in order to finance the cost of living will more often come from families where parents do not have higher education. Also, the likelihood is greater that those who work for the experience come from families with higher social status.

4.2.2. Financial (in)dependence

Family heritage shows independent effects even when the total students' income (i.e. the amount of money that students have at their disposal) is introduced
into the analysis as a determinant of students' socioeconomic status. In all three countries, students who are working, regardless of the motivation behind their decision to get a job, are less financially dependent on their parents and often support themselves. The primary financial independence from their parents in the sense that the parents are not the dominant source of funding, has the greatest predictive potential of whether a person will belong to a group of students who work. The biggest differences between students who work and those who do not work appear precisely in relation to whether they are primarily financially dependent on their parents or not. Students in both categories of those who work are less dependent on family financial resources. In relation to the total income students have during the semester, the analysis shows that students who work have more money available than those who do not work.

4.2.3. Housing (in)dependence

Students who work for a living in Serbia more often live independently, separately from their parents compared to students who do not work. This link does not exist in Montenegro and Bosnia and Herzegovina. It is interesting that, in Montenegro and Bosnia and Herzegovina, students who work to gain experience often live with their parents compared to students who do not work.

4.2.4. Parenthood

Parenthood is also a significant predictor of involvement at the labor market. In Serbia, students who are parents have 3.5 times greater chance to work for experience than those who do not work. The situation in Montenegro is similar, except that parenthood will affect students to work regardless of the motivation (to finance the cost of living or for the experience). In Montenegro, 21.3% of students who work to finance the costs of living have a child, as opposed to 8.3% of those who work for the experience and 2.2% of those who do not work. In Bosnia and Herzegovina, only students who are working to finance the costs of living have greater likelihood that they will work if they are parents, so even 24.5% of those who work in order to finance the cost of living have children, as opposed to 1.1% of those who work for the experience and 1.3% of those who do not work.
Finding the right path

Table 10: Relationship between students who work to finance the living costs and gain experience and students who do not work

<table>
<thead>
<tr>
<th>Ref. Students who do not work</th>
<th>Serbia</th>
<th>Montenegro</th>
<th>Bosnia and Herzegovina</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Exp(B)</td>
</tr>
<tr>
<td>Intercept</td>
<td>-3.46</td>
<td>0.47</td>
<td>-1.97 0.63</td>
</tr>
<tr>
<td>Total expenses</td>
<td>0.03**</td>
<td>0.00</td>
<td>1.03 0.02**</td>
</tr>
<tr>
<td>Occupation of parents</td>
<td>-1.11**</td>
<td>0.36</td>
<td>0.33 -0.65*</td>
</tr>
<tr>
<td>Education of parents</td>
<td>-0.29</td>
<td>0.19</td>
<td>0.75 0.39</td>
</tr>
<tr>
<td>Sex</td>
<td>0.11</td>
<td>0.19</td>
<td>1.12 0.12</td>
</tr>
<tr>
<td>Family support</td>
<td>2.27**</td>
<td>0.25</td>
<td>9.66 2.93**</td>
</tr>
<tr>
<td>Living with parents</td>
<td>0.48**</td>
<td>0.19</td>
<td>1.62 -0.36</td>
</tr>
<tr>
<td>Children</td>
<td>-0.13</td>
<td>0.41</td>
<td>0.88 -0.95*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Students who work to fund their living</th>
<th>B</th>
<th>Std. Error</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-2.18</td>
<td>0.42</td>
<td>-0.83 0.58</td>
</tr>
<tr>
<td>Total expenses</td>
<td>0.02**</td>
<td>0.00</td>
<td>1.03 0.02**</td>
</tr>
<tr>
<td>Occupation of parents</td>
<td>0.38</td>
<td>0.27</td>
<td>1.46 -1.05**</td>
</tr>
<tr>
<td>Education of parents</td>
<td>-0.68**</td>
<td>0.21</td>
<td>0.51 -0.16</td>
</tr>
<tr>
<td>Sex</td>
<td>0.41*</td>
<td>0.20</td>
<td>1.51 -0.10</td>
</tr>
<tr>
<td>Family support</td>
<td>0.72*</td>
<td>0.37</td>
<td>2.06 1.92**</td>
</tr>
<tr>
<td>Living with parents</td>
<td>-0.14</td>
<td>0.21</td>
<td>0.87 -0.46*</td>
</tr>
<tr>
<td>Children</td>
<td>-1.27**</td>
<td>0.37</td>
<td>0.28 -0.80*</td>
</tr>
</tbody>
</table>

* p<0.05  ** p<0.01

4.3. Students' Motivation for Work

The third step is to recognize the differences among the students who work. Regarding the differences between students who work to finance the costs of living and students who work to gain experience, based on the data, it can be concluded that, although students who work managed to achieve a greater degree of independence (due to higher economic and educational status of their primary families) compared to students who do not work, the situation they currently are in is not the same for all that work. What distinguishes them is the question of the function of their work while studying, i.e. whether the student is working in order to gain experience, skills etc. or to survive. In the first case, the attitude to work is more flexible, independent, and allows greater freedom of choice, entering and
leaving work engagements. On the other hand, if they work in order to finance the cost of living, then they will be less flexible in planning their time, have less freedom in choosing jobs and they will be under increasing pressure to preserve their current job, even if it is not fulfilling.

4.3.1 Differences in Employment Motivation

Prediction of whether a student will work for cost of living or for gaining experience is based on the data presented in Table 11. By the variables that measure the importance of family heritage (socioeconomic and education status of students’ parents), it is shown that, in Serbia, it is more likely that someone will work to gain experience if his/her parents were blue-collar. In Montenegro and Bosnia and Herzegovina, the importance of family heritage is different. The children of parents with higher education are more likely to work for experience, while the children of parents without a higher education diploma often work to finance the cost of living compared to students who work to gain experience. In Serbia, the likelihood that those who live with their parents will work for experience and be financially dependent on parents is higher. Students who have children more often work for the experience compared to the students who work to support themselves. In Montenegro, the only feature that shows a significant difference between students whose primary motive is gaining work experience and students who work in order to finance the cost of living is greater likelihood that parents will primarily support those who work for the experience. In Bosnia and Herzegovina, the most significant difference between these two groups of working students is whether they have children or not, i.e. students who work for a living are often parents (Table 11).

Table 11: Students who work to gain experience compared to students who do not work

<table>
<thead>
<tr>
<th>Ref. Students who work to fund their living</th>
<th>Serbia</th>
<th>Montenegro</th>
<th>Bosnia and Herzegovina</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>B</td>
</tr>
<tr>
<td>Intercept</td>
<td>1.28</td>
<td>0.59</td>
<td>1.14</td>
</tr>
<tr>
<td>Total expenses</td>
<td>0</td>
<td>0.01</td>
<td>1</td>
</tr>
<tr>
<td>Occupation of parents</td>
<td>1.49**</td>
<td>0.43</td>
<td>4.44</td>
</tr>
<tr>
<td>Education of parents</td>
<td>-0.39</td>
<td>0.27</td>
<td>0.67</td>
</tr>
<tr>
<td>Sex</td>
<td>0.3</td>
<td>0.26</td>
<td>1.35</td>
</tr>
<tr>
<td>Family support</td>
<td>-1.54**</td>
<td>0.41</td>
<td>0.21</td>
</tr>
<tr>
<td>Living with parents</td>
<td>-0.62*</td>
<td>0.27</td>
<td>0.54</td>
</tr>
<tr>
<td>Children</td>
<td>-1.14*</td>
<td>0.51</td>
<td>0.32</td>
</tr>
</tbody>
</table>

*p<0.05

**p<0.01
4.3.2. Indirect Indicators of Differences in Employment Motivation

All three groups of students (students who do not work, students who work to finance the cost of living and students who work for the experience) are differentiated according to indirect indicators of socioeconomic status, namely:

- perception of financial difficulties
- satisfaction with housing conditions

We noted in all three countries the existence of significant differences in the perception of exposure to financial risks. To the question on the extent to which they feel financial difficulties, the single factor analysis of variance showed statistically significant differences in all three analyzed countries. The greatest financial difficulties were reported by students who work to finance the cost of living, while the least financial difficulties are felt by the students who work to gain experience.

The situation is similar with students’ housing conditions. Although the students are less differentiated in the question: “To what extent are you satisfied with your accommodation?”, some differences still occur between them in Bosnia and Herzegovina and Montenegro. In this case, the post hoc tests indicate significant differences among those who work for the experience, those who do not work and those who work to support themselves, so that the last group are the least satisfied with their housing conditions, while the students who work to gain experience are the most satisfied. However, it should be noted that students in all three countries are generally satisfied with housing (82.6% of students in Bosnia and Herzegovina, 77.6% of students in Montenegro, and 84.2% of students in Serbia stated that they are (very) satisfied with their accommodation) and that the differences, although statistically significant, are not big.

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11 Satisfaction with housing conditions was measured on the scale 1-5, where 1 is very satisfied, and 5 is not at all satisfied.

12 In Serbia, the differences are significant among those who work to finance the living costs (M=2.54, SD=1.18) those who work to gain experience (M=3.03, SD=1.04) and those who do not work (M=3.15, SD=1.06), F= 24.157, p<.001. In Montenegro, the differences are significant among those who work to finance the living costs (M=2.22, SD=0.98), those who work to gain experience (M=3.26, SD=0.93) and those who do not work (M=2.88, SD=1.08), F= 58.28, p<.001. In Bosnia, the differences are significant among those who work to finance the living costs (M=2.13, SD=1.07), those who work to gain experience (M=3.71, SD=1.16) and those who do not work (M=3.29, SD=1.2), F= 83.47, p<.001. Posthoc tests indicate significant differences in Serbia between those who work to support themselves and the other two groups, while in Montenegro and Bosnia and Herzegovina the differences are significant among all three groups of students.

13 In Montenegro, the differences are significant among those who work to finance the living costs (M=1.94, SD=1.16), those who work to gain experience (M=1.48, SD=0.89) and those who do not work (M=1.76, SD=1.06), F= 11.43, p<.001. In Bosnia, the differences are significant among those who work to finance the living costs (M=1.87, SD=1.15), those who work to gain experience (M=1.44, SD=0.67) and those who do not work (M=1.64, SD=0.95), F= 8.78, p<.001.
4.4. Relationship between Working and Studying

As already stated in the first chapter, some researches have shown that working while studying can have positive effects on studying, such as gaining practical knowledge and developing generic competences, which is why this segment was given special attention.

Students studying at higher education institutions in Montenegro are differentiated from students studying in Bosnia and Herzegovina and Serbia in relation to indicators of performance, efficiency and load. Students from Montenegro have significantly more jobs that are associated with their study program, and they spend more time at work a week, but they are also less satisfied with the time devoted to employment, a higher percentage of students does not have the budget status, they more often take a break that is longer than a year during studying and between two levels of studying. On the other hand, a significantly higher percentage of students from Montenegro had studied abroad and significantly more of them plan to continue to study both abroad and in Montenegro, compared to students from Bosnia and Herzegovina and Serbia.

Data from EUROSTUDENT V research show that, in the three analyzed Western Balkan countries, there are no significant differences between students who work to finance the cost of living and students who work to gain experience in how much their work is related to the area they are studying. With both groups, mean assessments hover around the middle. The highest percentage of students who are engaged in work related to their studies is in Montenegro, while the lowest percentage of students who work “in their field” is in Bosnia and Herzegovina (Figure 1).

![Figure 1: Connection of work with curricula per country and motivation](image)
Finding the right path

It can be concluded that the main difference between students who work to gain experience and students who work in order to finance the cost of living is not in the nature of their job, but in the attitude towards work in terms of the already mentioned flexibility, independence and greater freedom of choice of work engagement.

The last statement becomes clearer when one analyzes the workload among the students and the consequences of the load on learning and studying, as shown in Table 12. In all three countries, students who work in order to finance the cost of living spend significantly more time per week at work compared to students who work to gain experience. Relative difference between students who are working to finance the costs of studying and students who work to gain experience was the highest for students in Bosnia and Herzegovina ($M_{\text{difference}} = 13.46$ hours), but, at the same time, the number of hours both categories of students spend working is significantly lower compared to the other two countries. Students from Montenegro spend the most time per week at work, but, at the same time, relative difference between the two groups of students in Montenegro is the lowest compared to Bosnia and Herzegovina and Serbia ($M_{\text{difference}} = 5.34$ hours) (Table 12).

Table 12: Workload per country and work motivation

<table>
<thead>
<tr>
<th>Country</th>
<th>Students who work to fund their living</th>
<th>Students who work to gain experience</th>
<th>$N$</th>
<th>Mean</th>
<th>SD</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bosnia and Herzegovina</td>
<td>Students who work to fund their living</td>
<td>132</td>
<td>27.07</td>
<td>16.13</td>
<td>±2.75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Students who work to gain experience</td>
<td>124</td>
<td>13.61</td>
<td>9.58</td>
<td>±1.69</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$F(215.18)=86.75, t=8.17, p&lt;.001$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Montenegro</td>
<td>Students who work to fund their living</td>
<td>190</td>
<td>36.79</td>
<td>14.71</td>
<td>±2.10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Students who work to gain experience</td>
<td>206</td>
<td>31.45</td>
<td>15.08</td>
<td>±2.06</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$F(394)=2.22, t=3.56, p&lt;.001.$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serbia</td>
<td>Students who work to fund their living</td>
<td>215</td>
<td>30.02</td>
<td>15.84</td>
<td>±2.12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Students who work to gain experience</td>
<td>175</td>
<td>22.57</td>
<td>13.59</td>
<td>±2.02</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$F(387.4)=5.57, t=5.00, p&lt;.001.$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The next question is the extent to which students are satisfied with the time spent at work and at school and how many are satisfied with the overall load. In all three countries, students who work to finance the living costs are less satisfied with the amount of time they spend at work, the amount of time left for studying and the overall workload than the students who work to gain experience (Table 13).

The satisfaction was measured on the scale 1-5, where 1 is maximum satisfaction, and 5 is no satisfaction. This is why the satisfaction and the average in the graphs are in reverse proportion: the highest average is also the lowest satisfaction.
Table 13: Satisfaction with workload in relation to the type of job

<table>
<thead>
<tr>
<th>Satisfaction with the time spent at paid jobs</th>
<th>Working students</th>
<th>Bosnia and Herzegovina</th>
<th>Montenegro</th>
<th>Serbia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work to fund their living</td>
<td>3.28</td>
<td>3.00</td>
<td>3.05</td>
<td></td>
</tr>
<tr>
<td>Work to gain experience</td>
<td>3.04</td>
<td>2.49</td>
<td>2.76</td>
<td></td>
</tr>
<tr>
<td>T-test</td>
<td>t(275.8)=4.41, p&lt;.01</td>
<td>t(387)=3.43, p&lt;.01</td>
<td>t(411.9)=3.65, p&lt;.01</td>
<td></td>
</tr>
<tr>
<td>Satisfaction with the time spent on study-related activities</td>
<td>Work to fund their living</td>
<td>3.28</td>
<td>3.00</td>
<td>3.05</td>
</tr>
<tr>
<td>Work to gain experience</td>
<td>3.04</td>
<td>2.49</td>
<td>2.76</td>
<td></td>
</tr>
<tr>
<td>T-test</td>
<td>t(270)=1.81, p&gt;.05</td>
<td>t(384)=4.19, p&lt;.01</td>
<td>t(408.1)=2.66, p&lt;.01</td>
<td></td>
</tr>
<tr>
<td>Satisfaction with overall workload</td>
<td>Work to fund their living</td>
<td>3.21</td>
<td>3.12</td>
<td>3.14</td>
</tr>
<tr>
<td>Work to gain experience</td>
<td>2.85</td>
<td>2.65</td>
<td>2.81</td>
<td></td>
</tr>
<tr>
<td>T-test</td>
<td>t(274)=3.00, p&lt;.01</td>
<td>t(385)=4.33, p&lt;.01</td>
<td>t(408.6)=3.03, p&lt;.01</td>
<td></td>
</tr>
</tbody>
</table>

Bearing in mind that students who work in order to finance the living costs spend more time during the week at work, the conclusion that emerges is that job dissatisfaction is generated by excessive load and insufficient amount of time left for learning and attendance or inadequate schedule of student obligations that do not allow the reconciliation of working and studying. However, the time spent at work does not only impact the studying, but also the chance to find a permanent job later. Most students who work to gain experience in Serbia and almost all students in Bosnia and Herzegovina have part-time jobs and work less hours than full-time (less than 40 hours per week). Students who work in order to finance the cost of living in Bosnia and Herzegovina and Serbia are also more likely to do jobs with a weekly load of less than 40 hours. The trend with students from Montenegro is opposite. Both categories of working students often do full-time jobs, where more than three-fifths of students who work to finance the cost of living work full-time (Table 14).

Table 14: Working hours compared to the type of work

<table>
<thead>
<tr>
<th>Country</th>
<th>Time spent at a job</th>
<th>Work to fund their living</th>
<th>Work to gain experience</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bosnia and Herzegovina</td>
<td>less than 40h/w</td>
<td>60.9%</td>
<td>96.0%</td>
<td>78.4%</td>
</tr>
<tr>
<td></td>
<td>40h/w and more</td>
<td>39.1%</td>
<td>4.0%</td>
<td>21.6%</td>
</tr>
<tr>
<td>Montenegro</td>
<td>less than 40h/w</td>
<td>36.5%</td>
<td>47.1%</td>
<td>41.9%</td>
</tr>
<tr>
<td></td>
<td>40h/w and more</td>
<td>63.5%</td>
<td>52.9%</td>
<td>58.1%</td>
</tr>
<tr>
<td>Serbia</td>
<td>less than 40h/w</td>
<td>57.1%</td>
<td>78.4%</td>
<td>66.8%</td>
</tr>
<tr>
<td></td>
<td>40h/w and more</td>
<td>42.9%</td>
<td>21.6%</td>
<td>33.2%</td>
</tr>
</tbody>
</table>
Perception of the possibility to find a job at home or abroad after graduating depends on many factors, of which the most dominant are the existing personal experience of job seeking, but also the subjective perception of the general situation in the country. Students in Bosnia and Herzegovina have the most confidence they will find a job after graduating. The differences in the perception of chances of finding a job in the country or abroad between the two groups of working students in Bosnia and Herzegovina indicate that students who work for the experience see somewhat greater chance for themselves than students who work for a living. In Montenegro, a similar difference appears in the students' perception of employment opportunities only in the estimate of the probability of finding employment in the country, while in Serbia there are no differences in the perception of employment opportunities between groups of working students (Table 15).

Table 15: Potential for finding a job in the country and abroad, depending on the job type

<table>
<thead>
<tr>
<th>Country</th>
<th>National level</th>
<th>International level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students who work to fund their living</td>
<td>165 4.03 1.29 0.196</td>
<td>165 3.52 1.62 0.248</td>
</tr>
<tr>
<td>Students who work to gain experience</td>
<td>193 3.68 1.33 0.189</td>
<td>187 2.76 1.62 0.235</td>
</tr>
<tr>
<td>t-test</td>
<td>t(356)=2.49, p&lt;0.05</td>
<td>t(350)=4.37, p&lt;0.01</td>
</tr>
<tr>
<td>Montenegro</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students who work to fund their living</td>
<td>206 3.82 1.43 0.195</td>
<td>199 3.63 1.80 0.250</td>
</tr>
<tr>
<td>Students who work to gain experience</td>
<td>236 3.49 1.53 0.194</td>
<td>232 3.65 1.95 0.251</td>
</tr>
<tr>
<td>t-test</td>
<td>t(440)=2.35, p&lt;0.05</td>
<td>t(429)=-.87, p&gt;0.05</td>
</tr>
<tr>
<td>Serbia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students who work to fund their living</td>
<td>236 3.35 1.35 0.172</td>
<td>215 3.26 1.72 0.230</td>
</tr>
<tr>
<td>Students who work to gain experience</td>
<td>186 3.36 1.45 0.207</td>
<td>177 2.98 1.68 0.244</td>
</tr>
<tr>
<td>t-test</td>
<td>t(420)=-.84, p&gt;0.05</td>
<td>t(390)=1.60, p&gt;0.05</td>
</tr>
</tbody>
</table>

4.5. Employment and study success

The results of studies showing the positive effects of working while studying were presented in the first chapter, but we should not lose sight of those surveys that indicate that working while studying may result in less time available for

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15 The perception of the possibility of finding a job was measured on the scale 1-5, where 1 is very good chances, and 5 is lowest chance.
meeting the study obligations, and it was therefore important to determine the situation in the Western Balkan countries referred to in this paper.

One of the most reliable indirect indicators is the student status, i.e. whether the student is financed from the state budget or has the status of a self-financed student. The student status in all three countries depends on the results achieved during studying. During the school year, it is necessary to pass the exams with a given number of credits in order to achieve, or maintain the budget status. In Serbia, students working to finance the cost of living are less represented than the other two groups of students among budget students, while the biggest number of budget students is among students who work for experience. In Bosnia and Herzegovina, the situation is different because budget status is mostly held by the students who do not work, then students working to gain experience, and the least by those who work to finance the cost of living. In Montenegro, the fewest budget students are among those who work to gain experience, and the most are among those who do not work. Common to all three countries is the less favourable position of students who work to finance the cost of living. On the other hand, the majority of students who do not work have the status of budget students in Bosnia and Herzegovina and Montenegro (Table 16).

### Table 16: Reasons for work in comparison to study status

<table>
<thead>
<tr>
<th></th>
<th>Bosnia and Herzegovina</th>
<th>Montenegro</th>
<th>Serbia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Budget Self-financed</td>
<td>Total</td>
<td>Budget Self-financed</td>
</tr>
<tr>
<td>Work to fund their living</td>
<td>25.2 74.8 100.0</td>
<td></td>
<td>25.9 74.1 100.0</td>
</tr>
<tr>
<td>Work to gain experience</td>
<td>47.9 52.1 100.0</td>
<td></td>
<td>16.4 83.6 100.0</td>
</tr>
<tr>
<td>Do not work</td>
<td>53.7 46.3 100.0</td>
<td></td>
<td>34 66 100.0</td>
</tr>
</tbody>
</table>

X²=36.01, p<.001  
X²=22.78, p<.001  
X²=16.38, p<.001

Participation of different categories of students who do (not) interrupt their studies leads to the last conclusion. In all three countries there are significantly more students who were outside the studying process for at least one year among those who are working to finance the cost of living. In Montenegro, among the students who interrupted their studying, the number of those who work for experience is two times bigger than the number of those who do not work (Table 17).

16 Since only the state university students can have the budget status, the status analysis excludes the students from private higher education institutions.
Table 17: Interruption of education career for at least one year

<table>
<thead>
<tr>
<th></th>
<th>Bosnia and Herzegovina</th>
<th>Montenegro</th>
<th>Serbia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Total</td>
</tr>
<tr>
<td>Work to fund their living</td>
<td>30.4</td>
<td>69.6</td>
<td>100</td>
</tr>
<tr>
<td>Work to gain experience</td>
<td>6.3</td>
<td>93.7</td>
<td>100</td>
</tr>
<tr>
<td>Do not work</td>
<td>6.7</td>
<td>93.3</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>8.3</td>
<td>91.7</td>
<td>100</td>
</tr>
</tbody>
</table>

$X^2=111.58$, $p<.001$  $X^2=93.97$, $p<.001$  $X^2=25.55$, $p<.001$

Analysis of the period in which studying was interrupted (between middle school and college / university (Figure 2) and between two levels of study (Figure 3), shows that the largest number of students has interrupted their studies, while a slightly smaller number is pausing after completing one study cycle, i.e. after completing undergraduate studies.

Figure 2: Interruptions between entering higher education and graduating from higher education for the first time

Figure 3: Interruptions between graduating from higher education and re-entering higher education
Differences arise when it comes to plans for further studies in relation to employment status and job motivation. Students who work to finance the cost of living will rarely continue their studies and they will stay with lower qualifications. In Bosnia and Herzegovina, these differences are biggest and they suggest that students who work to finance the cost of living have lower aspirations than those who do not work and those who work for the experience (Table 18). The differences in Montenegro are slightly smaller, but significant, while in Serbia these differences were not statistically significant.

Table 18: Continuation of studying compared to the job type

<table>
<thead>
<tr>
<th></th>
<th>Serbia</th>
<th>Montenegro</th>
<th>Bosnia and Herzegovina</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>I don’t know</td>
</tr>
<tr>
<td>To fund their living</td>
<td>53.1</td>
<td>15.1</td>
<td>31.8</td>
</tr>
<tr>
<td>To gain experience</td>
<td>53.1</td>
<td>9.7</td>
<td>37.2</td>
</tr>
<tr>
<td>Do not work</td>
<td>53.6</td>
<td>10.6</td>
<td>35.8</td>
</tr>
<tr>
<td>Total</td>
<td>53.6</td>
<td>10.9</td>
<td>35.6</td>
</tr>
</tbody>
</table>

$X^2=5.44, p>.05$  $X^2=33.17, p<.05$  $X^2=78.23, p<.05$

Data on whether students were abroad during their studies, and if not, whether they are planning to take this step in the future indicate performance indicators in the context of plans for the future. Thus, going to a foreign country for the sake of studying involves academic excellence, knowledge of languages and, often, necessary skills of communication with foreign institutions that are primarily related to the ability to meet administrative procedures, as well as to have correspondence with the institutions that are part of the system, which may be quite different from the system to which the students are accustomed to. Studying abroad often involves a relatively stable financial situation in the long term. Among those who go abroad from Serbia and Montenegro for the sake of studying, the majority are students who work for the sake of gaining experience, while in Bosnia most students who went abroad are among those who work in order to finance the cost of living. In all three countries, students who work to finance the cost of living have lowest aspirations and plans to continue their studies abroad. These aspirations, on one hand, can be an indicator of unfavourable financial capacities of these students, and, on the other, they can be a rational decision with regards to realistic chances to continue their studies abroad (Table 19).
Table 19: Have you ever been enrolled abroad as a student in higher education?

<table>
<thead>
<tr>
<th></th>
<th>Serbia</th>
<th>Montenegro</th>
<th>Bosnia and Herzegovina</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes, No, I do not plan to go</td>
<td>Total</td>
<td>Yes, No, I do not plan to go</td>
</tr>
<tr>
<td>To gain experience</td>
<td>2.5, 30.9, 66.5, 100</td>
<td>8.6, 34.3, 57.1, 100</td>
<td>6.1, 36.2, 57.7, 100</td>
</tr>
<tr>
<td>Do not work</td>
<td>1, 37.3, 61.7, 100</td>
<td>4.1, 50.6, 45.3, 100</td>
<td>2.2, 39.4, 58.4, 100</td>
</tr>
<tr>
<td>Total</td>
<td>1.4, 36.9, 61.7, 100</td>
<td>6.4, 47.7, 45.9, 100</td>
<td>2.6, 40.3, 57.1, 100</td>
</tr>
</tbody>
</table>

X²=29.93, p<.001  X²=30.54, p<.001  X²=26.96, p<.001

5. Instead of a conclusion – profile of working students from the western balkans

Based on the results, it is possible to point out the basic differences between student populations who are dedicated exclusively to studying and those who work with different motivations in all three countries and to contextualize the identified differences.

In **Serbia**, the differences among the three groups of students are statistically significant, but the smallest, compared to the other two countries. **Students who work to gain experience** come from families that are higher on the stratification scale than the students who do not work, but it is interesting that there are fewer of them compared to students who work to finance their cost of living. They more often primarily depend financially on their parents and they more often have independent housing than the students who are not working, but are less independent under both characteristics than those who work in order to finance the cost of living. Those working to gain experience have a greater amount of money available than those who do not work, but they do not differ from students who work to finance the cost of living in this dimension. Students who work to gain experience are the most satisfied with their housing situation and they score the lowest on financial difficulties. **Students who work to cover living costs** tend to have parents who have non-manual jobs, compared to students who work for the experience. Compared to students who do not work and those who work to gain experience, students who work to finance the cost of living are more often primarily independent of their parents both financially and in housing, but are also less satisfied with their housing status and more likely to have financial difficulties.
In Montenegro, the situation is somewhat different. **Students who work for a living**, compared to those who do not work, have parents with higher socioeconomic status, better incomes, live separately from their parents, but they are also less satisfied with their housing conditions, often have financial problems and are more often already parents. Students who work to gain experience differ because they have parents with higher education status, while at the same time they are dissatisfied with their housing and financial situation. On the other hand, **students who work to gain experience** also differ from those who do not work by higher socioeconomic status of their parents, higher income, primary financial autonomy and residential independence and parenthood. Students who work in order to finance the cost of living differ by the fact that they are more often primarily supported by their parents.

In Bosnia and Herzegovina, the differences among these three categories of students are the greatest. **Students who work to finance the cost of living** differ from those who do not work because they have parents with less education, more often are primarily financially independent, but they are very often parents themselves. They differ from the population of students who are working to gain experience because their parents are more likely to have a higher education diploma, they have less money available and they are more often parents. They are the least satisfied with their housing and far more likely to have financial difficulties. On the other hand, students who work to gain experience have parents with higher socioeconomic status, higher degree of financial autonomy, but more often live with parents than students who do not work. They are the least dissatisfied with their housing and they score the lowest on financial difficulties.

Higher family heritage makes the profile of working students (i.e. higher education and/or socioeconomic status of the parents), together with individual housing and/or financial organization of life with parenthood as a significant predictor of work. The last two features indicate sociological attributes of adulthood and a higher degree of independence (Tomanović, et al., 2012). The research of this topic indicates that in Serbia and the region, young people have very low levels of these characteristics (including the student population), and that a significant amount of tangible and intangible resources (social and cultural capital) is necessary for them (Tomanović et al., 2012, Ilišin, 2013, Flere, Lavrič, 2014).

Generally, working students come from families who have higher education and socioeconomic status compared to students who do not work, which implies that work is not available to all categories of students, and that it is a certain privilege, i.e. that the working student population in all three countries is differentiated from the general population of students because it demonstrates characteristics that belong to a privileged category in a certain way. The only exception to the general trend that we recognize is the category of students who
work to finance the cost of living in Bosnia and Herzegovina, who have parents with lower socioeconomic status than the students who do not work.

In addition, students who work to gain experience in Bosnia and Herzegovina and Montenegro belong to the most privileged category in relation to parents' education and occupation, as their parents tend to have higher education and non-manual jobs. Parenthood, as a significant predictor of work to finance the cost of living, implies that students who are parents are actually the most disadvantaged and that they have the greatest need for an additional support system. The expected greater differentiation of students in relation to parents' education and occupation in Montenegro and Serbia (which exists in Bosnia and Herzegovina) may be due to the greater social and economic inequalities that exist in these two countries, as well as to more closed channels of educational mobility. Significantly lower tuition fees in Bosnia and Herzegovina compared to Montenegro and Serbia (on average two to three times lower) make higher education more accessible to a diversified population, and the differences in the student population are greater than in the other two countries. Preselection in Montenegro and Serbia, it seems, takes place before enrolling into higher education, and the student population is more homogeneous in relation to socioeconomic indicators.

Indirect indicators that differentiate to a greater extent both working students from the non-working and students working to finance the cost of living from students who primarily work in order to gain experience were analytically the most prolific. Thus, compared to students who do not work and students who work to gain experience, students who work to finance the cost of living in all three countries feel the greatest financial difficulties, they are the least satisfied with their housing situation, they spend the most time at work, they are the least satisfied with the load both at work and at the university. In addition, performance indicators show that students who work to finance the cost of living are significantly less effective than the students who work to gain experience and students who do not work, that there is a lower percentage of them with budget-funded status, they are more likely to take a break longer than a year, they rarely plan to continue their studies or go abroad. On all these indirect indicators, students who work to gain experience are in the best position.

A positive effect of work during the studies is greater primary financial independence of students, which is particularly evident in Montenegro, which, in comparative perspective with the other two countries, has a significantly increased percentage of working students, as well as students who are primarily dependent on their own incomes. However, students who work to gain experience in Montenegro and Serbia significantly more often live with their parents, which implies that the possibility of working, which will complement studying and be oriented to the future career development, provides less costs borne by students themselves.
Studying and working: aspirations and needs of students

In the context of positive effects that working while studying may have, it is important to note that in all three analyzed countries there is no significant difference between the two categories of working students and the relationship of the job with the curriculum content. The initial assumption that students who work to finance the cost of living will more often do jobs that are not associated with the curriculum, compared to students who work to gain experience, was not confirmed. Systemic factors (such as the quality of jobs available at the labor market), as well as the qualifications of students who work in the profession, affect the availability of work that would be associated with the curriculum. Bearing in mind that it is expected that, in their final year, students of undergraduate studies, as well as students of master studies (PhD students were not included in the sample), can actually find jobs that would be associated with what they are studying, it can be concluded that work in the profession is still unavailable for the majority of undergraduate students. However, work experience, as well as generic competencies that students gain by doing jobs that are not associated with their curriculum is definitely something that gives them not only a comparative advantage in relation to their colleagues who will complete their studies without prior work experience, but also contacts with employers they can potentially use after completing their studies.

In comparison with other European countries, students in Bosnia and Herzegovina and Serbia have lower rates of employment during the studies, lower average workload, considerable disconnect between what they study and their work, very high level of financial and housing dependence on their family and their wages usually serve as an additional income. Montenegro stands out somewhat because it is characterized by a greater number of students who work during their studies and, therefore, they have higher average of working hours per week. They fully share the characteristics of the region in other properties. These properties are typical for countries with a low level of market development, very inflexible labor arrangements and education system that does not involve opportunities to work and study. Youth unemployment rates in these countries are quite high, indicating a very unfavourable situation for the youth population in general. In such circumstances, the correlation between work and study is expectedly low. Due to very high competition among those with a degree to gain some working experience, space for those studying to connect their work with their curriculum in the broadest way is very small. In such circumstances, studying is almost impossible without the financial support of the family of origin.

These findings bring us back to the question of who the working students are and why they work. The results contribute to the debate on the causes of work and its consequences on the process of studying and employment opportunities. Unlike most of the countries in which working students belong to the lower strata of the society and their work is a kind of compulsion, in the region, working
students belong to the higher echelons of the society, implying that work (or work experience) is a resource that is not equally available. In the circumstances of very poor job offer at the labor market and considerable competition of those with a university degree, work experience is a significant advantage when seeking employment. However, although one category of students (that works to finance the cost of living) has the possibility to work and study at the same time, and although the possibility of having such an arrangement is mediated by family resources, the moment when they find themselves in this situation, the alignment of these two fields is not easy. The consequences of work on the process of studying indicate that students who cover most of their costs during studying are more likely to take a break, have lower efficiency and that, at the same time, they will also experience a higher level of load from studying and from work.

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SOCIAL DIMENSION OF INTERNATIONAL STUDENT MOBILITY IN BOSNIA AND HERZEGOVINA, MONTENEGRO AND SERBIA

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Abstract: International mobility of students and staff represents a corner stone of the Bologna process, not only as being the key mechanism of developing the European Higher Education Area (EHEA), but also for employability of students and as a main tool of internalisation. Mobility enables widening of knowledge competences and skills and also has various social and cultural benefits for individuals. In 2009 at the Leuven/Louvain-la-Neuve meeting, the mobility target was set for EHEA countries: by 2020 at least 20\% of graduates should have a study or training period abroad. International students are undoubtedly an under-researched phenomenon, despite obvious importance, across entire Europe and especially in the case of Balkan countries. EUROSTUDENT study is a unique source of data collection on international student mobility because it enables a detailed review of data on temporary student mobility and plans for future mobility. For credit mobility and according to EUROSTUDENT V data, the mobility rate goes from 2\% to 18\% in surveyed samples from student populations across more than 25 European countries. The aim of this paper is to investigate factors influencing students’ decision to be involved in international mobility using data from EUROSTUDENT V survey conducted in Serbia, Montenegro and Bosnia and Herzegovina. This has been achieved by development and implementation of three logistic regression models for each of these three Balkan countries.

Keywords: international mobility, EUROSTUDENT, European Higher Education Area, logistic regression, forecasting
1. Introduction

According to OECD data, international student mobility has been rising significantly faster during the last thirty years, in comparison with total international migration. This difference is becoming increasingly marked in recent years. According to Beine et al (2013), from 1975 to 2008, the number of students who study abroad was multiplied by factor 4.

The increase of international student mobility in European countries is one of the main issues in the process of developing European Higher Education Area (EHEA). One of the six objectives in the Bologna Declaration (1999) is promotion of student mobility. It should be facilitated by harmonization of national HE systems and portability of recognizable qualifications and courses across Europe via credit transfer system (ECTS). According to Leuven agreement in 2009, the goal for 2020 is to have at least 20% of students graduating in EHEA with experience of studying or training abroad. "Increasing student mobility tends to be viewed in debates on the developments of higher education at the first glance as one of the most undisputed positive goals." (Teichler, 2007).

Globalization of economy is followed by internationalisation of higher education. The number of international students can be used as the proxy for internationalisation of higher education systems. Positive effects of internationalisation can be seen in the short run in education systems and in economic development of the country in the long run. Benefits are significantly larger in the case of the developed host countries and they are predominant exporters of education services. For several decades, the highest number of international students was recorded in the following five countries: USA, UK, Germany, France and Australia (Caruso & De Wit, 2013). According to Sykes (2012) and Hawthorne (2012), the proportion of international students which stay in host country after graduation (stay-rate) for OECD countries is, on average, 25%.

Is there a real threat of brain drain as a consequence of international student mobility, mostly for the sending countries, as is the case of the Western Balkan states? According to Gibson and McKenzie (2010), among highly skilled workforce there are very intensive emigration and return migration with large positive benefits for high emigration countries. Authors are also underlying the benefits for source countries in terms of knowledge flows and sending remittances, but with rare cases of engaging in trade or foreign direct investment. In the case of Serbia, Montenegro and Bosnia and Herzegovina, implementation of the Bologna Process has started almost ten years ago and today we can say that HE systems of these three countries have reached a significant level of harmonization with other countries in Europe, but in some areas HE is still lagging behind, like in the area of international mobility. Students from Balkan countries are significantly less involved in international mobility in comparison with their counterparts from other European countries.
Until now, a small effort or nothing at all has been done in order to analyze and explain the problems of international mobility in the region. International students are undoubtedly an under-researched phenomenon despite obvious importance, not only in the Balkans, but across the entire Europe. One of the main obstacles was not lack of interest, but lack of relevant data about student population. According to Rumbley (2012), data on student mobility are unclear and inaccurate because of many reasons, like complexity of the phenomenon and data collecting process. Kahanec and Kralikova (2011) were expressing the need for longitudinal and richer datasets about the phenomenon.

According to Eurostat report (Eurostat, 2014), “Mobile students (diploma/degree mobility) are defined as foreign students who have crossed a national border and moved to another country with the objective to study. In other words, the student has moved from what we in this context call the country of origin to the reporting country of study (also called country of destination).” Many authors, like Rumbley (2012) and Richters and Teichler (2006), are emphasizing the complexity of student mobility and differences in the definition of the phenomenon in question.

For the first time in the history of HE in the Balkans, we have consistent and harmonized data about international student mobility in the region, which facilitates research studies in that area.

On the basis of EUROSTUDENT survey in 2014 in Serbia, Montenegro and Bosnia and Herzegovina, we are trying to discover the factors influencing the students' choice to be involved in international mobility. Besides a descriptive analysis of all the questions in the international mobility section in EUROSTUDENT survey across three countries, we will develop quantitative, econometric models to regress propensity to international mobility on socioeconomic and other factors.

The second goal of our research is to compare students from the three Balkan countries from the aspect of international mobility and to discover whether there are any significant differences. Also, what are the main obstacles for larger student mobility in the region? We are interested not only in the absolute numbers concerning international mobility, but also in the structure of this phenomenon across different variables, like level of study, mobility schemes, financial resources, types of activities, etc.

The results of this research study will help policy makers in higher education to understand the phenomenon and to develop appropriate mobility strategies in order to promote and intensify international mobility of students in the region.

2. Overview of references

Scientific references in the area of international mobility in the last several years are very abundant, with increasing number of papers, studies and books
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discussing mobility of students. International student mobility is the subject of interest and a challenge for researchers with different scientific background, like labor economy, demographics, education, etc. According to Teichler (2009), student mobility is viewed as the most visible component in the framework of internationalisation and globalisation in Europe. The same author is claiming that “for young Europeans who decide to embark on higher education studies, studying in another country has become a normal option.” (Teichler, 2004). For Varghese (2008), cross-border studying is an important mode of globalizing higher education.

Choudaha et al. (2012) are stressing the importance of research in the area of international student mobility. "Institutions should examine the decision-making process of prospective students, experiment with various recruitment models, and adopt strategic plans to maximize the return on investment in international student recruitment." (Choudaha, Orosz, & Chang, 2012). "HEIs need to understand that not all international students are the same." (Choudaha & Chang, 2012). A similar opinion can be found in Dustmann and Glitz (2011), and Gibson and McKenzie (2009). King and Findlay (2010) are pleading for more research in specific areas, like the link between student mobility and employment.

One of the main problems when it comes to research of international student mobility is that a substantial number of research results is based on the analysis of mobility in developed countries as host countries for the largest part of international students in the world. There is significantly less information from developing countries, where the main problem is lack of reliable data about student mobility and mobility in general.

Chevalier (2014) summarised the main pros and cons of international student migration. The positive sides are that student mobility can foster economic growth both in sending and receiving countries, student mobility can influence wage growth for the migrants, and elimination of visa restrictions will increase the quantity and quality of international students in host countries. On the other side, there is a risk of brain drain for source countries, economic growth can suffer because of student migration, source countries incur fiscal costs due to absence of qualified and skilled workforce, and target countries are facing fiscal costs through subsidizing foreign students.

The most comprehensive list of push and pull factors influencing international student mobility can be found in Agarwal et al (2008). The authors identified four broad categories: mutual understanding, revenue earning, skill migration and capacity building. According to the same authors, the push factors motivating students in source countries to study internationally are the following:

- Educational factors (availability of HE, basic HR capacity, ranking and status of HE, ratio of national vs. foreign degree, selectiveness of domestic HE, activity of private and foreign HE providers, experience with international mobility and relationship with foreign partners).
Social dimension of international student mobility

- Political, social, and cultural factors (linguistic isolation, cultural disposition, colonial relationships, political stability, regional unity, availability of information, emigration policy, strategic alliances, and academic freedom).
- Economic factors (dependence on world economy, financial capacity, human development index factor, employment opportunities upon return and geographic distance).

The pull factors of host countries for international students are the following (Agarwal, Said, Sehoole, Sirozi, & De Wit, 2008):
- Educational factors (higher education opportunities, compatibility of systems, ranking and status of higher education, enhanced value of national degree, diversity of HE systems, absorption capacity of HE, active recruitment policy, cost of study, existing stock of national students, strategic alliances with home partners).
- Political, social and cultural factors (language, cultural connections, colonial ties, lure of life, regional unity, stock of citizens from source country, immigration policies, strategic alliances with source country and academic freedom).
- Economic factors (import/export levels, level of assistance, human resource development index, employment opportunities during and after study and geographic distance).

Beine et al. (2013) were using multi-origin and multi-destination framework to identify determinants of international student mobility. They were concentrated on two groups of factors: the first group influencing the costs of migration (distance, language, migrants’ network, etc.), and the second group influencing the attractiveness of the destination (education costs, living costs, quality of universities, etc.). They found statistically significant influence of costs of migration and strong network effect. International students are also sensitive to the wages and living costs in their destination country. Quality of higher education institutions has moderate influence, while decision making of students is not significantly affected by education fees.

Caruso and de Wit (2013) were modelling the inflow of students from EU-27, EEA and candidate countries to 33 European countries from 1998 to 2009. The analysis was conducted on the basis of data from Eurostat database, Penn World Tables 7.0, Cesifo DICE report 2007/2008 and independent website www.studyineurope.eu. Explanatory variables were measure of crime recorded in the host country, measure of cost of living proxies by means of current inflation change, degree of economic openness, GDP per capita and current expenditure per student at ISCED 5 and 6 levels. All variables were logged. According to their results, the most important determinants of international student mobility is the expenditure per student, actual level of safety, degree of openness of host country and GDP per capita in host country.
Novak et al. (2013) were analysing international mobility on the sample from three universities in three countries, Germany, Norway and Slovenia. The sample had 288 respondents – undergraduate students, and the goal was to define the main factors of motivation for international mobility and students' expectations. In the analysis, the influencing variables were recommendations from friends, colleagues and professors, ranking of universities, language, level of economic development of host country, mobility coordination officers, mobility expenses, accommodation expenses, mobility grants, and gender. The main conclusions were that the main motivation factor is obtainment of international experience and that duration of mobility is gender related.

Netz (2013) examined factors that deter students from studying abroad in four European countries: Austria, Germany, Switzerland and Holland. He implemented logistic regression to calculate models for two thresholds: the decision threshold and the realisation threshold. The main implications for higher education policy are “first, the fact that there are various obstacles to studying abroad means that some students may face multiple disadvantages and might therefore need additional support. Second, mobility schemes might have to reflect better that obstacles at the decision threshold differ from obstacles at the realisation threshold. Third, the self-perpetuating nature of mobility makes the moments of political intervention crucial. Fourth, the similarity of obstacles between countries suggests certain supranational initiatives. Finally, the achievability of the European mobility targets could be discussed, as increasing mobility and creating equitable access to it might be conflicting goals.” (Netz, 2013).

When it comes to research of student mobility in Balkan countries, there is a modest amount of research studies. For example, Roman and Suciu researched international mobility of Romanian students in Europe (Roman & Suciu, 2007). Their main conclusions are that two key constraints for students are finance and lack of information. They are also stressing the necessity of Romanian higher education institutions to be more involved in the process of attracting foreign students to Romania.

It is very important to have in mind that international students are not a homogeneous group in the context of factors influencing their mobility. According to a study of World Education Services (Choudaha, Orosz, & Chang, 2012) on US students, it is possible to distinguish strivers, strugglers, explorers and highfliers. For example, strivers are oriented towards information on financial aid and top schools. Strugglers have limited financial resources and they are less selective about information of university reputation. Explorers are not exclusively academically oriented and they are not interested to enrol into top ranking universities. Highfliers are not relying on financial aid from the institution, are academically well prepared and they look for prestigious universities.
3. Scientific method and results

Recognizing the importance of international mobility, quantitative analysis in this paper will focus on building an econometrics model for predicting mobility rates for students in Serbia, Montenegro and Bosnia.

Quantitative analysis was performed using EUROSTUDENT V datasets for all three countries. Serbia, Montenegro and Bosnia joined the fifth cycle EUROSTUDENT project in 2012. The main goal of EUROSTUDENT research was to investigate the social dimension of higher education in Europe. The survey was conducted during 2014 summer term in all three countries.

EUROSTUDENT study is a unique source of data collection on international student mobility because it enables a detailed review of data on temporary student mobility and plans for future mobility. Therefore, the analysis presented below is only applied to temporary study visits. That is, students who have fully completed a study program abroad were excluded from the analysis.

In addition to collecting data, determining the factors influencing student mobility rates is essential. Previous studies on international mobility indicate the existence of a significant correlation between mobility of students and educational structures. Some of the factors that have shown up as significant predictors of mobility rates are year of study, field of study, type of higher education institution etc. Moreover, attention is also paid to investigating the influence of students’ socioeconomic background on the decision whether to be involved in international mobility.

In order to increase mobility rates, besides determining the factors affecting the realization of student mobility, it is crucial to examine expectations, aspirations, motivations and possible reasons, as well as potential obstacles for studying abroad.

Figure 1: Mobility rates
Finding the right path

According to the conducted EUROSTUDENT V survey, as it can be seen from Figure 1, only 2% of students in Serbia had experience with studying abroad. Mobility rates lower than 3% classify Serbia and Bosnia among the countries with the lowest rate of student mobility in Europe. The recorded rate for Montenegro is much higher and closer to the average mobility rate for all participated countries, which is 10%.

Detailed frequencies for all three countries are given separately in Table 1 for each level of measured mobility using crosstabs procedure. After examining the mobility rates, our goal was to compare these rates and to discover whether there are any significant differences in mobility rates among these 3 countries. In order to assess the discovered differences, chi-square test is used. We are testing the null hypothesis that mobility is independent of the country and that any difference is due to random sampling error. Testing rule is that we reject the null hypothesis if there is a .05 probability that our findings are due to chance. According to the results in Table 2, there is a significant relationship between students’ decision to be involved in international mobility and the country where they study $\chi^2(4)=157.187, p=.000$.

Table 1: Have you ever been enrolled abroad as a student in higher education? * country Cross tabulation

<table>
<thead>
<tr>
<th>country</th>
<th>1 Serbia</th>
<th>2 Montenegro</th>
<th>3 Bosnia</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>62</td>
<td>89</td>
<td>71</td>
<td>222</td>
</tr>
<tr>
<td>% within v4.1 Have you ever been enrolled abroad as a student in higher education?</td>
<td>27.9%</td>
<td>40.1%</td>
<td>32.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>% of Total</td>
<td>0.8%</td>
<td>1.2%</td>
<td>0.9%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Count</td>
<td>1330</td>
<td>574</td>
<td>1019</td>
<td>2923</td>
</tr>
<tr>
<td>% within v4.1 Have you ever been enrolled abroad as a student in higher education?</td>
<td>45.5%</td>
<td>19.6%</td>
<td>34.9%</td>
<td>100.0%</td>
</tr>
<tr>
<td>% of Total</td>
<td>17.7%</td>
<td>7.7%</td>
<td>13.6%</td>
<td>39.0%</td>
</tr>
<tr>
<td>Count</td>
<td>2324</td>
<td>594</td>
<td>1439</td>
<td>4357</td>
</tr>
<tr>
<td>% within v4.1 Have you ever been enrolled abroad as a student in higher education?</td>
<td>53.3%</td>
<td>13.6%</td>
<td>33.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>% of Total</td>
<td>31.0%</td>
<td>7.9%</td>
<td>19.2%</td>
<td>58.1%</td>
</tr>
<tr>
<td>Count</td>
<td>3716</td>
<td>1257</td>
<td>2529</td>
<td>7502</td>
</tr>
<tr>
<td>% within v4.1 Have you ever been enrolled abroad as a student in higher education?</td>
<td>49.5%</td>
<td>16.8%</td>
<td>33.7%</td>
<td>100.0%</td>
</tr>
<tr>
<td>% of Total</td>
<td>49.5%</td>
<td>16.8%</td>
<td>33.7%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
After discovering a significant difference in mobility rates among the three countries, the aim of further analysis was to assess the prediction of mobility rates in all three countries by performing binary logistic regression models.

Logistic regression model represents a statistical method for predicting the outcome of categorical dependent variable based on one or more independent variables, also called predictors. When the observed outcome for the dependent variable has two possible options, the model is called binomial or binary logistic regression model. Through logarithmic relationship, possible outcomes of the dependent variable are modeled by probabilities as a function of the predictors. Implementation of the model does not require normality or equality of covariance matrices of two populations. (Kleinbaum & Klein, 2010)

The method in which all predictors enter the equation simultaneously was chosen. The dependent variable was coded in the following manner. It takes value 0 if student does not plan to study abroad and takes value 1 if student already had mobility experience or plans to have it in the future. This way, students are classified into two groups. The first group consists of students with negative attitude towards international mobility and the second one with students with positive attitude towards international mobility. Using logistic regression, the effects of various different factors on probability of membership in these two groups are estimated for all three countries separately.

Models are used on the basis of the total of 38 available predictors: 18 socio-demographic predictors, 8 predictors all related to satisfaction with current studies and 12 predictors concerning aspects that can represent possible barriers for studying abroad. A detailed list of independent variables and coding for all categorical predictors is specified in the following tables. No serious violation of linearity has been detected. The first category is always used as a comparing category.

Socio-demographic predictors and predictors related to students' satisfaction are presented in Table 2.

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Table 2: Chi-Square Tests

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persons Chi-Square</td>
<td>157.183</td>
<td>4</td>
<td>.000</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>141.605</td>
<td>4</td>
<td>.000</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>30.948</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>7502</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 2: Variables included in the model

<table>
<thead>
<tr>
<th>No.</th>
<th>Variable</th>
<th>Categories</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Age</td>
<td>1 up to 21 years</td>
<td>e_age</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 22 to &lt;25 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 25 to &lt;30 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 30 years or over</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Sex</td>
<td>1 male</td>
<td>e_sex</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 female</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Qualification studied for</td>
<td>1 Bachelor</td>
<td>e_qualification</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 Master</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 Other</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Field of study</td>
<td>1 Education</td>
<td>e_field</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 Humanities and arts</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 Social sciences, business and law</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 Science</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 Engineering, manufacturing and</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>construction</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 Agriculture</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>7 Health and welfare</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8 Services</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Type of HEI</td>
<td>1 University</td>
<td>e_hei</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 Other HEI</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Study intensity</td>
<td>1 Low intensity</td>
<td>e_intens</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 Medium intensity</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 High intensity</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Direct and delayed transition</td>
<td>1 direct</td>
<td>e_transit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 delayed</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>What is your current formal status as a student?</td>
<td>1 Budget</td>
<td>e_status</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 Self-financing</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Highest educational attainment of parents</td>
<td>1 no higher education (ISCED 0-4)</td>
<td>e_edupar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 higher education (ISCED 5-8)</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Variable</td>
<td>Categories</td>
<td>Name</td>
</tr>
<tr>
<td>-----</td>
<td>--------------------------------------------------------------------------</td>
<td>-----------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>10</td>
<td>'Dependency on income source'</td>
<td>1 'Dependent on family'</td>
<td>e_depend</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 'Dependent on self-earned income'</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 'Dependent on public student support'</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 'Other'</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>To what extent are you currently experiencing financial difficulties?</td>
<td>1 Very seriously</td>
<td>v3.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 Not at all</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Who do you live with during the study term/semester (Monday until Friday)? Parents/other relatives</td>
<td>0 No</td>
<td>v3.1.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Yes</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Who do you live with during the study term/semester (Monday until Friday)? Partner/spouse</td>
<td>0 No</td>
<td>v3.1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Yes</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Who do you live with during the study term/semester (Monday until Friday)? My child(ren)/my partner’s child(ren)</td>
<td>0 No</td>
<td>v3.1.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Yes</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Who do you live with during the study term/semester (Monday until Friday)? With (an) other person(s) not mentioned above</td>
<td>0 No</td>
<td>v3.1.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Yes</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Who do you live with during the study term/semester (Monday until Friday)? I live alone</td>
<td>0 No</td>
<td>v3.1.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Yes</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Do you live in student accommodation, i.e dormitory or halls of residence?</td>
<td>0 No</td>
<td>v3.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Yes</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Do you have any children?</td>
<td>0 No</td>
<td>v5.5.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Yes</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>How satisfied are you with your studies concerning the quality of teaching?</td>
<td>1 (very) well satisfied</td>
<td>v1.11.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 fairly satisfied</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 (somewhat) dissatisfied</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>How satisfied are you with your studies concerning the organisation of studies and timetable?</td>
<td>1 (very) well satisfied</td>
<td>v1.11.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 fairly satisfied</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 (somewhat) dissatisfied</td>
<td></td>
</tr>
</tbody>
</table>
Students were asked to rate 12 aspects that can represent obstacles for studying abroad, on a scale from 1 - Big obstacle to 5 - No obstacle. The statements are given in Table 3.

Table 3: Variables included in the model

<table>
<thead>
<tr>
<th>No.</th>
<th>Variable</th>
<th>Categories</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>How satisfied are you with your studies concerning the possibility to select from a broad variety of courses?</td>
<td>1 (very) well satisfied</td>
<td>v1.11.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 fairly satisfied</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 (somewhat) dissatisfied</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>How satisfied are you with your studies concerning the university administration's attitude towards students?</td>
<td>1 (very) well satisfied</td>
<td>v1.11.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 fairly satisfied</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 (somewhat) dissatisfied</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>How satisfied are you with your studies concerning the teaching staff’s attitude towards students?</td>
<td>1 (very) well satisfied</td>
<td>v1.11.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 fairly satisfied</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 (somewhat) dissatisfied</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>How satisfied are you with your studies concerning the study facilities?</td>
<td>1 (very) well satisfied</td>
<td>v1.11.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 fairly satisfied</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 (somewhat) dissatisfied</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>How do you rate your chances at the labor market after graduating from your current study program? - on international level</td>
<td>1 Very good</td>
<td>v1.12.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 -</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 -</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 -</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 Very poor</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>How do you rate your chances at the labor market after graduating from your current study program? - on national level</td>
<td>1 Very good</td>
<td>v1.12.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 -</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 -</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 -</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 Very poor</td>
<td></td>
</tr>
</tbody>
</table>

To what extent are or were the following aspects an obstacle for studying abroad to you?

<table>
<thead>
<tr>
<th>No.</th>
<th>Variable</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>Insufficient skills in a foreign language</td>
<td>v4.9a</td>
</tr>
<tr>
<td>28</td>
<td>Lack of information provided by my HE institution</td>
<td>v4.9b</td>
</tr>
</tbody>
</table>
Social dimension of international student mobility

29 Separation from partner, child(ren), friends \(v4.9c\)
30 Additional financial burden \(v4.9d\)
31 Loss of paid job \(v4.9e\)
32 Lack of motivation \(v4.9f\)
33 Low benefit for my studies at home \(v4.9g\)
34 Difficult integration of studying abroad into the structure of my home study program \(v4.9h\)
35 Problems with recognition of results achieved abroad \(v4.9i\)
36 Problems with access regulations to the preferred country (visa, residence permit) \(v4.9j\)
37 Insufficient marks for studying abroad \(v4.9k\)
38 Limited admittance to mobility programs (of home/host institution) \(v4.9l\)

Models' performance is summarized in Table 4. For all three countries, Omnibus Tests of Model Coefficients of the model with all predictors included against a constant-only model was statistically significant (Serbia \(\chi^2(105) = 413.704, p=.000\), Montenegro \(\chi^2(104) = 262.099, p=.000\), Bosnia \(\chi^2(104) = 283.389, p=.000\)). These results are indicating that the set of predictors make reliable distinction between students with positive and negative attitude toward international mobility.

Table 4: Omnibus Tests of Model Coefficients

<table>
<thead>
<tr>
<th>Country</th>
<th>Chi-square</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Serbia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1</td>
<td>Step</td>
<td>413.704</td>
<td>105</td>
</tr>
<tr>
<td>Block</td>
<td>413.704</td>
<td>105</td>
<td>.000</td>
</tr>
<tr>
<td>Model</td>
<td>413.704</td>
<td>105</td>
<td>.000</td>
</tr>
<tr>
<td>2 Montenegro</td>
<td>Step 1</td>
<td>262.099</td>
<td>104</td>
</tr>
<tr>
<td>Block</td>
<td>262.099</td>
<td>104</td>
<td>.000</td>
</tr>
<tr>
<td>Model</td>
<td>262.099</td>
<td>104</td>
<td>.000</td>
</tr>
<tr>
<td>3 Bosnia</td>
<td>Step 1</td>
<td>283.389</td>
<td>105</td>
</tr>
<tr>
<td>Block</td>
<td>283.389</td>
<td>105</td>
<td>.000</td>
</tr>
<tr>
<td>Model</td>
<td>283.389</td>
<td>105</td>
<td>.000</td>
</tr>
</tbody>
</table>

There was a good model fit on the basis of all 38 predictors for all 3 countries. To evaluate the goodness of fit of the logistic regression model, two Pseudo R² measures were calculated: Cox and Snell's and Nagelkerke's Pseudo R². These values, presented in Table 4, were used for estimation of the model fitting to the data. Both are transformations of the -2log likelihood values. In other words, both coefficients mean the power of explanation of the model and represent the
improvement of the model we are using over the null model with no independent variables. The results show that the explanation of the model for Serbian data is 28.2%, for Montenegro 56.2% and for Bosnia 36.9%.

Table 5: Model Summary

<table>
<thead>
<tr>
<th>Country</th>
<th>Step</th>
<th>-2 Log likelihood</th>
<th>Cox &amp; Snell R Square</th>
<th>Nagelkerke R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serbia</td>
<td>1</td>
<td>1962.356a</td>
<td>.208</td>
<td>.282</td>
</tr>
<tr>
<td>Montenegro</td>
<td>1</td>
<td>395.464b</td>
<td>.416</td>
<td>.562</td>
</tr>
<tr>
<td>Bosnia</td>
<td>1</td>
<td>919.058c</td>
<td>.274</td>
<td>.369</td>
</tr>
</tbody>
</table>

The results of the Hosmer and Lemeshow Test in the table below support the hypothesis that the developed models are good. This test specifies the extent to which our model provides a better fit than a null model with no predictors and shows how well the models fit the data. Well-fitting models show insignificance on the goodness-of-fit test (Serbia $x^2(8) = 5.631$, p = .688, Montenegro $x^2(8) = 11.804$, p = .160, Bosnia $x^2(8) = 9.619$, p = .293), indicating models predictions are not significantly different from the observed values.

Table 6: Hosmer and Lemeshow Test

<table>
<thead>
<tr>
<th>Country</th>
<th>Step</th>
<th>Chi-square</th>
<th>Df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serbia</td>
<td>1</td>
<td>5.631</td>
<td>8</td>
<td>.688</td>
</tr>
<tr>
<td>Montenegro</td>
<td>1</td>
<td>11.804</td>
<td>8</td>
<td>.160</td>
</tr>
<tr>
<td>Bosnia</td>
<td>1</td>
<td>9.619</td>
<td>8</td>
<td>.293</td>
</tr>
</tbody>
</table>

The results of the overall classification are presented in Table 7. The classification table shows the accuracy of the model. The overall correct classification rate was 72.2% for Serbia, 84.3% for Montenegro and 74.6% for Bosnia.

Table 7: Classification Table

<table>
<thead>
<tr>
<th>Country</th>
<th>Observed</th>
<th>Predicted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mobility</td>
<td>Percentage Correct</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Serbia</td>
<td>mobility</td>
<td>898</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>312</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Now, the models can be used to predict the odds that a student will have positive or negative attitude towards international mobility. Finally, the following tables show regression coefficients, chi-square tests of them, as well as odds ratios (Exp(B)) and the 95% confidence intervals for the set of predictors that have statistically significant enhanced prediction.

Table 8: Serbia

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
<th>95% CI for Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>e_intens(2)</td>
<td>.791</td>
<td>.195</td>
<td>16.403</td>
<td>1</td>
<td>.000</td>
<td>2.205</td>
<td>1.504  3.233</td>
</tr>
<tr>
<td>e_qualification(2)</td>
<td>-0.718</td>
<td>0.343</td>
<td>4.395</td>
<td>1</td>
<td>.04</td>
<td>0.488</td>
<td>0.249  0.954</td>
</tr>
<tr>
<td>v1.11.3(2)</td>
<td>0.456</td>
<td>0.161</td>
<td>8.012</td>
<td>1</td>
<td>.00</td>
<td>1.578</td>
<td>1.151  2.165</td>
</tr>
<tr>
<td>v1.11.6(2)</td>
<td>-0.588</td>
<td>0.197</td>
<td>8.899</td>
<td>1</td>
<td>.00</td>
<td>0.556</td>
<td>0.378  0.817</td>
</tr>
<tr>
<td>v1.12.2(1)</td>
<td>-0.469</td>
<td>0.195</td>
<td>5.804</td>
<td>1</td>
<td>.02</td>
<td>0.626</td>
<td>0.427  0.916</td>
</tr>
<tr>
<td>v3.1.3</td>
<td>1.711</td>
<td>0.733</td>
<td>5.450</td>
<td>1</td>
<td>.02</td>
<td>5.535</td>
<td>1.316  23.281</td>
</tr>
<tr>
<td>v3.8(1)</td>
<td>-0.580</td>
<td>0.235</td>
<td>6.120</td>
<td>1</td>
<td>.01</td>
<td>0.560</td>
<td>0.353  0.886</td>
</tr>
<tr>
<td>v3.8(2)</td>
<td>-0.507</td>
<td>0.221</td>
<td>5.291</td>
<td>1</td>
<td>.02</td>
<td>0.602</td>
<td>0.391  0.928</td>
</tr>
<tr>
<td>v3.8(3)</td>
<td>-0.537</td>
<td>0.250</td>
<td>4.634</td>
<td>1</td>
<td>.03</td>
<td>0.584</td>
<td>0.358  0.953</td>
</tr>
<tr>
<td>v4.9a(1)</td>
<td>0.581</td>
<td>0.258</td>
<td>5.066</td>
<td>1</td>
<td>.02</td>
<td>1.788</td>
<td>1.078  2.964</td>
</tr>
<tr>
<td>v4.9a(2)</td>
<td>0.699</td>
<td>0.239</td>
<td>8.552</td>
<td>1</td>
<td>.00</td>
<td>2.012</td>
<td>1.259  3.216</td>
</tr>
<tr>
<td>v4.9a(3)</td>
<td>0.997</td>
<td>0.247</td>
<td>16.328</td>
<td>1</td>
<td>.00</td>
<td>2.710</td>
<td>1.671  4.394</td>
</tr>
<tr>
<td>v4.9a(4)</td>
<td>0.920</td>
<td>0.237</td>
<td>15.116</td>
<td>1</td>
<td>.00</td>
<td>2.509</td>
<td>1.578  3.989</td>
</tr>
<tr>
<td>v4.9b(3)</td>
<td>-0.668</td>
<td>0.245</td>
<td>7.436</td>
<td>1</td>
<td>.01</td>
<td>0.513</td>
<td>0.317  0.829</td>
</tr>
<tr>
<td>v4.9b(4)</td>
<td>-0.947</td>
<td>0.269</td>
<td>12.361</td>
<td>1</td>
<td>.00</td>
<td>0.388</td>
<td>0.229  0.658</td>
</tr>
<tr>
<td>v4.9c(2)</td>
<td>0.752</td>
<td>0.189</td>
<td>15.823</td>
<td>1</td>
<td>.00</td>
<td>2.122</td>
<td>1.465  3.073</td>
</tr>
<tr>
<td>v4.9c(3)</td>
<td>0.639</td>
<td>0.206</td>
<td>9.579</td>
<td>1</td>
<td>.00</td>
<td>1.894</td>
<td>1.264  2.838</td>
</tr>
<tr>
<td>v4.9c(4)</td>
<td>0.931</td>
<td>0.192</td>
<td>23.439</td>
<td>1</td>
<td>.00</td>
<td>2.537</td>
<td>1.740  3.699</td>
</tr>
<tr>
<td>v4.9d(1)</td>
<td>0.954</td>
<td>0.161</td>
<td>34.893</td>
<td>1</td>
<td>.00</td>
<td>2.595</td>
<td>1.891  3.562</td>
</tr>
</tbody>
</table>
Table 8 displays significant predictors for the Serbian model. Only intensity of studies, qualification, persons with whom students live during study term and students’ rate of experiencing financial difficulties, from the socio-demographics predictors set, have a significant contribution to the model predictions.

The estimated odds ratios can be interpreted in the following way. The probability that a student will have positive attitude toward mobility is 2.205 higher for students in high intensity group than in low intensity group of students. It can also be seen that the probability that a student will have positive attitude toward mobility is 0.5 times lower for PhD students than for bachelor students. The highest odds ratio of 5.535 is estimated for the predictor related to accommodation during studies. Especially students who do not live with their family have almost six times higher probability to enroll abroad than students who live with their parents or relatives.

As expected, significant predictors are also student satisfaction with their studies concerning the possibility of selecting a broad variety of courses, concerning study facilities and their perspective about chances at the labor market after graduating from their current study on international level.

Examining possible reasons and potential obstacles for studying abroad proved to be considerably important in predicting mobility rates. Most of the included variables from this set of predictors enhanced probability predictions. Namely, students’ rate has turned out to be significant for the following aspects: insufficient skills in a foreign language, lack of information provided by their HE
institution, separation from partner, child(children) or friends, additional financial burden, lack of motivation, difficult integration of studying abroad into the structure of their home study program and problems with recognition of the results achieved abroad.

Table 9: Montenegro

<table>
<thead>
<tr>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>Df</th>
<th>Sig.</th>
<th>Exp(B)</th>
<th>95% C.I. for EXP(B)</th>
</tr>
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<tbody>
<tr>
<td>e_age(2)</td>
<td>-1.912</td>
<td>.591</td>
<td>10.470</td>
<td>.001</td>
<td>.148</td>
<td>.046 .471</td>
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<tr>
<td>v1.11.2(1)</td>
<td>.863</td>
<td>.425</td>
<td>4.112</td>
<td>.043</td>
<td>2.370</td>
<td>1.029 5.455</td>
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<td>v1.12.2(1)</td>
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<td>.575</td>
<td>4.568</td>
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<td>.293</td>
<td>.095 .903</td>
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<td>v.3.2</td>
<td>-1.455</td>
<td>.663</td>
<td>4.811</td>
<td>.028</td>
<td>.233</td>
<td>.064 .857</td>
</tr>
<tr>
<td>v4.9a(3)</td>
<td>1.465</td>
<td>.740</td>
<td>3.914</td>
<td>.048</td>
<td>4.326</td>
<td>1.014 18.463</td>
</tr>
<tr>
<td>v4.9b(3)</td>
<td>-1.336</td>
<td>.591</td>
<td>5.108</td>
<td>.024</td>
<td>.263</td>
<td>.083 .837</td>
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<tr>
<td>v4.9c(1)</td>
<td>1.355</td>
<td>.571</td>
<td>5.632</td>
<td>.018</td>
<td>3.876</td>
<td>1.266 11.867</td>
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<tr>
<td>v4.9c(3)</td>
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<td>.605</td>
<td>9.606</td>
<td>.002</td>
<td>6.531</td>
<td>1.993 21.396</td>
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<td>v4.9c(4)</td>
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<td>.559</td>
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<td>1.302 11.637</td>
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<td>v4.9d(1)</td>
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<td>4.530</td>
<td>1.912 10.732</td>
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<td>v4.9d(2)</td>
<td>1.722</td>
<td>.526</td>
<td>10.693</td>
<td>.001</td>
<td>5.593</td>
<td>1.993 15.695</td>
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<tr>
<td>v4.9d(3)</td>
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<td>5.068</td>
<td>.024</td>
<td>7.699</td>
<td>1.302 45.521</td>
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<td>v4.9f(1)</td>
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<td>4.223</td>
<td>.040</td>
<td>.179</td>
<td>.035 .924</td>
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<td>v4.9i(1)</td>
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<td>.719</td>
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<td>1.427 23.953</td>
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<td>.714</td>
<td>4.670</td>
<td>.031</td>
<td>4.683</td>
<td>1.155 18.992</td>
</tr>
</tbody>
</table>

On the contrary to the Serbian model, the most significant socio-demographic predictors in the Montenegrin model are age and accommodation, although odds ratios are quite low. Interestingly, satisfaction concerning the organisation of studies and timetable, as well as students' perspective about their chances at the labor market on the national level after graduating has shown significant contribution to model prediction.

Similarly to the Serbian model, predictors from the set of potential obstacles have important contribution to the model. Students' perceptions of insufficient skills in a foreign language, lack of information provided by their HE institution, separation from partner, child(children) or friends, additional financial burden and problems with recognition of results achieved abroad as possible obstacles for studying abroad have high influence on the model.

The highest odds ratio of 7.699 is estimated for the predictor related to additional financial burden as an obstacle for realization of international mobility.
Students who do not perceive this aspect as a big obstacle have almost eight times higher probability to enroll abroad than students who consider it a big obstacle.

Table 10: Bosnia

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>S.E.</th>
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<th>df</th>
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<th>Exp(B)</th>
<th>95% C.I.for EXP(B)</th>
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</thead>
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<td>.016</td>
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<tr>
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<td>.248</td>
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<td>.293</td>
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<td>.000</td>
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<td>.069</td>
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<td>.500</td>
<td>5.154</td>
<td>1</td>
<td>.023</td>
<td>.321</td>
<td>.120</td>
</tr>
<tr>
<td>v4.9k(4)</td>
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<td>.519</td>
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<td>1</td>
<td>.021</td>
<td>.302</td>
<td>.109</td>
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<td>.385</td>
<td>8.877</td>
<td>1</td>
<td>.003</td>
<td>.317</td>
<td>.149</td>
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</table>

As for the Bosnian model, significant socio-demographic predictors are: funding of studies (status), qualification, education of parents and students' rate of experiencing financial difficulties. Self-financing students have 0.5 lower probability to have positive attitude about mobility than budget students. Also, students whose parents are highly educated have almost two times higher probabilities to experience mobility than students whose parents do not have higher education.

Significant contribution of predictors from the group of possible obstacles is proven in the Bosnian model, too. Namely, it refers to the following aspects: insufficient skills in a foreign language, separation from partner, child(children) or friends, additional financial burden, lack of motivation, insufficient marks for
Social dimension of international student mobility

studying abroad and limited admittance to mobility programs (of home/host institution).

The highest odds ratio of 19.542 is estimated for the predictor related to students' lack of motivation. Intuitively, it is clear that students who do not consider lack of motivation as an obstacle have higher probability to enroll abroad.

4. Conclusion

Why is it so important for developing countries, and especially for Serbia, Montenegro and BIH to improve the mobility of their students? International student mobility will help improve human capital formation and education systems. On the basis of the existing education infrastructure and long tradition in higher education as a good starting point, countries in the region have the opportunity to change their role in the world of higher education, and to make transformation from sending country to host country for international students.

International student migration for developing countries also brings the brain drain as a consequence. "Brain drain has long been viewed as a serious constraint on poor countries’ development. However, recent theoretical references suggest that migration prospects can raise the expected return to human capital and foster investment in education at home." (Beine, Docquier, & Rapoport, 2008). Even if a certain number of international students decide to stay abroad after their studies, brain drain will not have exclusively negative effects for sending countries, because it will still contribute to human capital formation, development of domestic education system, return migration with additional skills acquired abroad, creation of scientific and business networks, remittances, etc.

In this paper, we determined the factors influencing students' decision to involve in temporary mobility programs and highlighted the aspects that can increase mobility rates in all three countries. Based on EUROSTUDENT survey conducted in Serbia, Montenegro and BIH, it is necessary to pay attention not only to socio-demographic characteristics, but to focus on students' satisfaction and possible obstacles for studying abroad.

REFERENCES


Social dimension of international student mobility


Abstract: We can define social inequality as absence of equal opportunities and existence of rewards for different social positions within society. In the area of higher education, it is mostly related to access to academic education, but also to possibility of success. Relying on the results of EUROSTUDENT survey, this paper is the presentation of analysis of social inequalities in higher education of Serbia, Bosnia and Herzegovina and Montenegro, discussion about the current situation and recommendation of potential tools to address the challenge of social differences in the region. The main idea in this paper is to answer the question whether higher education in the region is reducing social inequalities or it is just a channel for reproducing the already existing differences in social status. The second question is whether there are significant differences among the three countries when it comes to social inequalities. This is a quantitative analysis based on large samples from three countries and includes comparative analysis, focusing on the effects of socioeconomic background on education careers and on socioeconomic differences across student population. On the basis of the obtained indicators and test results, the general conclusion is that higher education systems in all three countries are the channels for reproducing social inequalities. Additionally, if we compare the systems of the three countries and magnitude of inequalities, the conclusion is that inequalities are very pronounced in all three counties, with a slightly better position in the case of Montenegro.

Keywords: higher education, social inequalities, reproduction, socioeconomic background, survey, quantitative analysis.

1. Introduction

One of the core research topics in the analysis of higher education is the question of inequalities and their reproduction. We can define social inequality as
the absence of equal opportunities and existence of rewards for different social positions within society. In the area of higher education, it is mostly related to access to academic education, but also to possibility of success. Social inequality has influence on nearly all aspects of people's lives, including education. Higher education system in one society is considered an important factor of fighting social inequalities and diminishing their negative effects.

Reproduction of social inequalities during education can lead to social exclusion, which can be seen as absolute or relative. Absolute exclusion is the situation when a certain social group is completely absent from higher education, although it can be easily identified in a society. For example, in the case of Serbia, the Roma population is almost entirely excluded from higher education. According to official statistical data from census in 2011, Roma constitute 2.07% of the population, while their participation in higher education is around 0.07% (Statistical Office of the Republic of Serbia, 2015). In Montenegro, where currently live around 1.01% Roma, the situation is similar, while in Bosnia and Herzegovina we do not have available data about the national structure in the country since 1991.

A relative exclusion is the case when a certain social group is under-represented in higher education in comparison with its proportion in the overall population. This is very often the case with students whose parents are in the “blue collar” occupations, students whose parents are at lower educational levels, students with children or students with some kind of disability, long standing health problems or functional limitations - chronic diseases.

In the societies where different kinds of inequalities exist, there is a tendency of systematic exclusion of social groups with poorer socioeconomic backgrounds, which is in line with the hypothesis of maximally maintained inequality, developed by Raftery and Hout (1993). Additionally, when certain level of education becomes accessible to all social groups, the inequalities shift to higher education level through limitation of access, progress and completion for members of disadvantaged groups.

Additionally, we can also speak about internal exclusion, where a certain social group is adequately represented in higher education as a whole, but it is not proportionally represented across different HE institutions, or across different fields of study. The case of internal exclusion is explained through hypothesis of effectively maintained inequality in Lucas (2001).

According to Guri-Rosenblit et al. (2007), enrolment growth in HE has created strong pressures on policy makers in trying to cope with various problems associated with expansion of the HE boundaries. “Even as enrolment has expanded, participation has rarely been representative of the society as a whole. Within most nations, access to higher education is often (still) the privilege of specific segments of society.” (Altbach, Reisberg, & Rumbley, 2009). Increase of enrolment into higher education in the region (Serbia, Montenegro and Bosnia and Herzegovina) has created a demand for quality assurance and accreditation through implementation
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of the Bologna declaration, but little or nothing has been done at universities when it comes to challenging inequalities. Increased access raised the cost of education for the society and individuals. Since the Serbian, Montenegrin and Bosnian governments are not able to finance wider access, the burden is on those who are least able to pay it, first-generation students and low-income households.

Education systems in the region must have an important role in tackling socioeconomic inequalities, encouraging and enabling more students from less advantaged backgrounds to apply to the HEIs, and also to successfully complete the studies. The system must provide open access to young people from different social classes with different educational backgrounds, from rural and urban areas, to students who are the first in their families to be enrolled into higher education institutions, etc. Increase of enrolment requires better facilities and universities must keep up with raising demand, both in infrastructure (libraries, internet access, study facilities etc.) and in courses needed to raise learning capacities of disadvantaged groups and to graduate.

The main idea of this paper is to answer the question whether higher education in Serbia, Bosnia and Herzegovina and Montenegro is reducing social inequalities or it is just a channel for reproducing the already existing inequalities in social status. The second question is whether there are significant differences among the three countries when it comes to social inequalities. This is a quantitative analysis based on large samples from three countries and includes comparative analysis, focusing on the effects of socioeconomic background on education careers and on socioeconomic differences across student population.

The issue of social inequalities in higher education is a very complex one and demands a comprehensive approach to obtain the full picture of the problem and the intertwined processes. In order to understand the complexity of the phenomenon in question, one must have in mind different levels of inequalities: from inequalities of access to inequalities of success, from individual to collective and institutional inequalities, etc. Relying on the results of EUROSTUDENT survey, this paper is the presentation of analysis of social inequalities in higher education of Serbia, Bosnia and Herzegovina and Montenegro, discussion about the current situation and recommendation of potential tools to address the challenge of social differences in the region. The results of EUROSTUDENT survey will help us understand the size and the nature of social inequalities at higher education institutions in the region, most of all in the case of inequalities of success. Although it is not a longitudinal study and without the information about some key characteristics that are important for analysis of social inequalities, like nationality or household income, the EUROSTUDENT results are a significant contribution for better understanding of the phenomenon. Through comparison of survey results about student population in the region, with the data available from national statistical offices of the three countries in question, we will be able to answer the
question if the existing differences in general population have the same magnitude at higher educational institutions. Also, through comparison of social inequalities in higher education across three countries in the Balkan region, it will be possible to draw the conclusions about differences among Serbia, Bosnia and Herzegovina and Montenegro.

In this study, a multi-dimensional approach has been implemented through analysis of several variables: age, gender, highest level of education obtained by parents, occupation of parents, socioeconomic status, etc. On the basis of quantitative analysis of available variables, we will be able to answer the research question about the role of higher education in the region from the aspect of social inequalities and to define recommendations and policy measures for reduction of existing inequalities.

2. Contemporary views on inequalities in higher education

The issue of inequality in higher education has increasing importance in modern science. “Since sociology of higher education emerged as an important research domain in the 60s, inequalities have been one of the core research topics in the analysis of higher education systems.” (Clark, 2007). Goastellec is explaining the reasons: “The more the number of students increases, the more the role of higher education systems in the production or reproduction of one society is questioned.” (Goastellec, 2010).

Research of inequalities in higher education and in education in general is oriented towards analysis of inequalities in socioeconomic, ethnic and racial background and their transfer and reproduction in an education system. “Two main streams of research on this relationship can be identified: one focusing on the effects of socioeconomic background (SEB) on education careers and attainment, and the other focusing on the impact of education on social mobility, i.e. increasing one’s social status or class.” (Vukasović & Sarrico, 2010). Some authors are oriented towards one specific inequality, like Vincent-Lancrin, who pointed out the reversal trends in gender inequality in higher education (Vincent-Lancrin, 2008).

Lever is underlying the strong relationship between hierarchical fragmentation of HE and different forms of inequalities. “As they interweave, they add important mechanisms that reinforce inequalities and create asymmetries in the opportunities for knowledge and access to networks of various qualities.” (Lever, 2015).

Higher education has a crucial role to play in addressing the issues of social inequalities and social mobility, but to do so, it must transform itself. According
Finding the right path

to Thomas (Thomas, 2012), “Higher education institutions play dual roles of both gatekeepers and enablers with regard to social justice, and much of their effort is, perhaps inadvertently, spent on blaming others, and reproducing elitism and disadvantage. Thus, a higher education qualification has increasingly become a positional good of diminishing value, making it less attractive to historically excluded groups and further entrenching inequality.” Thomas and other authors in Hall (2012) argue for moving away from equality of opportunity and reject the comforting, but simple idea of a level playing field which allows disadvantaged groups of students to break the inter-generational cycle of poverty and exclusion. They advocate that simply providing more information, advice and guidance about higher education is insufficient. It is necessary to introduce a wide range of institutional transformation of the selection and admission processes, the curriculum and the organisational culture.

The connection between disadvantaged groups in society and disadvantaged students has been discussed in a substantial number of research studies. In terms of scientific methodology, we can notice two main directions in research: first is quantitative approach, which often includes statistical or econometrical modelling, based on the representative sample and with comparative purposes, and second in the form of qualitative studies based on interviews, with more psychological or ethnographical approach.

Jaoul-Grammare (2007) implemented quantitative analysis by analysing the probability for a student to pursue his studies depending on variables such as gender, high school degree type, characteristics of their previous schooling, type of higher education institution, and also profession and origin of his parents. The results brought her to conclusion that the influence of social factors on the success in HE is increasing with time during studies. According to the author, the school system in France increases social and cultural inequalities, or the so called “Matthew effect” is present (Jaoul-Grammare, 2007).

“Why such disparities occur is not an easy question to answer” (Boliver, 2013). In its report, Social Mobility and Child Poverty Commission in the UK tried to give possible explanations about social disparities in HE: “Low aspirations among students from less advantaged backgrounds and their parents and teachers, lack of knowledge of the applications process, not choosing the right subjects at A-level, under-prediction of A-level grades for those from less advantaged backgrounds, less familiarity with admission processes (e.g. less advantaged students that do apply are more likely to apply to the most over-subscribed courses), applicant concerns that selective universities are socially exclusive and “not for the likes of them” and difficulties for those from less advantaged backgrounds in demonstrating their academic potential in the admission process (e.g. knowledge of, preparation for and confidence in interviews).” (Social Mobility and Child Poverty Commission, 2013). In the United Kingdom, the Social Mobility and Child Poverty Commission expressed
the need for further research in order to explore the reasons for the existence of the fair access gap in more detail, because there are a number of possible factors of the fair access gap, but a lack of evidence about the relative importance of each one.

In their research study, Archer et al. (2003) are underlying the importance of availability of comparable information for all, in order to obtain wider participation, because students are making their choice on the basis of available information. On the other hand, there is also evidence that the relationship between available information and decision-making process is not that simple. While applicants from social groups with higher social standard are pushed towards better HE institutions and study programs, and make good use of the cultural capital of friends and relatives who have participated in higher education, potential students from disadvantaged social groups are far more likely to collect their own information and make their own decisions, with the support of their families. "Such decisions are often based on combinations of 'hot' knowledge from friends, the cultural familiarity of prospective universities and assumed self-limitations. This represents a balance between risks, costs and benefits. " (Archer, Hutchings, & Ross, 2003).

The same authors are concluding that problem of identity is crucial in the manner in which different social groups negotiate education systems. "There is no singular “working-class identity” or "view" of higher education, and data from our study reveal a multitude of ways through which working-class individuals actively resist, or embrace, higher education as a possibility" (Reay, David, & Ball, 2005)

Reay et al. (2005) studied 500 university applicants in the United Kingdom between 1998 and 2000 from different schools and colleges, in order to understand in detail the differences in perceptions and actions of different social categories of potential students. Those from families with better social status, aspiring to better universities and programs, live out what Reay, David and Ball call 'normal biographies' – routes that are anticipated earlier. They are grounded in the habitus of their families and often it means just several decisions about their future. These routes are significantly supported by the institutional cultures of their schools, interlocked with the universities to which they are aiming for.

Totally opposite is the habitus of potential working-class students. For these applicants, routes to higher education are characterised by doubt, ambivalence, shame and deliberative decision-making: “choice for a majority involved either a process of finding out what you cannot have, what is not open for negotiation and then looking at the few options left, or a process of self-exclusion…. Material circumstances meant that a majority were operating within narrow circumscribed spaces of choice, in which the location of university becomes crucial" (Reay, David, & Ball, 2005). Authors are commenting on that situation as being 'caught between two opposing shames'. From one side, there is the risk of aiming too high and then failing, but on the other side, there is the shame of under-achieving, of studying at a HE institution of which they could not be proud.
Kwiek (2015) is pointing out that access to HE for young people from lower socioeconomic strata is severely restricted across all European countries, and particularly in Central Europe. In the case of inequalities in higher education in Balkan countries, the situation is problematic because the general perception is that large inequalities exist in many forms, but there is a lack of information about their nature and magnitude.

One of the most comprehensive analyses about disadvantaged students in Serbia was conducted by Vukasović and Sarrico (2010). In their study, a multi-dimensional approach was implemented, covering the period between 2000 and 2005, a period of significant economic and political transitions in the country, including the transition of the education system. The authors abandoned the classic approach concentrating on the professional status of parents as an indication of students' socioeconomic status. They relied on a number of studies that focused on similar issues (Archer et al. (2003); Marks (2005); Morrow and Torres (1994); Peck (2001)) through analysis of the influence of students' characteristics on their educational career, especially in higher education, as well as an analysis of possible interactions between these characteristics and their joint influence on the career in education. This is a multi-dimensional approach to inequalities in education through inclusion of a number of elements: gender, age, race/ethnicity, education of parents, employment and professional status of parents, citizenship, participation in cultural events, possession or access to high culture at home, participation of both students and parents in social networks, etc.

Authors are admitting that "although it is essential to approach the issue of stratification in more complex terms than the sole professional status or educational attainment of parents, i.e. to include other student characteristics in defining disadvantaged social groups, this is possible only if such data is collected in a systematic manner, which is not the case in Serbia. The current classification of occupations originates from socialist times and is not really useful for analysing occupational status. Other data, e.g. access to high culture, is not collected and some data (e.g. employment of students) is not reliable due to a significant grey economy. These are the reasons why the study presented here used only the parents' level of education as a reliable element of socioeconomic background". (Vukasović & Sarrico, 2010). The authors were using the data from the national statistical office about enrolment and completion of higher education undergraduate programs and statistical data related to general demography or education as a whole.

Vukasović and Sarrico have identified several elements of the enrolment process into higher education, which pose obstacles to equality: “First, entrance exams are organized by individual faculties in their own headquarters. Students living outside of such university centres have additional costs of travel and possibly accommodation in order to sit for the entrance exams. Second, faculties charge fees
Higher Education as a Channel for Reproducing Social Inequalities

for administering entrance exams. This may be a significant expense for students of modest economic means. Third, faculties often organize preparatory courses for their entrance exams for which they charge fees. Similar to the two previous examples, these courses may be an obstacle for students living outside university centres or students without sufficient economic means." (Vukasović & Sarrico, 2010).

At the end of their research, Vukasović and Sarrico came to the conclusion that the presented data showed evidence of under-representation of several groups in society with respect to higher education, both in terms of external and internal under-representation. Also, the authors claim that there is accumulation of disadvantages in HE institutions, and that those students who are of less favourable socioeconomic background are more likely to repeat semesters or leave the HE system entirely.

When it comes to policy measures aimed at fighting inequalities, the accent is on affirmative actions. According to Moses (2010), "Common justifications for affirmative action in higher education admissions typically fall into four substantive categories: remediation, highlighting that affirmative action compensates for past discrimination; practicality, highlighting affirmative action as one way to help disadvantaged people participate more fully in society and pave the way for others coming after them; diversity, highlighting affirmative action's role in increasing diversity on campus and amongst officeholders in society; and social justice, highlighting affirmative action as one important tool in the quest for greater equity and justice."

Dupper (2004) is dividing these four categories from the aspect of justification into instrumental and moral, or backward-looking and forward-looking. Instrumental justification for affirmative action policies is to use these policies to reach a certain goal, for example provide society with successful role models from disadvantaged groups or create diverse HE institutions. Moral justification is going for deeper beliefs about what is the right thing to do and how to treat disadvantaged members of the society. Practicality and diversity rationales are instrumental affirmative actions and remediation and social justice rationales are the moral type.

When it comes to remediation, the goal is moral justification aimed at making up for past wrongs, and the accent is on compensatory, corrective action to repair unfair treatment by race, ethnicity, or sex. More on remediation was written by Moses (2010).

The rationale behind practicality lies in the need for better education of disadvantaged groups and their inclusion in the working force. The second goal is development of role models for underprivileged youth, in order for them to see the chance and significance of becoming a contributing member of society. Many authors wrote about practicality, for example Gándara (1995), Soria and Bultmann (2014) and Bowen and Bok (1998). Soria and Bultman (2014) stressed the importance of advisors for working-class students.
When it comes to the concept of "diversity", a significant number of researchers have found large positive educational benefits in diverse classrooms and campuses (Antonio et al. (2004), Chang et al. (2003), Gurin et al. (2002), Hurtado et al. (2003), Marin (2000), Jenkins (2008), Moses and Chang (2006), Moses (2008), Saggagh (2008)). Students were improving their learning experience, developing critical thinking, problem solving abilities, and they were prepared for living in a diverse society. The main characteristic of diversity concept is its focus on academic ability which is needed for a flexible assessment of applicants' talents, experiences, and the potential "to contribute to the learning of those around them." (Moses M., 2010).

Social justice as an affirmative action represents strong and moral justification, where the accent is on equity and redistribution of resources. Many authors are stressing the importance of social justice rationale (Moses and Chang (2006), Bell (2003), etc.). It can be seen in the context of backward-looking rationale with the aim to right past wrongs and the legacy of those wrongs.

Affirmative action policies are the tool for mitigation of social inequalities and instrumentality for building higher education with equal opportunities for all groups in a society. Any claim that affirmative action is synonymous with social justice is an overstatement, with putting too much power and belief into this one policy.

Affirmative action is an important tool and it must be included in a comprehensive strategy aimed at social change toward equal educational access, opportunity, and equity in general, along with other social policies and programs, like universal preschool and primary school, bilingual education, and democratic education reforms. Its significance and meaning are constantly debated around the world, but it is clear that increased access and opportunity obtained through affirmative action policy brings social justice to students who, for one reason or another, are disadvantaged in a society.

"Affirmative action can be seen as a compensatory policy that is merely a "Band-Aid" that does not address larger social problems and structural inequalities that create and complicate inequities in higher education access and opportunity." (Donahoo, 2008). Sachs (2006) is stressing the importance of analysing the experience of other countries in the world in implementation of affirmative actions in adaptive and contextual manner, with all its strengths and imperfections, which comes from its ambiguity and adaptability. Affirmative action policies are not easily transferable from one HE system to another, not even in the case of such similar countries as Serbia, Montenegro and BIH, although they have a core feature.

3. Ambiguity of higher education institutions

Universities in the region and their practices play a crucial role. Hall (2012) emphasizes that that role was actually ambiguous for a long time. Institutions
of higher education are simultaneously gatekeepers for the existing system of inequality, and also playing a role of transformative institutions providing social justice through inter-generational changes in circumstances.

It can be stated that institutions of higher education have progressive influence, through provision of educational opportunities on the basis of neutral measures of merit. But this influence is inherently ambiguous. While institutions definitely are offering life-changing opportunities, they are also retaining differentiation by exclusion and ranking, and contributing to lasting inequalities.

The phenomenon of ambiguity of higher education is explained by Bourdieu on the example of the education system in France. Bourdieu describes how selection and categorisation work through the interactions between individual students and institutional processes: "disciplines choose their students as much as students choose their disciplines, imposing upon them categories of perception of subjects and careers, as well as of their own skills... the belief that one has been predestined, a conviction produced or reinforced by academic verdicts (often expressed in the language of "gifts") and largely determinative of "vocations" is one of the means by which the predictions of the institution are realised'. The result is that the university, 'with no explicit instructions and, most of the time, even contrary to the intentions both of the agents who assign it its objectives and most of those who are supposed to realise them, is able to function like an immense cognitive machine, operating classifications that, although apparently completely neutral, reproduce pre-existing social classifications." (Bourdieu, 2012).

4. Operationalization of inequalities

In order to analyze inequalities in higher education, it is possible to approach the problem from two aspects: from the aspect of opportunities, which is rather difficult, since the concept of opportunity is complex for operationalization, and from the aspect of disadvantages, which can be defined as a smaller probability of a certain event to happen to a student with certain characteristics, for example when it comes to enrolment, progress or completion of higher education compared to the other students that often, according to one or more characteristics, constitute a majority of student population.

In the majority of research studies about inequality in education, the orientation is towards analysis of the entrance into higher education, of visible and measurable events during education, because of difficulties in operationalization of progress and completion of studies. In terms of outcomes, added value through obtained competences, personal development, motivation etc. is not so visible, and therefore difficult to measure.
The best approach to monitoring inequalities is through longitudinal studies. In the case of Serbia, Montenegro and Bosnia and Herzegovina, such approach has not been implemented so far. Unfortunately, due to lack of longitudinal studies, it is not possible to adequately analyze the progress in the extent of under-representation from one educational transition to the other." (Vukasović & Sarrico, 2010).

The problem with analysing inequalities in higher education is also when to measure and how to measure it. Inequality is most visible in the moments of education transitions: transition from one year of study to the next, or from one level of study to the next one (e.g. from bachelor to master studies). It means that students go through a series of inequality cycles, accumulating inequality in some sense, by influence of many factors, such as time and strength of tracking, criteria for enrolment, quotas, entrance exams, etc.

Inequality cycle means that existing socioeconomic characteristics contribute to inequality in education through enrolment, progression, learning outcomes, track destination, socialization in the HE society, etc. Again, accumulated inequality through education contributes to a new cycle of reproducing socio-economic inequalities, which has influence on the next stage of education or through educational outcomes and opportunities at the labor market, most of all on the obtained employment status.

Disadvantaged students are going through inequality cycle three times, since most education systems consists of three levels (primary, secondary and higher education). Some students maintain a disadvantaged position in comparison to students with more privileged socioeconomic backgrounds. These disadvantages would be easiest to identify and measure at transfer points, where differentiation and selection take place (for example, transition from primary to secondary education, or secondary to higher education, from bachelor studies to master studies, from master to doctoral studies). In order to evaluate the size of inequalities, it is necessary to obtain data from at least least two transition moments, from one inequality cycle to the other. In the case of EUROSTUDENT survey, the available data are only from one cycle of higher education for each student.

Many research studies of inequalities in higher education illustrate the current situation through comparison of participation rates of disadvantaged groups in HE system and in population in general. That approach is implemented in this paper where possible, but national statistical offices do not have all necessary data, especially in the case of Bosnia and Herzegovina where population census has not been recorded since 1991.

In order to measure inequalities on the basis of EUROSTUDENT data, we have implemented a familiar approach to inequality through comparing rates of access to different levels of education with respect to their socioeconomic background. We can find the argument for this approach in a large number of scientific papers, like in Archer et al. (2003), Power (2000) or Duru-Bellat (2004). On the basis of the same
approach, Duru-Bellat has drawn the following conclusion: “In the OECD countries, this results in the finding that there is a strong correlation between the probability of a young person obtaining a university degree and the qualification held by his or her parents; this probability may vary from 1 to 2 or, sometimes, from 1 to 6, depending on whether the parents failed to complete upper secondary education or, on the contrary, themselves studied at university level.” (Duru-Bellat, 2004).

5. Results

5.1. Indicators of socioeconomic inequalities across countries

EUROSTUDENT V survey was conducted during spring of 2014 in all three countries in the region. The sample sizes were the following: in Serbia 3780 students, in Montenegro 1629 students, and in Bosnia and Herzegovina 3594 students.

The survey results were compared with official statistics where it was possible. Census data were obtained from national statistical offices of Serbia (Statistical Office of the Republic of Serbia, 2015) and Montenegro (Statistical Office of Montenegro, 2015), while in the case of Bosnia and Herzegovina data were not available. In Serbia and Montenegro the censuses were recorded in 2011, while in Bosnia and Herzegovina the last census of population was recorded in 1991 and, therefore, we do not have reliable data for comparison.

The explanation of the numbers in the tables is the following: The number in the parentheses is showing the position of the country on the list of countries formed on the basis of the indicator in question according to EUROSTUDENT IV. The fourth wave of EUROSTUDENT survey was conducted in the period of 2008-2011 and these are the latest available data from other countries in Europe.

In order to test statistical significance among countries, the column proportions test was conducted and for each pair of proportions the z test was conducted. The letter beside the indicator (a, b, c) is showing whether the indicator in question is significantly different when we compare the three countries in the region (p<0.01). The same letter is showing that difference of national indicators is not statistically significant between countries. In other words, if a pair of indicators is significantly different, the indicators have different subscript letters assigned to them. For example, in Table 11, in the third row (Share of BA students' parents without tertiary education), for Serbia and BIH the letter beside the indicator is "a" while for Montenegro is "b", which means that indicators for Serbia and BIH are not significantly different, but indicator for Montenegro is significantly different from the other two.
Table 11 is showing the indicators of students' parents' education, their share in student population across the three countries and the position of each country on the list of countries with the same indicator. In the case of students' fathers without tertiary education, Serbia is significantly better ranked than the other two countries, while Bosnia and Herzegovina is significantly better in comparison with Montenegro. In other words, in Serbia, more students from disadvantaged families (in terms of parents without tertiary education) have access to higher education. In the case of students' mothers without tertiary education, differences among the three countries are not statistically significant. In the case of bachelor students' parents without tertiary education, Serbia and BIH are more successful in comparison to Montenegro. It is similar to MA students, where Serbia is in the 4th place among all countries, with 66.3% of parents without tertiary education.

Table 11: Indicators of students' parents' education

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Serbia</th>
<th>Montenegro</th>
<th>BIH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students' fathers without tertiary education (not ISCED 5-6) of all students' fathers (26 countries)</td>
<td>65.6%a (10)</td>
<td>54.5%b (18)</td>
<td>59.1%c (16)</td>
</tr>
<tr>
<td>Students' mothers without tertiary education (not ISCED 5-6) of all students' mothers (26 countries)</td>
<td>66.2%a (12)</td>
<td>63.3%a (16)</td>
<td>64.5%a (14)</td>
</tr>
<tr>
<td>Share of BA students' parents without tertiary education (ISCED 5-6) (27 countries)</td>
<td>51.6%a (13)</td>
<td>46.7%b (16)</td>
<td>51.7%a (12)</td>
</tr>
<tr>
<td>Share of MA students' parents without tertiary education (ISCED 5-6) (27 countries)</td>
<td>66.3%a (4)</td>
<td>38.1%b (13)</td>
<td>48.6%c (19)</td>
</tr>
</tbody>
</table>

Table 12 is showing the share of students with blue-collar occupations across countries. The only statistically significant difference among the three countries is in the case of students' parents with blue collar status and without tertiary education, where BIH is better than Serbia and Montenegro, and Serbia is more successful than Montenegro.

Table 12: Indicators of students' parents' occupation

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Serbia</th>
<th>Montenegro</th>
<th>BIH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students' fathers with blue-collar occupation (26 countries)</td>
<td>30.2%a (16)</td>
<td>30.5%a (15)</td>
<td>31.7%a (12)</td>
</tr>
<tr>
<td>Students' mothers with blue-collar occupation (26 countries)</td>
<td>11.6%a (19)</td>
<td>10.1%a (21)</td>
<td>10.9%a (20)</td>
</tr>
<tr>
<td>Students' parents with blue collar status and without tertiary education (not ISCED 5-6) of all students' parents with blue collar status (27 countries)</td>
<td>88.6%a (16)</td>
<td>83.0%b (10)</td>
<td>91.7%c (20)</td>
</tr>
</tbody>
</table>
In Table 13, we can see the distribution of students according to the highest level of education of their parents. The shares are compared to the same percentages in the whole population according to the latest census. Higher under-representation is in the first category (upper to lower secondary), because in Serbia the share of the total adult population with the same level of education is 34.43%, and in Montenegro 30.43%. The highest over-representation is in the case of parents with bachelor's degree or equivalent, because in Serbia, the share of total adult population with bachelor's degree or equivalent is 5.65%, and in Montenegro 15.91%.

Table 13: What is the highest level of education your parents have obtained?

<table>
<thead>
<tr>
<th>% within country</th>
<th>Serbia</th>
<th>Montenegro</th>
<th>BIH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper to lower secondary (ISCED 0, 1, 2)</td>
<td>1.9%a under</td>
<td>2.3%a,b</td>
<td>3.0%b</td>
</tr>
<tr>
<td>Upper secondary (ISCED 3)</td>
<td>53.4%a over</td>
<td>43.1%b</td>
<td>48.5%c</td>
</tr>
<tr>
<td>Bachelor or equivalent (ISCED 6)</td>
<td>37.4%a over</td>
<td>47.7%b</td>
<td>36.2%a</td>
</tr>
<tr>
<td>Master or equivalent (ISCED 7)</td>
<td>5.1%a under</td>
<td>3.8%b</td>
<td>7.8%c</td>
</tr>
<tr>
<td>Doctoral or equivalent (ISCED 8)</td>
<td>2.0%a</td>
<td>2.8%a over</td>
<td>4.3%b</td>
</tr>
<tr>
<td>Do not know</td>
<td>0.2%a</td>
<td>0.3%a</td>
<td>0.3%a</td>
</tr>
<tr>
<td>Total</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

*Under/Over: under- or over-represented in terms of enrolment.

In Table 14, students' distribution is presented across occupational attainment of their parents and across countries. The shares are compared to the same percentages in the whole population according to the latest census. It is obvious that students whose parents have white-collar occupations are over-represented at HE institutions.

Table 14: Occupational attainment of parents across countries

<table>
<thead>
<tr>
<th>% within country</th>
<th>Serbia</th>
<th>Montenegro</th>
<th>BIH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managers</td>
<td>17.9%a over</td>
<td>18.6%a over</td>
<td>18.4%a</td>
</tr>
<tr>
<td>Professionals</td>
<td>19.9%a over</td>
<td>15.5%b</td>
<td>17.2%b</td>
</tr>
<tr>
<td>Technicians and associate professionals</td>
<td>14.5%a under</td>
<td>15.1%a</td>
<td>12.0%b</td>
</tr>
<tr>
<td>Clerical support workers</td>
<td>17.0%a over</td>
<td>15.0%a,b</td>
<td>13.0%b</td>
</tr>
<tr>
<td>Service and sales workers</td>
<td>12.0%a under</td>
<td>14.7%b</td>
<td>14.5%b</td>
</tr>
</tbody>
</table>
Finding the right path

<table>
<thead>
<tr>
<th>% within country</th>
<th>Serbia</th>
<th>Montenegro</th>
<th>BIH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skilled agricultural, forestry and fishery workers</td>
<td>5.2%a</td>
<td>3.2%b</td>
<td>3.4%b</td>
</tr>
<tr>
<td>Craft and related trades workers</td>
<td>5.9%a</td>
<td>8.1%b</td>
<td>10.3%c</td>
</tr>
<tr>
<td>Plant and machine operators, and assemblers</td>
<td>2.9%a</td>
<td>4.2%b</td>
<td>4.7%b</td>
</tr>
<tr>
<td>Elementary occupations</td>
<td>1.3%a</td>
<td>0.8%a</td>
<td>1.3%a</td>
</tr>
<tr>
<td>Armed forces occupations</td>
<td>0.8%a</td>
<td>0.8%a</td>
<td>1.5%b</td>
</tr>
<tr>
<td>Do not know</td>
<td>1.6%a</td>
<td>2.5%b</td>
<td>2.5%b</td>
</tr>
<tr>
<td>Never been active at the labor market</td>
<td>1.0%a</td>
<td>1.5%a</td>
<td>1.2%a</td>
</tr>
<tr>
<td>Total</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Table 15 is showing the students' perception of socioeconomic status of their family. The purpose of this question is to attempt to evaluate students' social background on a more comprehensive level than occupational or educational level of their parents. A simple comparison of the student population can be obtained by looking at the share of students who ascribe themselves to the top or bottom groups. When we compare the share of parents with lower (categories 1-5) and higher (categories 6-10) social status, the percentages in Serbia are 33.7% and 66.3%, in Montenegro 34.2% and 65.7%, and in Bosnia and Herzegovina 35.8% and 64.1% respectively. The same categories in Austria were 20% and 79.9%, according to EUROSTUDENT IV survey.

Table 15: Thinking about your family background, where would you place your parents on this scale if the top indicated high social standing and the bottom indicated low social standing?

<table>
<thead>
<tr>
<th>% within country</th>
<th>Serbia</th>
<th>Montenegro</th>
<th>BIH</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 High social standing</td>
<td>5.8%a</td>
<td>7.2%b</td>
<td>7.1%b</td>
</tr>
<tr>
<td>9</td>
<td>7.0%a</td>
<td>7.7%a</td>
<td>5.4%b</td>
</tr>
<tr>
<td>8</td>
<td>17.2%a</td>
<td>16.6%a</td>
<td>17.7%a</td>
</tr>
<tr>
<td>7</td>
<td>21.1%a</td>
<td>19.0%a, b</td>
<td>18.5%b</td>
</tr>
<tr>
<td>6</td>
<td>15.2%a</td>
<td>15.2%a</td>
<td>15.4%a</td>
</tr>
<tr>
<td>5</td>
<td>20.9%a</td>
<td>20.7%a</td>
<td>23.8%b</td>
</tr>
<tr>
<td>4</td>
<td>6.8%a</td>
<td>6.9%a</td>
<td>6.2%a</td>
</tr>
<tr>
<td>3</td>
<td>3.7%a</td>
<td>4.9%b</td>
<td>3.1%a</td>
</tr>
<tr>
<td>2</td>
<td>1.0%a</td>
<td>1.3%a</td>
<td>1.4%a</td>
</tr>
<tr>
<td>1 Low social standing</td>
<td>1.3%a</td>
<td>0.4%b</td>
<td>1.3%a</td>
</tr>
<tr>
<td>Total</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
The following table (Table 16) presents the distribution of students' perception of their chances at the labor market after graduation, across different levels of social status. The conclusion is that socio-economic inequalities will continue to exist with significant probability even after finishing the studies, because students from lower social groups are less optimistic about their future at the labor market.

Table 16: Crosstabulation: How do you rate your chances at the labor market after graduating from your current study program? / Thinking about your family background, where would you place your parents on this scale if the top indicated high social standing and the bottom indicated low social standing?

<table>
<thead>
<tr>
<th>Country</th>
<th>10 High social standing</th>
<th>9</th>
<th>8</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1 Low social standing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serbia</td>
<td>(very) good</td>
<td>33.2%</td>
<td>28.6%</td>
<td>31.7%</td>
<td>29.6%</td>
<td>20.5%</td>
<td>16.9%</td>
<td>15.3%</td>
<td>14.2%</td>
<td>20.0%</td>
</tr>
<tr>
<td></td>
<td>fair</td>
<td>35.2%</td>
<td>29.4%</td>
<td>29.8%</td>
<td>33.2%</td>
<td>32.8%</td>
<td>33.5%</td>
<td>33.6%</td>
<td>26.9%</td>
<td>11.4%</td>
</tr>
<tr>
<td></td>
<td>(very) poor</td>
<td>21.4%</td>
<td>32.3%</td>
<td>30.3%</td>
<td>30.9%</td>
<td>39.0%</td>
<td>42.8%</td>
<td>45.1%</td>
<td>52.2%</td>
<td>65.7%</td>
</tr>
<tr>
<td></td>
<td>unable to rate</td>
<td>10.2%</td>
<td>9.7%</td>
<td>8.2%</td>
<td>6.3%</td>
<td>7.8%</td>
<td>6.8%</td>
<td>6.0%</td>
<td>6.7%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
</tr>
<tr>
<td>Montenegro</td>
<td>10 High social standing</td>
<td>(very) good</td>
<td>29.6%</td>
<td>42.5%</td>
<td>34.5%</td>
<td>30.4%</td>
<td>19.5%</td>
<td>19.7%</td>
<td>20.6%</td>
<td>22.5%</td>
</tr>
<tr>
<td></td>
<td>fair</td>
<td>25.0%</td>
<td>14.2%</td>
<td>23.8%</td>
<td>20.7%</td>
<td>32.0%</td>
<td>22.9%</td>
<td>14.0%</td>
<td>21.2%</td>
<td>16.7%</td>
</tr>
<tr>
<td></td>
<td>(very) poor</td>
<td>29.6%</td>
<td>28.3%</td>
<td>32.1%</td>
<td>37.5%</td>
<td>39.0%</td>
<td>45.1%</td>
<td>54.2%</td>
<td>38.8%</td>
<td>66.7%</td>
</tr>
<tr>
<td></td>
<td>unable to rate</td>
<td>15.7%</td>
<td>15.0%</td>
<td>9.5%</td>
<td>11.4%</td>
<td>9.5%</td>
<td>12.4%</td>
<td>11.2%</td>
<td>17.5%</td>
<td>16.7%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td></td>
</tr>
<tr>
<td>BiH</td>
<td>10 High social standing</td>
<td>(very) good</td>
<td>30.9%</td>
<td>26.7%</td>
<td>23.4%</td>
<td>18.5%</td>
<td>18.0%</td>
<td>13.5%</td>
<td>13.8%</td>
<td>15.7%</td>
</tr>
<tr>
<td></td>
<td>fair</td>
<td>20.7%</td>
<td>20.5%</td>
<td>28.3%</td>
<td>23.9%</td>
<td>33.2%</td>
<td>26.0%</td>
<td>19.2%</td>
<td>13.5%</td>
<td>13.0%</td>
</tr>
<tr>
<td></td>
<td>(very) poor</td>
<td>37.3%</td>
<td>42.2%</td>
<td>39.4%</td>
<td>42.2%</td>
<td>36.8%</td>
<td>47.6%</td>
<td>60.6%</td>
<td>53.9%</td>
<td>80.4%</td>
</tr>
<tr>
<td></td>
<td>unable to rate</td>
<td>11.1%</td>
<td>10.6%</td>
<td>9.0%</td>
<td>15.5%</td>
<td>12.1%</td>
<td>12.9%</td>
<td>6.4%</td>
<td>16.9%</td>
<td>2.2%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td></td>
</tr>
</tbody>
</table>

Table 17 is showing the indicators of students' social status across the three countries in the region and their position in comparison with other countries surveyed in EUROSTUDENT IV. In the case of students with children, a significantly
larger share of these students is enrolled into higher education in Montenegro. According to the number of female students in higher education, feminization is more expressed in Montenegro. Students with lower social status are more present in Bosnia and Herzegovina.

Table 17: Indicators of students’ social status

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Serbia</th>
<th>Montenegro</th>
<th>BIH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students with children of all students (28 countries)</td>
<td>4.2%a</td>
<td>9.0%b</td>
<td>3.1%a</td>
</tr>
<tr>
<td></td>
<td>(24)</td>
<td>(14)</td>
<td>(26)</td>
</tr>
<tr>
<td>Female students at bachelor studies of all bachelor students (28 countries)</td>
<td>50.3%a</td>
<td>54.4%b</td>
<td>57.7%b</td>
</tr>
<tr>
<td></td>
<td>(27)</td>
<td>(22)</td>
<td>(12)</td>
</tr>
<tr>
<td>Female students at master studies of all master students (28 countries)</td>
<td>55.1%a</td>
<td>58.6%b</td>
<td>53.6%a</td>
</tr>
<tr>
<td></td>
<td>(14)</td>
<td>(7)</td>
<td>(17)</td>
</tr>
<tr>
<td>Subjective assessment of social standing on 10-point scale / Students with lower social status (grades 6-10) (21 countries)</td>
<td>32.3%a</td>
<td>34.4%a,b</td>
<td>35.9%b</td>
</tr>
<tr>
<td></td>
<td>(10)</td>
<td>(7)</td>
<td>(17)</td>
</tr>
<tr>
<td>Students with lower social status (grades 6-10) and with parents without tertiary education (22 countries)</td>
<td>22.1%a</td>
<td>20.0%a</td>
<td>24.7%b</td>
</tr>
<tr>
<td></td>
<td>(9)</td>
<td>(10)</td>
<td>(7)</td>
</tr>
<tr>
<td>Students with lower social status (grades 6-10) at bachelor studies (22 countries)</td>
<td>31.8%a</td>
<td>36.1%b</td>
<td>36.5%b</td>
</tr>
<tr>
<td></td>
<td>(10)</td>
<td>(7)</td>
<td>(5)</td>
</tr>
<tr>
<td>Students with lower social status (grades 6-10) at master studies (22 countries)</td>
<td>31.5%a</td>
<td>24.8%b</td>
<td>31.1%a</td>
</tr>
<tr>
<td></td>
<td>(6)</td>
<td>(14)</td>
<td>(7)</td>
</tr>
</tbody>
</table>

The following table is showing the distribution of students with children across genders for each country (Table 18). Totals are compared across countries. Montenegro is significantly more successful in access of parents to HE in comparison with Serbia and BIH.

Table 18: Number of children across genders

<table>
<thead>
<tr>
<th>Number of children</th>
<th>Serbia</th>
<th>Montenegro</th>
<th>BIH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female</td>
<td>Male</td>
<td>Total</td>
</tr>
<tr>
<td>Without children</td>
<td>95.2%</td>
<td>95.8%</td>
<td>95.5%a</td>
</tr>
<tr>
<td>1 child</td>
<td>1.8%</td>
<td>1.4%</td>
<td>1.60%a</td>
</tr>
<tr>
<td>2 children</td>
<td>2.6%</td>
<td>2.5%</td>
<td>2.60%a</td>
</tr>
<tr>
<td>3 or more children</td>
<td>0.4%</td>
<td>0.2%</td>
<td>0.30%a</td>
</tr>
</tbody>
</table>
5.2. Students with disabilities

EUROSTUDENT V is offering more elaborate data about inequalities when it comes to students with disabilities.

Table 19 is showing the distribution of students across different types of disabilities for the three countries. Countries in the region are approximately on the same level when it comes to enrolment of students with disabilities in HE. The only significant difference is in the case of students with learning disability (ADHD, dyslexia), where the share of students with the same kind of disability is lower in Serbia. It was not possible to compare data from EUROSTUDENT with official statistical data about disabilities because of different classification.

Table 19: Please indicate if you have a disability, long standing health problems or functional limitations

<table>
<thead>
<tr>
<th>Type of disability</th>
<th>Share of students with disabilities in total population of students</th>
<th>Share of students with certain type of disability among all students with disabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic diseases</td>
<td>Serbia 1.5%&lt;sup&gt;a&lt;/sup&gt; Montenegro 1.3%&lt;sup&gt;a&lt;/sup&gt; BIH 1.4%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Serbia 22.4% Montenegro 18.1% BIH 15.8%</td>
</tr>
<tr>
<td>Mental health problems</td>
<td>Serbia 0.5%&lt;sup&gt;a&lt;/sup&gt; Montenegro 0.7%&lt;sup&gt;a&lt;/sup&gt; BIH 0.9%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Serbia 7.7% Montenegro 9.5% BIH 10.9%</td>
</tr>
<tr>
<td>Mobility impairment</td>
<td>Serbia 0.2%&lt;sup&gt;a&lt;/sup&gt; Montenegro 0.6%&lt;sup&gt;a&lt;/sup&gt; BIH 0.5%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Serbia 3.1% Montenegro 7.8% BIH 5.8%</td>
</tr>
<tr>
<td>Sensory impairment (vision or hearing)</td>
<td>Serbia 3.1%&lt;sup&gt;a&lt;/sup&gt; Montenegro 2.2%&lt;sup&gt;a&lt;/sup&gt; BIH 3.6%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Serbia 45.2% Montenegro 31.0% BIH 41.8%</td>
</tr>
<tr>
<td>Learning disability (ADHD, Dyslexia)</td>
<td>Serbia 0.2%&lt;sup&gt;a&lt;/sup&gt; Montenegro 0.6%&lt;sup&gt;a,b&lt;/sup&gt; BIH 0.9%&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Serbia 3.5% Montenegro 7.8% BIH 10.3%</td>
</tr>
<tr>
<td>Other long standing health problems</td>
<td>Serbia 1.2%&lt;sup&gt;a&lt;/sup&gt; Montenegro 1.8%&lt;sup&gt;a&lt;/sup&gt; BIH 1.3%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Serbia 18.1% Montenegro 25.9% BIH 15.4%</td>
</tr>
<tr>
<td>Total</td>
<td>Serbia 6.9%&lt;sup&gt;a&lt;/sup&gt; Montenegro 7.1%&lt;sup&gt;a,b&lt;/sup&gt; BIH 8.7%&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Serbia 100.0% Montenegro 100.0% BIH 100.0%</td>
</tr>
</tbody>
</table>

Table 20 shows the distribution of students with disabilities according to perception of their impairments as an obstacle to their studies. Students with disabilities in Serbia have the perception that their impairments are a much bigger obstacle to their studies in comparison with students from Montenegro and Bosnia and Herzegovina.

Table 20: Overall, to what extent are your impairments an obstacle to your studies?

<table>
<thead>
<tr>
<th>% within country</th>
<th>Serbia</th>
<th>Montenegro</th>
<th>BIH</th>
</tr>
</thead>
<tbody>
<tr>
<td>(quite) big obstacle</td>
<td>23.4%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>9.6%&lt;sup&gt;b&lt;/sup&gt;</td>
<td>12.7%&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>moderate obstacle</td>
<td>25.0%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>20.2%</td>
<td>18.1%&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>(small) no obstacle</td>
<td>51.6%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>70.2%&lt;sup&gt;b&lt;/sup&gt;</td>
<td>69.2%&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Total</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
Finding the right path

Table 21 is showing the distribution of students with disabilities according to their plan to continue studying after finishing the current program. There are no statistically significant differences between countries in the region and the conclusion is that students with disabilities are in the same position.

Table 21: Are you planning to continue studying after finishing your current study program(s)?

<table>
<thead>
<tr>
<th>% within country</th>
<th>Serbia</th>
<th>Montenegro</th>
<th>BIH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, within a year after graduating from my current study program</td>
<td>35.8%a</td>
<td>34.4%a</td>
<td>40.1%a</td>
</tr>
<tr>
<td>Yes, but not within a year after graduating from my current study program</td>
<td>24.8%a</td>
<td>27.8%a</td>
<td>19.9%a</td>
</tr>
<tr>
<td>No, I do not plan to continue studying at all</td>
<td>10.6%a</td>
<td>18.9%a</td>
<td>13.2%a</td>
</tr>
<tr>
<td>I don’t know yet</td>
<td>28.9%a</td>
<td>18.9%a</td>
<td>26.8%a</td>
</tr>
<tr>
<td>Total</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

In the following table (Table 22), we can see the level of satisfaction of students with disabilities with respect to different aspects of studying. In general, students in Serbia are less satisfied with organisation of studies and administration's attitude towards students, while more satisfied with teaching staff's attitude towards students and study facilities. In the case of Montenegro, students with disabilities are mainly dissatisfied with organisation of studies and study facilities, while more satisfied with university administration and teaching staff. Students in BIH have the largest share of dissatisfied students with disabilities in three out of four categories.

Table 22: Satisfaction of students with disabilities with different aspects of studying

<table>
<thead>
<tr>
<th>Organisation of studies and timetable</th>
<th>Serbia</th>
<th>Montenegro</th>
<th>BIH</th>
</tr>
</thead>
<tbody>
<tr>
<td>(very) well</td>
<td>48.3%a</td>
<td>38.4%a, b</td>
<td>30.0%b</td>
</tr>
<tr>
<td>fairly satisfied</td>
<td>19.6%a</td>
<td>19.8%a</td>
<td>35.8%b</td>
</tr>
<tr>
<td>(somewhat) dissatisfied</td>
<td>32.1%a</td>
<td>41.9%a</td>
<td>34.2%a</td>
</tr>
<tr>
<td>University administration's attitude towards students</td>
<td>Serbia</td>
<td>Montenegro</td>
<td>BIH</td>
</tr>
<tr>
<td>(very) well</td>
<td>50.4%a</td>
<td>60.5%a</td>
<td>39.3%b</td>
</tr>
<tr>
<td>fairly satisfied</td>
<td>22.3%a</td>
<td>22.1%a</td>
<td>26.8%a</td>
</tr>
<tr>
<td>(somewhat) dissatisfied</td>
<td>27.3%a, b</td>
<td>17.4%b</td>
<td>33.9%a</td>
</tr>
<tr>
<td>Teaching staff's attitude towards students</td>
<td>Serbia</td>
<td>Montenegro</td>
<td>BIH</td>
</tr>
<tr>
<td>(very) well</td>
<td>70.8%a</td>
<td>64.4%a, b</td>
<td>50.4%b</td>
</tr>
</tbody>
</table>
In order to develop inequality model and to discover the most important socioeconomic factors influencing inequalities, we have conducted a multiple linear regression. The dependent variable is the variable from EUROSTUDENT V survey with answers to the following question: "Looking at your total workload, please rate your satisfaction with your workload" (workload_satisfaction). As independent variables, we have used the available socioeconomic variables from the EUROSTUDENT V survey: gender, education of the father (e_father), education of the mother (e_mother), perception of personal socioeconomic status as the overall indicator of socioeconomic status (s_e_status), and indicator variable if student reported some kind of disability, health problem or functional limitation (disability). If any of the socioeconomic variables is statistically significant, then we can conclude that students with different socioeconomic characteristic have different total workload, or, in other words, they are not equal during their study because of different socioeconomic background.

Although the percent of the explained variability is small (adjusted R square is 1.3%), the model is statistically significant (ANOVA: F-statistic=15.567; p-value=0.000). The regression model was conducted for the entire region as a whole (n = 9003 students).

### Table 23: Results of regression analysis

<table>
<thead>
<tr>
<th>Dependent variable: workload_satisfaction</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>1.978</td>
<td>0.061</td>
<td>32.530</td>
<td>.000***</td>
</tr>
<tr>
<td>e_father</td>
<td>-.002</td>
<td>.007</td>
<td>-.003</td>
<td>.215</td>
</tr>
<tr>
<td>e_mother</td>
<td>.022</td>
<td>0.007</td>
<td>.047</td>
<td>2.941</td>
</tr>
<tr>
<td>gender</td>
<td>.018</td>
<td>.020</td>
<td>.012</td>
<td>.884</td>
</tr>
<tr>
<td>disability</td>
<td>.113</td>
<td>.038</td>
<td>.040</td>
<td>2.997</td>
</tr>
<tr>
<td>s_e_status</td>
<td>-.034</td>
<td>.006</td>
<td>-.086</td>
<td>-6.116</td>
</tr>
</tbody>
</table>
Based on the obtained results, we can conclude that several socioeconomic variables have a significant influence on the satisfaction with the total workload. Statistically significant variables are education of mother, indicator of some kind of disability and overall indicator of socioeconomic status.

8. Conclusion

There are many dimensions of inequality and poverty. Through their interaction, they can provoke self-reinforcing phenomenon called poverty traps. In order to break that cycle of marginalisation, it is necessary to provide access to appropriate education.

Provision of equal access to education is a challenge for all HE institutions and their management. If universities are reluctant and not ready to change, policy measures at national level will not be successful. “Similarly, the sticks and carrots of policy levers can be overwhelmed by the complex mechanics of admission requirements, student finance arrangements and assessment systems; given the long cycle of student progression through a higher education system, it can take the life of several parliaments to know whether policies have succeeded or failed. And while vice-chancellors may talk the language of equality of opportunity, institutional priorities can be railroaded by reluctant deans and recalcitrant heads of department.” (Hall, 2012)

In Serbia, Montenegro and Bosnia and Herzegovina, the general opinion was that the system of higher education was rather fair and equitable. The reason behind this opinion was due to the fact that tuition is free of charge for a portion of students in public institutions and to the deficiency of detailed and comprehensive analysis of social inequalities in education systems. Also, since 2000 there has been a significant increase in the number of private HEIs in all three countries. Private sector has recognised the opportunity to meet the increasing demand on one side, and the system-level policy of meeting the EU 2020 goal of reaching 40% of individuals that obtained higher education in the 30-34 cohort that was adopted by governments of all three countries through national strategies and international documents (such is SEE Strategy 2020). The majority of these new higher educational institutions are profit-oriented, “demand absorbing”, without any real selection, in the majority of cases providing a degree and not much else. Many students are studying at private universities, paying substantial tuition fees because they cannot enrol themselves into the public universities, which only contributes to the growth of socioeconomic inequalities.

Although Statistical Offices of all three countries are continuously collecting the data related to disadvantaged social groups, institutions of higher education and state authorities in the field of education do not systematically monitor the
Higher Education as a Channel for Reproducing Social Inequalities

influence of socioeconomic factors on access, progress and completion of studies. EUROSTUDENT V results are significant contribution for better understanding of the phenomenon in question.

This paper is the presentation of the research study about inequalities based on the data collected through EUROSTUDENT survey in Serbia, Montenegro and Bosnia and Herzegovina. This is the 5th wave in Europe (EUROSTUDENT V), but for the first time it was conducted in these three countries.

Although longitudinal data did not exist, it was possible to analyze inequalities in the region on the basis of available cross-sectional data, to compare them with the available official statistics, with inequality indicators from other countries (EUROSTUDENT IV), and to evaluate the influence of different socioeconomic factors on inequality in HE through regression model.

Since this was the first wave of EUROSTUDENT survey in the region, the future waves will contribute to better understanding of disadvantaged social groups in HE systems, and influence of socio-economic factors on access, progress and completion of higher education through comparison of indicators in different time periods.

On the basis of the obtained indicators and test results, the general conclusion is that HE systems in all three countries are the channels for reproducing social inequalities. Additionally, if we compare HE systems of the three countries and the magnitude of inequalities, the conclusion is that inequalities are very pronounced in all three counties, with a slightly better position in the case of Montenegro.

On the basis of the obtained results, the conclusion is that higher education sector is not taking social mobility issues seriously enough. We cannot say that what happens in schools ultimately holds the key to who can participate in higher education in Serbia, Montenegro and Bosnia and Herzegovina. It is obvious that governments have a crucial role, but HE institutions must take an additional effort to intensify social mobility and open the door for students from different social groups.

"There is widespread acknowledgement that the blame game – where universities blame schools, schools blame parents and everyone blames the Government - must stop." (Social Mobility and Child Poverty Commission, 2013). Unless the responsibility of fighting the inequalities that unfairly exclude disadvantaged categories of potential students is accepted across the managements of HE institutions in Serbia, Montenegro and BIH, there is a small probability that significant progress will be made.

There is good will on the part of all stakeholders in higher education in the region to take their part in the improvement of social mobility. The real challenge is to transform these intentions into better environment for young people from disadvantaged groups.
Finding the right path

If the goal is to ensure social and economic prosperity, it is necessary to provide the environment for all those who have the potential and ability to reach HE, and to give a fair chance to do so to the members of all socioeconomic groups. It is imperative for our schools to raise standards and goals amongst their pupils and to provide them with the knowledge to make informed choices about their future, and also with the advice and guidance for young people. It is necessary for the governments of the countries in the region to pursue policies that improve social mobility and schooling system, especially HE system as one of the best channels to do so. Therefore, it takes every government in the region to dedicate more money to implementation of such policies.

Key recommendations for HE institutions in all three countries are:

• Wider participation and fair access must be a collective commitment of all universities and a top priority included in the mission of each institution.
• Clear statistical targets in the area of fair access must be defined in order to monitor the implementation of policies.
• Development of cooperation between schooling system and HE system. Making it an explicit objective to help schools close attainment gaps
• Bigger spending for social mobility oriented towards effective outreach activities in comparison to free waivers. For example, development of a scheme to provide financial support to promising students from disadvantaged backgrounds to stay in full-time education beyond the age of 16.
• Institutions of higher education must consider what support they can provide to help groups of disadvantaged students to succeed in completing their studies. Additionally, this will require assessing what skills universities require students to have in advance and which ones they can develop after admission.

Key recommendations for governments in Serbia, Montenegro and Bosnia and Herzegovina are:

• Long-term commitment of governments to dedicate larger proportion of national wealth for fighting social inequalities in education systems.
• Definition of clear targets for every HE institution to make progress in closing the education attainment gap between less advantaged students and others;
• Development of information system that provides potential students with complete information to know what support they will get before applying to a university and ending support for fee waivers.
• Definition of policies fighting the “social mobility time bomb” of access to postgraduate studies.
• More funding for development of high quality career advice and face-to-face guidance from impartial accredited professionals.
Higher Education as a Channel for Reproducing Social Inequalities

- Resources need to be more oriented towards institutions with the most disadvantaged students.
- More needs to be done to expand awareness of government programs and making eligibility for scholarships clear to disadvantaged students before they apply to university.
- Programs must be simple and understandable to everyone.
- There is a need for a strategic review of all access funding in order to ensure it is used strategically to have the greatest national impact.
- For better certainty and consistency, it is necessary to ensure that students know what financial support they could expect to receive before applying.
- Greater incentives for HE institutions to recruit students from disadvantaged backgrounds and giving the means to switch resources away from fee waivers towards outreach and other more effective activities.
- In order to create a better reporting system, the governments must organize advising bodies for monitoring data collection about applicants from disadvantaged groups and their progression rates across all levels of study. These bodies should advise on what additional information should be collected about disadvantaged students to inform future policy decisions on widening access to postgraduate study.

It is of highest significance to provide reliable and comparable data in the case of all education transitions and to support longitudinal studies to follow the disadvantaged groups throughout an education system. "Ideally, the data should be collected for the entire system, allowing for assessment of differences between higher education institutions and different fields of study. This is of relevance in order to distinguish between system-level effects (e.g. enrolment rules) and the institutional level or field effects (e.g. entrance exam for a particular institution in the particular field)." (Vukasović & Sarrico, 2010). Unfortunately, a research of socioeconomic inequalities at that scale is not possible at this stage in Serbia, Montenegro and Bosnia and Herzegovina, especially in BIH where population census has not been recorded since 1991.

In Serbia, Montenegro and Bosnia and Herzegovina, political imperatives and retrospectively observed trends during the last three decades are very different things. After the inherited egalitarianism of Yugoslavian higher education in the 1980s, inequality in household incomes is steadily growing on a yearly basis, and with the lowest rates of increase for the poorest households.

The aim of this research paper was to examine the ways in which higher education in the three countries simultaneously contributes to reproduction of social inequality and opens up opportunities that undermine the negative effects of disadvantages that are imposed on people as a consequence of their position in the society.
Many other research studies have shown that higher education institutions always have been, and continue to be, ambiguous institutions not only in the region, but across the entire world. However, the connection between poverty and inequality is evident, and is obviously part of the remit of national higher education systems. Disadvantaged groups in higher education are not a matter of 'distant strangers', but are, instead, prevalent in the region. In finding solutions for HE institutions to address inequality, the circumstances of communities in Serbia, Montenegro and Bosnia and Herzegovina are more similar than it is often acknowledged.

Given this, the challenge in addressing inequality in higher education and its consequences is to re-affirm the inherently transformational role of education, and to push strongly for this to be accomplished through adequate changes of institutional mechanisms, and recognised in the appropriate public policy. As innumerable examples from life show, education is one of the principal channels through which people can break the disadvantage circle and unfavorable circumstances into which they were born. And if higher education is understood as a capability which enables the choice of performance in the ways that allow a person to lead the life that they value, then focus can be oriented to what higher education can add in the development of capabilities, more than to the status value that is purchased on admission.

REFERENCES


Abstract: Higher education in Serbia, Bosnia and Herzegovina and Montenegro emerges from the same practice of education. After disintegration of a unique politic entity into independent countries, differences may emerge. Equity in education is a socially important issue due to the fact that it reflects the system of values and broader educational policy of one territory. Starting from the hypothesis that there would not be any significant differences among these countries in perception of equity in practices, principles and policies, there is an idea to consider the idiosyncrasies of every area and each and every possible indicator of discrimination and barriers.

From a broader definition of educational equity as a learning context with equity of opportunities (Opheim, 2007), quality of educational process (Demeuse & Baye, 2008) and equity in educational outcomes (Lucas & Beresford, 2010), our analysis focused on endeavor to identify differences in students' socioeconomic and education background, gender adherence, types and modes of study, as well as satisfaction with the process and further opportunities, including mobility, competitiveness at the labor market and employment. Egerton and Halsey (1993) state that, from a perspective of internal stratification in the system of higher education, the type of institution where students gain their qualifications is important for maintaining or reducing inequalities. Considering the fact that a large number of private universities has opened in the last decade, special attention will be given to identifying potential differences in studying between students in public and private universities. Primary data collected within the international EUROSTUDENT project will be used for analysis.

Key words: equity, higher education, private education, public education, equality of opportunities, quality of educational process, equity in educational outcomes
1. Theoretical considerations: the issue of equity in the context of higher education

The subject of this chapter is the analysis of the equity issue in the domain of higher education, combining theoretical aspects of the concept with the actual figures obtained by the process of data acquisition within the scope of EUROSTUDENT project. In order to get the appropriate representation of the phenomenon, it should be observed from the perspective of the local circumstances present in the targeted communities of Serbia, Montenegro and Bosnia and Herzegovina. Due to the fact that equity is a complex notion, the paper is limited to factors of gender and type of university (founder and financing) and to satisfaction with the treatment and conditions of studying, along with professional prospects as equity indicators.

1.1. Higher education in Serbia, Montenegro and Bosnia and Herzegovina

Application of the Bologna Process principles has changed European higher education. All European countries showed strategic commitment to the system of higher education that aligns with the general guidelines and principles of the European Higher Education Area (EHEA) by joining the Bologna process and ratification of the Lisbon Convention (Babin, Hiršenberger, & Papić, 2012). Among them are Serbia, Montenegro\(^1\) and Bosnia and Herzegovina (Council of Europe, 2015).

The main objectives of the Lisbon Convention were facilitating mobility of students between contracting countries and ensuring equal status and opportunities for students in their further education and employment, based on their higher education certificates. Through the adoption of the Law on Higher Education, the commitment received its legal form and became an obligation for all higher education institutions in Serbia (Babin, Hiršenberger, & Papić, 2012).

Since the beginning of the Bologna process, higher education systems in the EHEA have grown significantly. Although the trend towards mass higher education began before the launch of the Bologna process, the speed of transition has accelerated during the last decade. The Bologna process brought the following to higher education systems: three-cycle system and ensuing development of an overarching qualifications framework, the European Credit Transfer System (ECTS), with the issue of the Diploma Supplement and quality assurance (EACEA P9 Eurydice, 2012). The Bologna countries have committed to adopt easily readable

\(^1\) At the moment of signing, Serbia and Montenegro were in the state union of Serbia and Montenegro
and comparable degrees, to establish and implement a system based essentially on two main cycles, to establish a system of credits, to support mobility of students, teachers, researchers and administrative staff, to promote European cooperation in quality assurance and to promote European dimensions in higher education (in terms of curricular development and inter-institutional cooperation) (EACEA P9 Eurydice, 2010).

The three-cycle structure has been introduced in most institutions and programs in the Bologna countries. Typically, first cycle qualifications include 180-240 ECTS credits, while second cycle qualifications include 60-120 ECTS credits and first cycle qualifications should last a 'minimum of three years' (EACEA P9 Eurydice, 2010).

In the EHEA, depending on countries, there are different types and numbers of higher education institutions. In most of the countries, higher education institutions may vary according to whether they are academic or professional, as well as whether they are financed from public or private sources. In many cases, both academically and professionally oriented institutions can offer academic and professional programs and, in most cases, the differences exist purely formally (EACEA P9 Eurydice, 2012). In Serbia, Montenegro and Bosnia and Herzegovina, the situation is similar regarding the source of funding: there are public and private institutions. The difference is whether higher education institutions are financed primarily from public or private sources. It means that higher education institutions that are funded mainly by the state or from public sources are considered public institutions (EACEA P9 Eurydice, 2012). Higher education institutions in the majority of the countries are: Universities, Faculties, Academies and Colleges, and in most cases, Faculties, Academies and Colleges can operate separately or within a university.

The main characteristics of higher education in Serbia, Montenegro and Bosnia and Herzegovina:

Serbia (SRB) — In 2005, Serbia adopted a new Law on Higher Education to enable the reforms in line with the Bologna Process. The law introduced the procedures which opened possibilities to flexible learning paths through ECTS accumulation procedures, rather than the previous system based on "study years" (Ivošević & Miklavić, 2009). In higher education, activities are carried out by the following institutions of higher education: Universities, Faculties, Art Academies within the University, the Academy of Professional Studies, College and College of Professional Studies. (Ministarstvo prosvete i tehnološkog razvoja (Ministry of Education, Science and Technological Development), 2015). In most higher education institutions in Serbia, both academic and professional study programs are offered through three levels of studying: undergraduate, graduate and doctoral. Depending on the source of funding, two types of institutions exist in Serbia: private and public (Table 1). Although private higher education institutions existed in Serbia
prior to the 2005 Law, the new Law introduced quality assurance and accreditation procedures, which apply to both private and public higher education providers (Ivošević & Miklavič, 2009). In public higher education institutions, students may enrol into the study programs at all three levels as “budget students”, which means that students do not pay tuition fees (state funded) and self-financing, when they have to pay tuition fees. It is interesting to mention that members of the Serbian national minority from neighboring countries (that includes Montenegro and Bosnia and Herzegovina as well) can study in the Republic of Serbia under the same conditions as the nationals of the Republic of Serbia, including the right to budget financing.

Montenegro (MN)— The Higher Education Law in Montenegro that aligns with Bologna process was adopted in October 2003, and the changes and amendments were adopted in July 2010. Higher education is structured as a three-cycle system and includes: undergraduate (Bachelor) studies, postgraduate (Master and Specialist) studies and Doctoral studies. Bachelor study programs are organized as three year courses – 180 ECTS for the majority of study programs. After one additional year, the student may be awarded a specialist diploma amounting to 60 ECTS (the first stage of postgraduate studies), and after another year (also 60 ECTS), he or she may be awarded a Master’s degree (ERASMUS+, 2015). The second cycle of academic study programs gives direct access to the third cycle - doctoral programs during which students must earn a minimum of 180 credits to obtain the degree (ERASMUS+, 2015). As in Serbia, there are two types of tertiary education institutions in Montenegro: private and public (since 2006, when first private university opened). Now, there are 3 universities and 23 faculties in Montenegro that are accredited (see Table 1 for details). Similarly to Serbia, the Government decides on the number of students to be financed from the state budget (approximately 40% of students, the remaining 60% being self-financing) (ERASMUS+, 2015). In accordance with the adopted changes and amendments of the Law on Higher Education, there is a possibility for private higher education institutions to be financed from the state budget as well (ERASMUS+, 2015).

Bosnia and Herzegovina (BiH)- BiH joined the Bologna Process and the EHEA area in 2003. The Framework Law on Higher Education was adopted in 2007, after nearly four years of political debate (Federalno ministarstvo obrazovanja i nauke (Federal Ministry of Education and Science), 2011). The Agency for Development of Higher Education and Quality Assurance, responsible for accreditation of institutions, was established. Strategic documents that implement aspects of the Bologna process were adopted, including a qualifications framework, European standards and guidelines for quality assurance, recognition of qualifications and the Diploma Supplement (Federalno ministarstvo obrazovanja i nauke (Federal Ministry of Education and Science), 2011). The amendments of the Framework Law on Higher Education were adopted in 2009. As previously described for Serbia and
Montenegro, the situation in BiH is the same. Higher education is organized through three cycles, undergraduate, postgraduate and doctoral studies, through which students can earn 30 ECTS points per semester or 60 per school year. Also, there are public and private universities and faculties in Bosnia as well. There are 6 public universities, but 4 of them are accredited at the moment (see Table 1).

Table 1: Overview of accredited higher education institutions in Serbia and Bosnia and Herzegovina – private and public

<table>
<thead>
<tr>
<th>Accredited (with the license for operating)</th>
<th>SRB²</th>
<th>MN³</th>
<th>BiH⁴⁵</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>University</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Faculty</td>
<td>88</td>
<td>20</td>
<td>67</td>
</tr>
<tr>
<td>College</td>
<td>48</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Private</td>
<td>University</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Faculty</td>
<td>38</td>
<td>13</td>
<td>27</td>
</tr>
<tr>
<td>College</td>
<td>20</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

1.2. Different aspects of the equity concept

According to scholars, educational equity considers educational and learning environment in which individuals can consider options and make choices based on their abilities and talents, not on the basis of stereotypes, biased expectations and discriminations of any kind (gender, socioeconomic and ethnic background, geography, race, nationality, religion) (OECD, 2004).

There are different meanings of the phenomenon, considering local, political, historical particularities of the education system in question. For example, equity in North America and South Africa are not the same problem. That is the reason why, when analyzing equity issues in the South-Eastern Balkans, we make a reflection on the specifics of the socio-political circumstances. They define the categories of problems and criteria when discussing equity concerns. Besides the situational factor, we have to consider some theoretical and practical matters.

The definition of educational equity covers more than one fact. It has at least three aspects and could be observed at three levels. The first aspect considers

² (Ministarstvo prosvete (Ministry of Education), 2015)
³ (Ministarstvo prosvjete (Ministry of Education), 2014)
⁴ (Agency for Development of Higher Education and Quality Assurance, 2015)
⁵ At the moment, 5 higher education institutions are in the accreditation process (3 Universities and 2 colleges)
equity of opportunities in terms of accessibility of educational institutions. The second aspect is connected with equity of treatment, considering creation of a “fair learning environment” (Opheim, 2004). Finally, it covers the equity regarding the educational outcome, which means equity of results. Demeuse and Baye (2008) emphasize that society is nowadays especially demanding when equality of educational results comes into a question.

**Equity of access** in all institutions of education system insists on no exclusivity in that domain. Nevertheless, differences in abilities, motivation and interests have to be, and they are, a part of the selection criteria. The main problem for the concept of equity is in the fact that differences in socio-demographic characteristics could shape someone’s individuality and, accordingly, limit his aspirations or capabilities for using his equity right. That is why Opheim (2004) believes that analysis of equity in an education system should include a discussion why different demographical groups perform and achieve differently within the education system. Unterhalter (2009, 416) stresses the fact that personal heterogeneity in social and historical attributes and conditions and differences regarding conceptions of the good have enormous significance for how we think about why people learn, what is selected for learning and how learning is organized and progresses.

Also, the problem arises with combining the opportunity aspect of equity and the fact of individual difference, with the equity of results. Equality of results could not be achieved without considering the fact that some individuals would need more support in order to achieve the same result. It tackled the question of **equity of treatment**, which is of crucial importance. Becker and colleagues (1982) noticed the obvious fact that when you expose various people to similar opportunities and treatments, it will result in large disparities. It does not mean that you were unjust to them, at least from the perspective of fair treatment and given chance. So, they believe that inequality of results is the key aspect to consider and paradoxically, a diverse treatment is the mechanism to achieve ideal equity.

**The equity of results** may be seen through three categories of indicators. There are external contextual results in terms of individual consequences of education. According to Demeuse and Baye (2008), quantitative and qualitative differences in the education received, economic and social (in)equalities (income, social status), access to cultural resources are indicators of it. Further, equality may be seen through indicators of external results per se, defined by social mobility, individual benefits for the majority of the disadvantaged and overall collective benefit. Internal results considered education system's outcome, which could be measured by competencies, personal development and school careers.

Accordingly, there are some **potential barriers for achieving equity**. Some of them are external: institutional, economic or social and cultural; others are personal, which might be integrated into motivational, and also economic
difficulties. Although institutional barriers may seem to be easy to repair, they are not, due to the fact that it does not mean only entry barriers for a specific group of potential students, but it also includes structural barriers. Structural barriers deal with so-called dead-end courses, while entry barriers are affected by the supply and demand at the labor market. It is well connected with external economic barriers that raise the question of public funding and allocation of educational resources to different parts of education system (Opheim, 2004, 85). The matter of economic and social barriers is comprised of biases towards some categories of society. It could be seen in the existence of prejudice and discrimination toward them and, on an internal individual level, they are seen as incapable to respond to education costs, which represent a private economic barrier. Finally, the most powerful, but at the same time the most dependent on other factors, is personal motivation, not only in determining the particular educational path, but also the level of achievement.

1.3. Perception of equity in practice, principles and policy

Knowing the potential aspects and indicators of equity issue, and barriers as well, the question imposes: what could be done to provide educational impartiality on the levels of practice, principle and policy. Since sometimes the subject of the equity term is related to equality, where equity may mean equality turned into an action (Unterhalter, 2009, 416), as a process of producing equality and fairness, there is an emphasis on procedures that guarantee justice in educational practice.

There are some scholars that start from the point of practice and, while analyzing it, find indicators of inequity (Bane, Winston, 1980). They combine the facts about the rate of attendance within different educational institutions and the amount of resources allocated to these institutions. Here, along with the issue of financing the institutions, the question of private and public universities could be raised. As the region we consider not so recently passed through transition from entirely public to the mixed public and private higher education system, this subject is of exceptional interest for this paper.

From the perspective of practice, the information on students' attributes and characteristics of the institution they attend are important. It is a well known fact that individual students have benefits from attending distinguished educational institutions and those benefits may be material and in the domain of “quality of life”, even of health. On the other side, higher education is beneficial for the whole society as well. Bane and Winston (1980) find the explanation for governmental expenditures on universities, which are sometimes higher and sometimes modest, depending on the presumable importance that a society ascribes to the culture. A less clear influence is given through the hypothetical role of the educational institutions as predominant producers of culture in the contemporary world. Further, the question of educational outcomes might be tackled by specific
Finding the right path

educational practice at universities. It might promote or restrain social mobility, both within the structure of a concrete society, and throughout the boundaries of one nation state. The question of mobility should be analyzed more from the point of educational policy.

The problem of equity in higher education reflects structural relations within a society. Also, as Bane and Winston (1980, 7) said, it is an important resource both for individuals, who receive it, and for the society which benefits both directly and indirectly. The benefits for society and for the individual member of the society should be integrated in educational policies of a country. A policy focuses on how equality could be reduced. It should provide some concrete action plans for diminishing the effects of identified unfairness in a society. If we start from the idea that abilities and motivation are distributed randomly by all categories of population, which means that there are no systematic differences in the relevant criteria among members of different social and economic status, gender, race, nationality, cultural and educational background, the governmental policy should follow it. An example of governmental policy toward providing equity is a controversial issue of affirmative action.

The aim of policies is to arrange the relations among "potential customers of educational service" and institutions that provide that kind of service. Equity could be produced and reproduced by a specific educational policy. Essentially, it considers the set of laws, rules, standards that are prescribed to the institutions, with the aim to standardize the practice. It focuses on problems of enrolment, administration and assessment criteria, procedures and outcomes. It raises some basic procedural questions (test scores, for example), as well as fundamental questions of moral and theoretical principles and national politics.

Details of these questions also concern decision about distribution of state finances, proportion of money assigned to the education itself, compared to other governmental investments and the proportion of capital allocated to different educational institutions. It might have an impact on differences between public and private universities. In this way, inequity among universities may be produced and raise the problem of economical and social discrepancy.

Finally, these practices and policies were based on the principles that are inherent to one's own view of what equity is. Authors often called for different philosophical explanations and approaches when defining the concept of equity. It concerns the questions mentioned in the previous section, where there is a discussion about the equality treatments applied to very different individuals. Taking into consideration the broader sense of equity, meaning the fairness in decision making, preserving one's legal and moral rights (Bane, Winston, 1980), it is an endeavor to take personal differences into the center of equality issues. So, guideline principle in equity includes concrete actions taken to ensure equity of opportunity in the context of established regulations. They exist above policy and
practice in order to respond to situations when application of the rules to a specific case would lead into injustice.

In the context of principle issues, numerous theoretical explanations are given. Lucas and Beresford (2010) made a comprehensive list of potential general theoretical clarifications for the existing link between socio-demographic dimensions and educational equity issues, and we will try to explain our results referring to some of them. Roughly, they could be categorized into three types: theories emphasizing value system and socialization process, theories focused on structure and culture of education system and social position theories.

2. RESEARCH FRAMEWORK

2.1. Research problems and objectives

When measuring equity in education, we assess the extent to which students can take advantage of education and training, in terms of opportunities, access, treatment and outcomes (Baye, Demeuse, 2008, 771). For example, we could observe the concept of equity by tracking personal dimensions that can produce potential discrimination in accessibility of educational resources or by taking into account situational factors that might mitigate the effect of education.

Having in mind particularities of education systems and policies in the region, we defined the domain of interest with potentials for inequity. Firstly, we tackled the issue of gender differences that may provoke the differences in satisfaction with the higher education process and the differences in perception of professional prospects. Gender is traditionally considered a category that is found to be in high correlation with equity problems in a society, as well as in education. Although it is a well established fact that there is some discrimination of that kind, we believe that we should not neglect it, especially having in mind the traditional values present in the cultures from where our sample is recruited.

Other peculiarities of the region in question are connected with political issues. The process of transition changed not only the labor market conditions, but also the way that knowledge is perceived. There is a shift of the educational paradigm that goes towards the market oriented education system (someone might call it neoliberal model) (Matear, 2007), where knowledge is turned into an object of trade. In this type of relations, the question of the founder and sources of financing of an educational institution become significant. Also, we have reasons to believe that there is a connection between justice perception and achievement among university students (Kovačević, Žunić, Mihailović, 2013).

The matter of institutional connection with the state and allocation of the investments could be an indicator of discrimination of some kind. There are many arguments pointing out that in higher education, more than at any other educational
Finding the right path

level, inequality of financial investments is presented (Baye, Demeuse, 2008). In our case, there may be some prejudices towards private universities due to the fact that public universities convey the prevalent cultural values or reproduce the established systems of social positions. For example, labor market may or may not recognize some occupations and national employment service might prioritize some categories compared to the others. Contrary to that, private institutions could be more adaptable to the changes in the surroundings and provide more international mobility to their students.

So, the main goal of our analysis is the insight into potential inequalities based on gender and type of educational institution: private or public (according to the sources of financing and founders), within the perception of students' satisfaction with institutional treatment during the learning process and with the opportunities for employment mobility across countries, as they perceive them.

The explanations of the results might be found in the specific state policies and implicit principles integrated in the structure of the education system and cultural values characteristic for Serbia, Montenegro and Bosnia and Herzegovina. Furthermore, we have to be cautious when generalizing the results from one country to another. These countries might not be homogenous, as it could appear at the first glance. Accordingly, we tried to identify the least and the most privileged student profile and the attribute that makes the biggest difference.

2.2. EUROSTUDENT project and research sample

Our research sample is taken from the EUROSTUDENT project, whose goal is to examine the social and economic conditions of student life in higher education systems in Europe. The fifth round of EUROSTUDENT project started in 2012 with an increased number of 27 participating countries, among which are Serbia, Montenegro and Bosnia and Herzegovina. The work of EUROSTUDENT is based on the conviction that cross-country comparisons facilitate learning about strengths and weaknesses or simply idiosyncrasies of national higher education systems and help countries perceive their own higher education system (Orr, 2013).

In EUROSTUDENT V, data on the social dimension of higher education were collected and all aspects of student life were covered. The EUROSTUDENT data set covers major aspects of student life through: Transition into higher education, Social make-up, Characteristics of student population, Types and modes of study, Time budget, Students' resources, Students' expenses, Housing situation, Student mobility and Assessment and future plans. In this paper, we have focused on questions regarding students' assessment of their studies from their current perspective, as well as their expectations of the labor market success regarding potential differences between gender and university type. Previously, EUROSTUDENT data was used to evaluate policies related to students' time budget, alternative access routes into higher education, promoting international mobility amongst students and tuition fee policies (Orr, 2013).
Also, a different part of the project covers different local communities. We used the database for Serbia, Montenegro and Bosnia and Herzegovina. As we could see from Table 2, the whole sample consists of 9003 students with over 40% coming from Serbia, almost 40% from Bosnia and Herzegovina and only 18% from Montenegro. Females are slightly in the majority, as well as those coming from public universities, where this difference is much larger (over 81% compared to 18%). It might be a subject of discussion when differences come into question. Nevertheless, these differences are in concordance with the difference in distribution of students among faculties and universities (see Table 2). As we can see, there is only a small proportion of students attending religious universities, and it is specific only for BiH, so we neglected this small percentage of the sample (lower than 0.5%) in some statistical analyses.

Table 2. Sample structure

<table>
<thead>
<tr>
<th>type</th>
<th>country</th>
<th>SRB</th>
<th>MN</th>
<th>BiH</th>
<th>whole sample</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>gender</td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
</tr>
<tr>
<td>public</td>
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<td>1495</td>
<td>16.60</td>
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<tr>
<td></td>
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<td>1386</td>
<td>15.4</td>
<td>617</td>
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<tr>
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<td>total</td>
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<td>4.89</td>
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<td>458</td>
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<td>117</td>
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<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>total</td>
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<tr>
<td>whole sample</td>
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<tr>
<td></td>
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<td>1845</td>
<td>20.49</td>
<td>734</td>
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<tr>
<td></td>
<td>total</td>
<td>3780</td>
<td>41.98</td>
<td>1629</td>
<td>18.09</td>
</tr>
</tbody>
</table>

2.3. Research dimensions

While defining the scope of our study, in order to avoid redundancy, we selected gender and institutional aspects as factors for measuring equity, while observing the students' perception of the studying process and outcomes in the form of accessing labor market opportunities after graduation.
2.3.1. Gender and institutional (public/private) equity factors

Being aware of the complexity of the subject, in this chapter we decided to observe only the differences in justice perception between students of different gender coming from the institutions that are founded and financed from the public or private sector. We believe, and have previously explained to some extent, that these two factors dividing the student population might represent the diversity of SRB, MN and BiH in the equity framework. However, we must not neglect the possibility to find relevant differences among these three countries.

Although gender may appear to be biologically fixed, we might not take the issue of gender equalities in education for granted. Gender, as socially defined sex, is a concept of great importance in the studies of social justice. There are social markers given in the historical context that, combined with inherent sex characteristics, produce the scope for various forms of subtle and overt discrimination.

When speaking of educational equity in the perspective of gender, scholars often find differences concerning the educational choices that females and males make (Opheim, 2004). It is often explained by different socialization processes, yet it should not be neglected due to the fact that the stereotyped choice of occupation might be the sign of inequity (Unterhalter, 2009). Sometimes those differences are ascribed to the discrepancy in motivational processes and other individual dimensions (Becker, et al., 1982), but more than a few of them identify the problem of equity in respect (Buchmann, DiPrete, McDaniel, 2008). Gender is not constant, but it is asserted, produced, reproduced and altered within the context of social interactions (Lucas, Beresford, 2010, 31), so it depends on the circumstances. If those circumstances favor one position (gender), then it becomes an equity issue.

Some perspectives imply that predominantly public higher education indicates the mostly local character of it (Bane, Winston, 1980). Nevertheless, it might be the subject of different analyses, depending on socio-political circumstances. Matear (2007) dealt with public and private education in Chile, denying the assumption that private schools give better education than public schools. Thapa (2013) identified a positive and significant impact of private school competition on public school performance in Nepal. The identification problem is that private school enrollment is likely to be correlated with public school performance (Thapa, 2013). Oketch (2004) investigated higher education in Kenya, questioning the ability of private higher education institutions to design and offer quality education. In Kenya, traditionally, the admission to private university means ‘less qualification’ (although it cannot be generalized), but most of their students were those who did not secure admission to the competitive state universities. It was concluded that the government should provide some assistance to the private universities and colleges, but restrict their establishment and growth to those that can provide new programs in areas of critical need, such as technology, economics
and sciences (Oketch, 2004). Ajmad and MacLeod (2014) investigated the growth in low-cost or affordable private schooling in South Asia. They have concluded that private school students, as well as public–private partnership school students in Pakistan outperform their colleagues from government schools (Amjad & MacLeod, 2014).

2.3.2. Satisfaction and professional prospects as equity indicators

Irrespective of the targeted equity issue, we have to define indicators of justice perception that have to be able to satisfy some criteria. They have to be manageable and relevant from the perspective of education policies, so we could use them to make changes in order to solve a potential equity problem.

In our study, we do not have data covering the issues of students’ actual achievement in the context of gender and university, but there is some valuable information about their perception of just treatment during the studies at the university and their perception of prospects for future. There is an idea to map the differences between male and female students studying in private and public universities based on the indicators of satisfaction with the procedural aspects of studying and assessment of equality of opportunity for employment, covering the question of potential mobility in the region and beyond.

We specifically developed indicators of equity from the items of EUROSTUDENT questionnaire by focusing on the question of appraising the satisfaction with studying practice in the domain of (Q2.10): (1) quality of teaching, (2) organization of studies and timetable, (3) possibility to select from a broad variety of courses, (4) university administration’s attitude towards students, (5) teaching staff’s attitude towards students and (6) study facilities.

Additionally, we believe that professional outlook at the labor market, especially in the domain of possibilities at the international level, might indicate the situation of equity in prospects among different categories of students. So, we consulted the questions in the EUROSTUDENT questionnaire that measure the assessment of employment possibilities on national and international level, after studying (Q2.11.). In both cases, the scale is of Likert type, with respondents to be instructed to express their consensus on a five grade scale, where 1 represents no agreement and 5 absolute agreement with the statement.

3. Results and discussion

Three different sections of statistical results concerning the differences among the countries in the region, between students of different gender and from private or public universities, were presented. It is believed that students would
Finding the right path

differ in equity dimension according to those factors, and by their perception of future professional prospects that are believed to be susceptible to different treatment during the studying process.

3.1. Differences among Serbia, Montenegro and Bosnia and Herzegovina

Due to the fact that the three countries of interest are successors of the former Yugoslavia, which means that they were, not so long ago, parts of one single country, one may believe that there are no differences in equity practices among them. Nevertheless, all three political subjects have their own distinctiveness and accordingly, there are differences concerning satisfaction with educational treatment and conditions, as well as the perception of their chances at the labor market, as given in Table 3.

**Table 3.** Satisfaction with studies and perception of employability in Serbia, Montenegro and Bosnia and Herzegovina

<table>
<thead>
<tr>
<th>country</th>
<th>SRB</th>
<th>MN</th>
<th>BiH</th>
</tr>
</thead>
<tbody>
<tr>
<td>satisfaction with:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>quality of teaching</td>
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<td>0.95</td>
<td>3733</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>SD</td>
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<td>1.10</td>
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<td>3348</td>
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<tr>
<td>organization and timetable</td>
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<td>1.14</td>
<td>3717</td>
</tr>
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<td></td>
<td></td>
</tr>
<tr>
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<td>1.26</td>
<td>1534</td>
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<td>3309</td>
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<td></td>
<td></td>
</tr>
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<td>SD</td>
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<td>1.36</td>
<td>1516</td>
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<td>1.33</td>
<td>3277</td>
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<td>1.27</td>
<td>3709</td>
</tr>
<tr>
<td>attitude</td>
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<td></td>
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<td>3287</td>
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<td>0.96</td>
<td>3693</td>
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<td></td>
<td></td>
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<tr>
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<td>1.09</td>
<td>1528</td>
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<td>1.11</td>
<td>3717</td>
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<td>1.37</td>
<td>3295</td>
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</tr>
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<td>SD</td>
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<td>1536</td>
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<td>SD</td>
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<tr>
<td>N</td>
<td>3.29</td>
<td>1.68</td>
<td>3214</td>
</tr>
</tbody>
</table>

Analysis of variance showed that all differences are statistically significant on the level of p<.01. The largest difference refers to study facilities with F(2)=427.97. Teaching staff attitudes (F(2)=193.97), possibility to select from a broad variety of courses (F(2)=188.37), university administration's attitude (F(2)=122.82) and quality of teaching follows with (F(2)=121.92). The lowest difference is found for organization of studies and timetable with F(2)=76.01.
Table 4. Differences in satisfaction with studies and chances of employment among countries

<table>
<thead>
<tr>
<th>satisfaction with:</th>
<th>(I) country</th>
<th>(J) country</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig.</th>
</tr>
</thead>
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<td>SRB</td>
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<td>-.25*</td>
<td>.03</td>
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<tr>
<td></td>
<td>SRB</td>
<td>BiH</td>
<td>-.38*</td>
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</tr>
<tr>
<td></td>
<td>MN</td>
<td>BiH</td>
<td>-.12*</td>
<td>.03</td>
<td>.0</td>
</tr>
<tr>
<td>organization and timetable</td>
<td>SRB</td>
<td>MN</td>
<td>-.28*</td>
<td>.04</td>
<td>.0</td>
</tr>
<tr>
<td></td>
<td>SRB</td>
<td>BiH</td>
<td>-.33*</td>
<td>.03</td>
<td>.0</td>
</tr>
<tr>
<td></td>
<td>MN</td>
<td>BiH</td>
<td>-.05</td>
<td>.04</td>
<td>.41</td>
</tr>
<tr>
<td>variety of courses</td>
<td>SRB</td>
<td>MN</td>
<td>-.66*</td>
<td>.04</td>
<td>.0</td>
</tr>
<tr>
<td></td>
<td>SRB</td>
<td>BiH</td>
<td>-.51*</td>
<td>.03</td>
<td>.0</td>
</tr>
<tr>
<td></td>
<td>MN</td>
<td>BiH</td>
<td>.16*</td>
<td>.04</td>
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</tr>
<tr>
<td>university administration's attitude</td>
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<td>.09</td>
<td>.04</td>
<td>.07</td>
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<tr>
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<td>BiH</td>
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<tr>
<td></td>
<td>MN</td>
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<td>teaching staff's attitude</td>
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<td>.03</td>
<td>.0</td>
</tr>
<tr>
<td></td>
<td>SRB</td>
<td>BiH</td>
<td>-.50*</td>
<td>.03</td>
<td>.0</td>
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<tr>
<td></td>
<td>MN</td>
<td>BiH</td>
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<td>study facilities</td>
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<td></td>
<td>MN</td>
<td>BiH</td>
<td>.05</td>
<td>.04</td>
<td>.39</td>
</tr>
<tr>
<td>chances at the labor market</td>
<td>national</td>
<td>SRB</td>
<td>-.13*</td>
<td>.04</td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td>SRB</td>
<td>BiH</td>
<td>-.32*</td>
<td>.03</td>
<td>.0</td>
</tr>
<tr>
<td></td>
<td>MN</td>
<td>BiH</td>
<td>-.19*</td>
<td>.04</td>
<td>.0</td>
</tr>
<tr>
<td></td>
<td>international</td>
<td>SRB</td>
<td>-.45*</td>
<td>.05</td>
<td>.0</td>
</tr>
<tr>
<td></td>
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<td>BiH</td>
<td>-.10</td>
<td>.04</td>
<td>.06</td>
</tr>
<tr>
<td></td>
<td>MN</td>
<td>BiH</td>
<td>.35*</td>
<td>.05</td>
<td>.0</td>
</tr>
</tbody>
</table>

Scheffe method of post hoc analysis reveals the direction of the differences showing that the least satisfied, in almost all indicators of satisfaction with studies, are students from Serbia. As we can see from Table 4., Montenegro continues this trend compared with BiH for almost every indicator, with the exception of possibility to select courses, which is more satisfying for the Montenegrin students compared to the Bosnian. Also, there are no statistically significant differences between BiH and MN when it comes to organization of studies and timetable and study facilities. It is interesting that there are no significant differences between SRB and MN when rating the university administration’s attitude towards students, although there are differences between SRB and BiH and BiH and MN regarding that.

The situation with the assessment of the chances at the labor market at national and international level is also the subject of differences among countries. The differences are statistically significant for both levels of rating with $F(2)=44.75; p<.01,$
on national, and $F(2)=36.17$, on international level, with $p<.01$. In Table 4., post hoc analyses of the differences in rating chances at the labor market are also given. We can clearly see that the only difference that is not statistically significant belongs to the particular difference between SRB and BiH, when rating chances on international level is concerned. It seems that students from Montenegro have the most optimistic perception of their professional chances abroad. Serbian students, again, have the most pessimistic perception of their chances at the labor market both on international and national level.

3.2. Gender and equity indicators

As far as gender is concerned, t test for independent samples showed statistically significant differences among means for all equity indicators. In satisfaction with the quality of teaching, $t(8632)=3.52; p<.01$, in organization of studies and timetable $t(8558)=7.45; p<.01$, in possibility to select from a broad variety of courses $t(8441)=9.98; p<.01$, in university administration's attitude towards students $t(8534)=9.39; p<.01$, in teaching staff attitude towards students $t(8493)=5.98; p<.01$ and in study facilities $t(8561)=7.01; p<.01$. In each and every category of satisfaction, female students are more satisfied (Table 5). Further, there are differences found between male and female students when rating their future chances for employment on national and international level. Perspectives on the national level are seen as favorable by female students with $t(8462)=3; p<.01$ and on international level as well, with $t(8103)=5.06; p<.01$.

These trends of differences between genders are similar between all three countries in sample (Table 5). In the Montenegrin subsample, organization of the studies, attitudes of administration and teaching personnel and study facilities are not an issue for gender differences. In the Montenegrin sample, there are least gender differences, while in BiH differences are seen from the perspective of satisfaction, as well as from the perception of opportunities. In SRB, the case is the same, only for different indicators of satisfaction.

Consequently, the differences between genders in SRB and MN in the context of their perspective for employment are almost the same, which is not the situation in BiH. So, it seems that optimism is far more defined by the country then by gender, especially when we found comparable results while keeping gender constant.

When the factor of gender keeps constant, there are also similar differences among them, with a lack of it between MN and BiH females when organization of studies and facilities are concerned. In this subsample, Bosnian subjects find their professional perspective on the national level more optimistic than Serbian and Montenegrin do. Nevertheless, the Montenegrin assess their opportunities better on the international level. Similarly, on the subsample of male students, in Bosnia and Herzegovina and Serbia there are no differences in perceiving possibilities of
international mobility, with the Montenegrin seeing it significantly more optimistic. It is also confirmed within the results in Table 3.

### Table 5. Satisfaction with studying circumstances and perception of labor market chances among male and female students

<table>
<thead>
<tr>
<th>Satisfaction with:</th>
<th>gender</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
<th>SRB t df Sig.</th>
<th>MN t df Sig.</th>
<th>BiH t df Sig.</th>
</tr>
</thead>
<tbody>
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<td>quality of teaching</td>
<td>Female</td>
<td>2.40</td>
<td>1.04</td>
<td>4738</td>
<td>3.06 3731 .0</td>
<td>-2.19 1552 .03</td>
<td>2.55 3346 .01</td>
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<tr>
<td></td>
<td>Male</td>
<td>2.32</td>
<td>1.05</td>
<td>3896</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>organization and timetable</td>
<td>Female</td>
<td>2.72</td>
<td>1.22</td>
<td>4704</td>
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<td>1.68 1532 .09</td>
<td>5.24 3307 .0</td>
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<tr>
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<td>1.16</td>
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<tr>
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<td>1.35</td>
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<tr>
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<tr>
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<td>1.11</td>
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<td>1.39 1526 .16</td>
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<td>study facilities</td>
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</table>

### Table 6. Satisfaction with studying and rating chances at the labor market between students in private and public universities

<table>
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<tr>
<th>Satisfaction with:</th>
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<th>SD</th>
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<th>SRB t df Sig.</th>
<th>MN t df Sig.</th>
<th>BiH t df Sig.</th>
</tr>
</thead>
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<td>.88</td>
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<td>Private</td>
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<td>1.01</td>
<td>1587</td>
<td></td>
<td></td>
</tr>
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<td>1.31</td>
<td>1568</td>
<td></td>
<td></td>
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<td>1.27</td>
<td>6915</td>
<td>19.66 3707 .0</td>
<td>9.41 1539 .0</td>
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<td>.99</td>
<td>1591</td>
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<td>1.08</td>
<td>6876</td>
<td>16.74 3691 .0</td>
<td>10.04 1526 .0</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>1.56</td>
<td>.81</td>
<td>1589</td>
<td></td>
<td></td>
</tr>
<tr>
<td>study facilities</td>
<td>Public</td>
<td>2.86</td>
<td>1.29</td>
<td>6943</td>
<td>17.92 3715 .0</td>
<td>8.86 1549 .0</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>1.69</td>
<td>1.01</td>
<td>1591</td>
<td></td>
<td></td>
</tr>
<tr>
<td>chances at labor market</td>
<td>national</td>
<td>3.64</td>
<td>1.36</td>
<td>6877</td>
<td>-1.23 3627 .22</td>
<td>4.66 1534 .0</td>
</tr>
<tr>
<td></td>
<td>international</td>
<td>3.35</td>
<td>1.69</td>
<td>6567</td>
<td>-3.70 3420 .0</td>
<td>-.57 1468 .57</td>
</tr>
</tbody>
</table>

6 Tables that show those differences were omitted due to the lack of space and less importance for the issue
Additionally, we might analyze if there is any difference between male and female students according to the subject of their study, which chi-square test confirmed (Chi-square(7)=592.88; p<.01) on a sample of N=9003 valid cases. For example, female are more prone to social sciences and humanities and arts, as well as to education and health and welfare, but in the engineering, manufacturing and constructing subject area, male students are distinctively more common. It is in line with many other researches where similar results were found (Figure 1).

### 3.3. Private/public university and equity

Taking into account differences between private and public universities, we could see that in our sample the majority of respondents are students of public universities, which is illustrated in Figure 2. This bias of the sample could have an impact on the differences found in satisfaction and opportunities for employment between students of these two types of universities. Yet, we believe that the structure of the sample must be analyzed in the context of the number of private and public universities existing in the region (see Table 1). Although there is a similar number of universities, public faculties are more numerous with many more students in overall population.
The main question that we posted was if there were differences in perception of equity indicators between those attending private and public universities. According to Table 6, we can conclude that satisfaction and their professional opportunities as students see them are better rated at public than at private universities. Yet, only measures of statistical significance are the indicators of the reality of potential differences. T test for independent samples showed that there are differences for all satisfaction items and both ratings of chances at the national and international level. All differences were significant at the p<.01 significance level. In quality of teaching t(8603)=30.51, in organization of studies t(8530)=26.33, in possibility to select from a broad variety of courses t(8412)=29.23, in university administration's attitude towards students t(8505)=31.45, in teaching staff's attitude t(8463)=28.76 and in satisfaction with study facilities t(8532)=33.99. In future prospects, students from public and private universities are likely to differ both on national and international level, in the favor of students of public faculties (for national level t(8433)=5.99 and for international t(8077)=4.84).

In the overall sample, there might be some partiality towards the public university. It might be performed by the community, or it might be the product of government influence through some specific practices and policies that should be investigated more thoroughly. Comparing the differences among countries, the situation is similar, with only absence of differences between universities in Serbia when opportunities for local employment and in Montenegro, when international opportunities are in question (Table 6).
3.4. Profiling students according to their satisfaction and prospects

At the end, we tried to identify if there is any relation between two hypothetical indicators of equity: satisfaction with different aspects of studying process and the chances on international and national level, as students see them. From Table 7, we could see that satisfaction might be seen as one relatively homogenous dimension, with high correlations among different manifestations of it. For example, correlation between quality of teaching and attitudes of those teachers towards students is relatively high, as well as the correlation between perception of attitude of professors and administrative personnel at the university. It is not unusual to have this situation, but a more important issue is the fact that we got statistically significant correlations between each element of satisfaction and perceiving chances for future employment. Those correlations are weak, but statistically significant.

**Table 7. Correlation between satisfaction with studies and the perception of the labor market chances**

<table>
<thead>
<tr>
<th>satisfaction with:</th>
<th>satisfaction with:</th>
<th>chances at labor market</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>organization and timetable</td>
<td>variety of courses</td>
</tr>
<tr>
<td>quality of teaching</td>
<td>r</td>
<td>.63**</td>
</tr>
<tr>
<td></td>
<td>Sig.</td>
<td>.0</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>8525</td>
</tr>
<tr>
<td>organization and timetable</td>
<td>r</td>
<td>.55**</td>
</tr>
<tr>
<td></td>
<td>Sig.</td>
<td>.0</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>8393</td>
</tr>
<tr>
<td>variety of courses</td>
<td>r</td>
<td>.48**</td>
</tr>
<tr>
<td></td>
<td>Sig.</td>
<td>.0</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>8381</td>
</tr>
<tr>
<td>university administration's attitude</td>
<td>r</td>
<td>.62**</td>
</tr>
<tr>
<td></td>
<td>Sig.</td>
<td>.0</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>8433</td>
</tr>
</tbody>
</table>
Further, we classified students according to the given dimensions into two clusters using ward method of hierarchical cluster analysis. They are based on the satisfaction with treatment during the studying process and the level of rating of their professional prospects. The first cluster consists of cases not satisfied with the existing practice of studying process that their universities convey and with pessimistic perception of their professional future – called unprivileged. The second cluster is defined by students satisfied with university treatment, believing in possibilities for their success at the labor market – called privileged. These classifications were based only on their perception, but when equity is in question, the subjective experience of injustice is sometimes all that matters. The analysis of our sample showed that there are almost 62% of students (total number of N=5567) experiencing their studies with low satisfaction and low expectations of their future and they are categorized into the first cluster. Only 23% of students (total number of N=2043) could be categorized into the satisfied group.

Table 8. Profiling the privileged and unprivileged students according to equity factors

<table>
<thead>
<tr>
<th>factors</th>
<th>number of cases</th>
<th>correlation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>unprivileged</td>
<td>privileged</td>
<td>total</td>
</tr>
<tr>
<td>university type</td>
<td>Public</td>
<td>4195</td>
<td>1950</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>1349</td>
<td>91</td>
</tr>
<tr>
<td></td>
<td>total</td>
<td>5544</td>
<td>2041</td>
</tr>
<tr>
<td>country</td>
<td>SRB</td>
<td>2679</td>
<td>539</td>
</tr>
<tr>
<td></td>
<td>MN</td>
<td>904</td>
<td>448</td>
</tr>
<tr>
<td></td>
<td>BiH</td>
<td>1983</td>
<td>1056</td>
</tr>
<tr>
<td></td>
<td>total</td>
<td>5566</td>
<td>2043</td>
</tr>
<tr>
<td>gender</td>
<td>female</td>
<td>2904</td>
<td>1254</td>
</tr>
<tr>
<td></td>
<td>male</td>
<td>2663</td>
<td>789</td>
</tr>
<tr>
<td></td>
<td>total</td>
<td>5567</td>
<td>2043</td>
</tr>
</tbody>
</table>

After analyzing the contingency coefficient of correlation between clusters and dimensions of relevance, we gain an insight into characteristics of these groups. The highest correlation is between the type of university and faculty experience,
then between country and gender. Analyzing the contingency tables and differences between categories, we might conclude that a typical student with low satisfaction and pessimistic towards their professional future is a male student coming from a private university in Serbia. A typical student satisfied with the treatment at the studies and optimistic about his future outcome is a female student from a public university in Montenegro.

4. Conclusion and further researches

In this paper, we emphasized two potential factors of inequity based on the knowledge of local particularities of Serbia, Montenegro and Bosnia and Herzegovina. Starting from the universal gender issue, towards the idea that the type of university might be of importance, we came to the conclusion that the differences between countries must not be excluded from the analysis. Indicators of potential inequity were found in the very process of studying by analyzing the satisfaction with the treatment that students get at the university and in the perception of their outcome. Those indicators are not of direct nature, there were no overt questions of perceiving any injustice towards them or any other population category, during studies or connected with their professional opportunities. Nevertheless, concrete experiences during studies shape someone’s satisfaction and their perception of fruitfulness of their studies.

4.1. Two faces of equity: Theorizing profiles of privileged and unprivileged students

Our results indicate that the majority of students in our sample are basically not satisfied with their experience during studies. They do not feel that they are treated well and they do not have very optimistic perception of their professional future. Yet, that does not necessarily mean that they experience some kind of inequity due to the fact that that treatment might be universal. So, we tried to identify if there is any particular systematic factor according to which we might differentiate students into privileged and unprivileged. These profiles invoke the picture of a Serbian male student enrolled at a private university compared with a female student from a public Montenegrin university. Consequently, one more factor is included, implying the specific differences among the countries in the region, which should be explained to some extent. Those results could probably be seen in the context of different positions of those countries in the international political landscape.

As we could see from the data, female students are less dissatisfied then the male. It might be the result of their lower expectations or the university might be
the environment that females are more inclined to, as some studies imply (Opheim, 2004). The fact that female students are more satisfied with overall treatment and potential outcome might be explained by different motivation based on diverse process of socialization. Additionally, we might mention the difference in the subject of study that females and males choose, that is shown to be in line with the familiar stereotypes. We could refer to theoretical explanations of social value theories. It might be combined with theoretical explanations that proceed from cultural theories. Perhaps university environment is more convenient for females and corresponds to their expectations. Maybe that is what Opheim (2004) had in mind while speaking about the phenomenon of “feminizing of the school”.

On the other hand, the main discrepancy is found between students from private and public universities. As we could see from some previous studies concerning the issue in various countries, private universities might be acclaimed, even financed more than public, but due to the circumstances, their amenities could be missing. As a matter of fact, every society, more or less implicitly favors some values and, accordingly, it is ready to invest in them, both financially and symbolically. So, the potential inequity of community and government towards universities that undermine private institutions could be seen in the framework of social position theories (Boudon, 1974). Weeden (2002) posted his credentialing theory with the aim to explain that social groups mark their status by giving more prestige and credentials to knowledge and skills acquired in specific institutions. The result of this process is in legitimizing inequalities in the status of different educational institutions, as well as the reproduction of the existing social status and social relations within society. This process of reproduction of status quo is explained in cultural capital theory (Lucas, Beresford, 2010).

The problem with equity theories is that it seems that each theory gives an explanation of one narrow aspect of inequality. It is not easy to explain the multitude of factors that influence the perception of justice from the perspective of various individuals. Also, as Baye and Demeuse (2008) noticed, it is almost impossible to isolate one determinate from the other, and their effects are cumulative, producing the specific experience of marginality among different groups of students. In this stage of equity theory development, we could use theoretical ideas partially to explain one phenomenon at the time and there is a lack of some comprehensive theoretical model of educational justice. Baye and Demeuse (2008) believe that it is one of the reasons why scholars replaced the term equality with equity. It is less binding in the theoretical sense of speaking, due to the fact that it implies action (Unterhalter, 2009).

4.2. Heading towards a local equity model

Although we gained some important insights into equity conditions in higher education of the analyzed countries, and even offered some summary of privileged
and unprivileged characteristics, those profiles are not especially informative, unless there is some comprehensive theoretical model integrating all influential factors and indicators. Consequently, it is important to generate a local equity model in the domain that might help shaping the policies and practices for higher education considering equity issues in each region.

Other possible factors should be considered, due to the fact that there are large socioeconomic differences among the citizens in the region. Nevertheless, we wanted to take into account only one part of the puzzle at the time, and, being aware of the specific changes at the “education market”, we focused on private and public university differences, implying that satisfaction with the studying process and perception of future employability might portray the situation in the region.

If we wanted to be precise when analyzing, especially the perception of the chances at the labor market, we might take into consideration the question of the level of studies. Also, the subject of study is important, and it might represent some kind of unjust treatment due to a different diploma within the same university and country. Yet, these different opportunities for employment might not be the issue of inequity in the strict sense, they are just a symptom of occupational offer and demand, reflecting the current circumstances at the labor market. Finally, it might be important to compare our results with those in different regions, having in mind the local specifics, in the future and further research.

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Equity in higher education


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PART IV

HIGHER EDUCATION FINANCING IN SERBIA
THE CHALLENGES OF HIGHER EDUCATION FINANCING

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Abstract: Discussion on higher education financing is one of the greatest challenges in higher education policy. Limited budgets in the public sector on one side, and the needs for investing in this sector on the other especially contribute to that. Charging students tuition is only one way for higher education institutions to obtain additional funds. The goal of the paper is to point to the challenges that countries and higher education sectors face in distribution of funds in the last decade, in the European Union, as well as Serbia. The paper also discusses an alternative financing source known in many European countries - public-private partnership. It also provides an answer to the question why this type of financing currently has no conditions to develop in higher education financing in Serbia. Concluding remarks look at the fact that higher education financing in Serbia is most often followed by lack of coordination between funds and accessibility of higher education for certain social groups.

Key words: financing, higher education, sources of funds, budget, public-private partnerships, European Union, Serbia

1. Introduction

The question of higher education financing is one of the most discussed questions in higher education policy. Modern interpretation of institutional autonomy states that internal organization of a university is not governed by state regulations, and neither are the type of university government, internal management of financial resources, type of income generation from different sources (except state ones), staff employment and study conditions, as well as the freedom of scientific research and teaching. In other words, the idea of institutional
autonomy allows higher education institution self-government without external interventions. However, in reality, no higher education system is free from external influences. It is, actually, a dynamic process between the university, country and society. *Higher education institutions will always be required to be responsible to the public, regardless of whether they themselves are public or private. The society has too many interests in higher education to allow ‘pure’ autonomy (which has, most probably, always been a myth) to prevail* (Meek, 2003:7). Most universities in the European countries whose education systems emphasize the importance of autonomy recognize theirs through financial autonomy. Financial autonomy refers to a university’s ability to decide freely on its internal financial affairs. The ability to manage its funds independently enables an institution to set and realize its strategic aims¹.

Financial sustainability, increased autonomy, appropriate governing structures and strong management and leadership capacities are key elements in order for universities to fulfill their multiple missions and respond to the current challenges in an increasingly complex and global environment.² One of the key aspects of institutional autonomy is the autonomy of financial transactions. However, there is the question of compared to whom should higher education institutions be autonomous and in which domain.

Demands for diversification of financing sources of public higher education institutions have often been exposed to public discussion in the previous period. The financing mechanisms that were based on analysis of output parameters were most often the topic of the discussions. Limited financing sources from the public sector on one side, and the needs for higher and higher level of investments into higher education on the other brought a decrease of higher education budget funds. Diversification of financing sources and decrease of government share in financing would often start a discussion on what makes a higher education institution public. Is it the financing, governing structure, proclaimed mission or something else?

As participation of private sector financing sources in higher education institutions' budget increases, both budget structure and financing model change as well. Still, the share of financing sources is primarily from the state budget at public higher education institutions, even though, at international level, that type of funding is noticeably decreasing. The funds from a state budget awarded to higher education institutions are mostly for the expenses of teaching and research, so these two items are separated in the budget. Research funds are most often competitive and focused on results, unlike the funds for education. The funds awarded for teaching mostly aim to cover a part of teaching staff salaries, a part of maintenance and improvement of teaching infrastructure and equipment, as

well as general organizational expenses that are not directly connected to teaching (administrative staff salaries, building maintenance costs, and the like).

Another higher education financing source is tuition. At universities in the Western Balkan countries it is usual that a number of students are financed by the government and the rest pay the tuition themselves. An exception are faculties that enroll all the interested students at the budget expense, when it comes to scarce skills. The criteria that determine who should pay tuition, as well as the amount of tuition vary from country to country.

Another source of financing is cooperation with sectors of the economy. This type of cooperation is realized through consulting or research contracts that support commercial, ecological, educational or social programs organized by the government, local government or companies.

When it comes to higher education financing from the students' perspective, it is necessary to consider students' income and expenses. Students' income in most cases includes:

- own income (if the student is employed during studies, full or part time),
- parental support (accommodation, food or cash) and
- student scholarships and/or loans and/or rewards (from public or private sources).

Some types of indirect help can be included in students' income, such as food, health insurance, transportation or accommodation subsidies and tax relief.

Employed students work to supplement their own income. That, as a rule, implies some effects that are not desirable, such as longer time of study or abandonment of study. When we talk about parent help, there are noticeable cultural and social differences among European countries. While in Scandinavian countries students are considered independent from their parents and receive the same amount of money regardless of their socioeconomic status, in the Western Balkan countries parents are expected to help their children during studies. Loans and scholarships awarded to students in, for example, the Western Balkan countries, are awarded to a limited number of students and most often based on their average grades. That means that a student’s socioeconomic status has minor influence on their eligibility to receive a loan or a scholarship. The same criteria apply to the division of students into 'budget' and 'self-financing'.

The goal of the paper is to point to challenges of budget financing of higher education sector in the European Union and Serbia, and to point to certain advantages and disadvantages that the existing models face. The paper analyzed secondary data for the period of the last eight years, which basically refer to the time period after the world economic crisis.

The paper is divided into five units. After the introductory part, the second chapter of the paper is dedicated to the challenges that the European Union countries have faced in budget financing of higher education sector in the last
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eight years. The third chapter points to specific characteristics of higher education financing in Serbia, and the following chapter discusses the potentials of higher education financing through public-private partnership. The last chapter of the paper is dedicated to concluding remarks.

2. Budget funds for higher education in the European Union countries

Higher education institutions in the European Union countries are most often financed from budget sources. Therefore, it is interesting to compare budget funds for higher education sector per country (EHEA, 2012, p 24.). The comparison is based on EUROSTAT\(^3\) indicators. One of the indicators refers to budget funds for higher education, which are actually expenses by Gross Domestic Product index (GDP). It represents the share of funds in the economy that are awarded to higher education (Eurostat and Eurostudent 2009, p. 75). In 2008, budget funds for higher education were the highest in Denmark and Norway (more than 2% GDP), and, at the same time, the lowest in Slovakia (0.78% GDP). In that period, average funds for higher education were 1.15% GDP (on average) in the European Union countries.

Graph 1: Presentation of annual public expenses for higher education in per cent GDP, 2008.


Budget funds for higher education can also be compared with other funds at national level. Graph 2 shows the percentage of annual funds for higher education

\(^3\) http://ec.europa.eu/eurostat (February 2015)
compared to total budget funds. Countries with highest share of funds for higher education are: Norway (5.14%), Cyprus (4.38%) and Denmark (4.13%), while the countries with the lowest share are the UK (1.76%) and Italy (1.69%). It should be mentioned that the average annual budget for higher education sector in the European Union countries was 2.76% of the total 2012 budget.

Graph 2: Annual budget for higher education compared to total public expenses 2008.


Still, relying on statistical indicators only is not desirable, since it does not paint the whole picture on budget funds for higher education, because it does not include temporal dimension and specific characteristics of a country. More so since the world economic crisis had different consequences on the budgets of all sectors of the European Union countries, including the education sector.

Eurydice report on modernization of higher education in Europe shows that several countries had significant budget cuts during 2008/2009 and 2009/2010. These cuts were the biggest in Ireland, Lithuania and Iceland (EURYDICE 2011b, p.41). From 2009/2010 to 2010/2011, budget funds also decreased in Iceland, Ireland and Greece, most often due to acceptance of incentive packages, with the goal of ending the world economic crisis.

From the viewpoint of total budget in the years when the world economic crisis was in full swing, countries such as Hungary, Greece, Iceland, Italy, Ireland, Lithuania and the UK had the largest higher education budget decrease. Additionally, according to the European University Association – EUA, it can be noticed that, besides the abovementioned countries, several other countries had a significant decrease of higher education budget. However, introduction of higher education budget decrease was not equal in all the European Union countries. Graph 3. explains changes in the budget in 4 annual intervals (2006 - 2007; 2007 - 2008; 2008 - 2009, and, where available, 2009 - 2010).
Graph 3: Changes in higher education budget for the period of 2006-2010


Graph 3. shows that the countries are divided into three groups. In the first group of countries there was no decrease of education budget in the period during and after the crisis, neither in the period of 2008-2009, nor in the period of 2009-2010. Instead, higher education budget significantly increased in some countries in at least one year of the post-crisis period, such was the case in Luxembourg, Bulgaria, Malta and Portugal.

In the second group of countries, education budget decreased in at least one year after 2008, but that decrease was not more than 5% and/or was a compensation for an increase in another post-crisis year.

Finally, higher education budget was significantly decreased in the third group of countries. The budget decrease was the largest in Ireland (34.6%) for the period of 2008 to 2009 and Romania (31.7%) from 2008 to 2009 and Poland (10.2%) between 2009 and 2010. However, even for those countries, it is important to mention that higher education budget increased significantly before the world economic crisis. An example for that would be Romania, where higher education budget between 2007 and 2008 increased by 88.3%, which can partly be explained by a significant growth of student population.
Decrease of higher education budget is a serious problem for most European Union citizens, since the increase of higher education tuitions also brings a social gap increase. At the moment, in the European Union countries, average investment in higher education sector is at the average level of 1.28% gross domestic product, which is significantly lower than the 2% suggested by the European Commission\textsuperscript{4}. Still, the latest EUROSTAT data show that there is an extremely low number of governments that are increasing higher education budget in order to meet the suggested amount.

3. Higher education financing challenges in Serbia

Higher education in Serbia started attracting masses at the beginning of 1960s, while the latest significant increase in the number of students started in the 1990s and has continued until today (Vukasović, 2007). The greatest reforms that were started all over Western Balkans in the first decade of the 21\textsuperscript{st} century were guided by the Bologna process. Serbia joined this process in 2003 and, in accordance with the demands of the Bologna Declaration, the legal basis that provides a framework for introduction of reforms was changed. The new Law on Higher Education\textsuperscript{5} was adopted in 2005, but the Order on Higher Education Financing was not synchronized with the Law, so the financial procedures are based on the previous system. The new Law also created a legal framework for private higher education institutions.

Based on the current situation, regulations, policies and decisions, it is not possible to determine whether higher education is considered a development priority in Serbia (Dobrota & Benkovic, 2014), because the faculties cannot clearly envision the country’s strategy for the future. Government officials emphasize a relationship where financing of every public service should decrease. Higher education financing in Serbia represents a great challenge that comes out from the efforts made by Serbia in the process of adopting and implementation of the European Union education standards, with the goal of joining the joint European Higher Education Area (EHEA).

Serbia is a country that has not developed a tradition of gathering data on higher education, so the data is quite scarce. Data gathering methods are in the development phase. From the calculation done based on the approved state budget\textsuperscript{6}, in the period between 2005 and 2010, the share of funds from the budget of Serbia for higher education was between 0.55% and 0.67% of gross domestic product (in 2008, there was a ‘jump’ to 0.75%), while, at the same time, in the European Union countries it varied from the minimum of 0.8% (the funds in Bulgaria and Romania)...

\textsuperscript{4} http://www.esu-online.org/news/article/6001/503/ (visited in February 2015)
\textsuperscript{6} The calculations include direct transfer to higher education institutions (salaries, administrative expenses, current expenses and the like); they do not include capital investments, student standard expenses, scholarships, student activities and student participation.
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to 2.4% GDP (the funds in Denmark). That means that the average share of funds in the EU is at the level of 1.2% gross domestic product (Bojković & Ostojić, 2010).

The data from 2014 paint a slightly brighter picture of the problem, even though the share of higher education in the budget of Serbia since 2008 has had a tendency to decrease.

Graph 4: Share of higher education (including student standard) in the budget of Serbia from 2005 to 2014

When it comes to comparative presentation of the share of budget funds for higher education compared to gross domestic product in Serbia and the EU, it is more simply presented in Graph 5. As it can be seen, student standard is also included in the higher education funds from the budget. It is important to note that, at the moment the report was created, Higher Education Union of Serbia, which acted as a source, did not have the data for the EU countries after 2010.

Graph 5: Comparative presentation of the share of higher education budget funds compared to gross domestic product in Serbia and the EU
Ways of distribution of funds for higher education institutions have been gradually changing in Serbia in the last two decades, but the universities have modest financial autonomy and the Government is the one that decides on budget financing, i.e. budget lines dedicated to higher education institutions. The criteria used to determine the amount of budget funds are most often the number of enrolled students, number of employees, study program, as well as the basic criteria for salaries in the public sector.

In the higher education system in Serbia, there is also a mediatory body, National Council for Higher Education. This body does not participate in the mechanisms and distribution of financial means, even though it is in charge of providing development and improvement of higher education quality. The projects of international cooperation and student exchange are also limited, because minimal financial means are allocated for those. It is the same for research, even though they are financed independently from teaching.

Budget funds in Serbia are directly distributed to faculties as legal persons. In order to enable common services provided by the university, faculties agree to transfer some funds from their budget to the university.

Limited state budget and increasing number of students that are enrolled into higher education institutions are the main reasons for transferring a part of expenses to students. According to the data from 2009, the total number of students that pay for their education at public institutions in Serbia varies between 20% and 80% of the total number of students. Based on their achievements during the studies, students can acquire or lose the status of a ‘budget’ student.

At public institutions, tuition does not cover all expenses of the studies and it includes only the basic activities (classes and exams). It is calculated in various ways. Most often, the amount is based on how attractive the study program is and, to an extent, on relative expenses. Faculties individually suggest the tuition amount to the university, and the university then approves that amount. The Ministry is authorized to influence tuitions suggested by the university, but that rarely happens in practice. Tuitions go straight to faculty budgets.

Besides tuition, higher education institutions in Serbia most often charge enrollment fee, issuing of diplomas, different documents and eligibility to retake exams. That money directly becomes a part of the faculty budget. ‘Funds that a higher education institution, or a higher education unit acquires, except the funds provided by the Republic, are the own income of that higher education institution or unit’ (Law on Higher Education, Article 60, 76/2005).

Students in Serbia can only be full time students. Still, they are divided into two categories – those whose studies are paid for by the Government, so-called ‘budget students’, and the ones that pay tuition. At public higher education institutions, the Government approves the number of students financed by the state. All students have equal rights to subsidies, health insurance and academic rights and obligations.
When it comes to enrollment conditions, the Ministry decides on the number of available spots, based on the suggestion of a higher education institution. The available spots are awarded to students based on ranking that considers a combination of high school grades and entrance exams prepared by the faculties themselves. Additionally, the Ministry decides on the number of 'budget spots' that are awarded to the best ranked students. However, there is the question of how just such selection is.

The most common source of financing for students in Serbia is their family, even when they are studying at the expense of the Government. Serbia encourages student employment, giving subsidies to employers through tax and contributions decrease. That is the second source of financing for students. However, the right to work, according to student contract, is guaranteed only for students up to 26 years of age, regardless of when they were enrolled.

Student scholarships and loans are the third item on the list of student financing sources during their studies. In Serbia, data on socioeconomic position of a student are not a condition for awarding scholarships, but their grades in the previous year of study are. Scholarships are paid monthly during the school year (10, not 12 months). Socioeconomic position, however, together with the grades from the previous year of study is a criterion for student loans. Both scholarships and loans can be awarded only to 'budget students' and students at public faculties. As the results from Tempus project research EQUI-ED from 2013 show, in student loan competition, socioeconomic aspect only participates in the formula with a maximum of 25%. Besides the abovementioned loans provided by the government, students in Serbia also have commercial loans available, offered by banks. Conditions under which those loans are awarded and paid off are a discretionary power of the banks.

4. Potentials of higher education financing through public-private partnership in Serbia

In relation to higher education, Gornitzka and Maassen (2000) identified two basic positions of a government. According to the first one, government controls higher education and is very involved in planning, while according to the second one, it monitors higher education, giving a general framework and allowing the institutions to regulate other activities themselves. According to that, a continuum can be created that describes possible options of involving private capital in higher education financing.

The poles, or extreme points of the continuum are totally public and totally private higher education financing, and all modalities of public-private cooperation are called public-private partnership. Public-private partnership in other sectors in Serbia is just starting (Milosavljević and Benković, 2009), and its application is also
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possible in higher education sector. Still, in all the sectors, there are clear risks of introduction of this type of financing (Benković et al, 2011). The concept of public-private partnership has a large number of interpretations and ways of defining it. Wiener (Wiener, 2012) might have given the closest definition when he said that public-private partnerships represent a connection between the public and private sector, in which the risk is distributed based on joint efforts to achieve the desired results of state policy. It is a type of cooperation that allows financing, construction, operations and maintenance of business infrastructure and/or service providing. Therefore, public-private partnerships are a contractual relationship signed between representatives of the government and private companies, whose goal is implementation of a project of public importance in which both sides contribute with certain resources, according to their abilities, as well as participate in the planning and decision making.

The main motif for potential implementation of the financing concept through public-private partnerships is lack of finances in the state budget for research projects, international cooperation, student exchange projects, strengthening of universities' technical capacities, as well as introduction of elements of professional management structure (management) to public universities.

Even though, in 2011, a new Law on Public-Private Partnerships and Concessions was passed, the capacities for successful implementation of public-private partnership are still at the beginning. Keeping that in mind, the best approach to implementation of projects financed by public-private partnerships in higher education would be through smaller projects, since experience showed that application of this type of financing has to be organized, not left to the market and the conditions that dominate the market.

It is expected that, in the time coming, this financial concept will gain importance in Serbia in the field of development of different services and reconstruction of infrastructure in general, including the higher education infrastructure. Since Serbia will have to provide additional funds in the future in order to achieve at least the lower limit of higher education financial funds of the European Union, it is to be expected that the public-private partnership financing model will be considered. Implementation of this financing concept can be faster and more valuable if we use the experience of the countries that have already implemented it.

5. Conclusion

As it was emphasized in the Education Development Strategy in Serbia by 2020, higher education financing is an investment in the future. Increased level of investments and the financing system need to be directed towards creation of creative, innovative and responsible highly educated people that are
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necessary to achieve economic growth, decrease unemployment and achieve total democratization of society.

The existing higher education financing policies are not comprehensive. That means that many higher education financing aspects are not synchronized due to limitations of financial funds and poor availability of higher education for certain social groups. Higher education institutions of most countries enroll the greatest number of students relying on the funds from the appropriate ministry's budget and students' family budget. At the same time, cooperation with the economy, private sector, inter-university, and even inter-faculty cooperation is limited, and there is not enough good practice and it is most often in some disciplines only (such as, for example, technical sciences).

This situation clearly points to lack of systematic approach that would stimulate and enable universities to depend less on the government, more actively cooperate with other social and economic spheres and to, in that way, better respond to the needs of the society. Higher education, research and innovations have the main role in individual and social progress and in creating highly competent human capital. Higher education institutions are, therefore, important partners in implementation of development strategy. That is, again, tightly connected to the reforms that have to be implemented with the goal to increase the number of highly educated citizens at all levels; better quality of human capital in higher education; creation of an effective management and financial mechanism as a support to high quality and strengthening of the knowledge triangle (education, research and innovation).

European education system showed that financing of higher education from the budget is successful if it has, above all, a healthy financing core – budget funds, enabled access to education, teaching quality and additional funds gained through own efforts of the institution.

An adequate financing system is the one that is flexible enough and sensitive enough to the differences between and within institutions, areas and study programs. An adequate financing system is not separate — it needs to be supported (and that it itself supports) an adequate quality insurance system, in order to enable a continued monitoring of results at the system, institutional level, and from the viewpoint of an individual student or student population as a whole. Without such monitoring, it is impossible to estimate whether a model considered adequate in theory truly is such in reality.

Goals of each participant can be, and most often are, complex, diverse, and sometimes also conflicted, in the sense of the relationship between teaching and research, but also the search for excellence, efficiency, effectiveness and equality at the same time. Available resources that can be awarded to higher education, both public and private, are limited. Therefore, it is important to carefully make decisions in respect to relative importance of each of the previously mentioned elements, and according to adequate analysis of possible short-term, mid-term and long-term consequences, which will, certainly, be a topic for further research.
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THE DRIVERS OF ENTREPRENEURIAL UNIVERSITY: EVIDENCE FROM SERBIA

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Abstract: The economy of knowledge, turbulences in economy and unprecedented societal changes have refocused the role of universities from teaching and research institutions towards the “third mission”. One of the most important pillars of the third mission is transformation of traditional towards entrepreneurial universities. Nevertheless, it is still hard to find unequivocal and coherent definition of an entrepreneurial university, which creates a real conundrum for finding the main factors that facilitate and drive entrepreneurial actions of universities worldwide. The aim of this paper is to examine and explore the relationship between various determinants of entrepreneurial universities on one side, and entrepreneurial success of Serbian universities on the other. Firstly, the study sets a scene for theoretical foundations of the main drivers of entrepreneurial success of universities. The study examined a group of key forces that drive entrepreneurial action of universities. These driving forces are (1) leadership and governance style of universities, (2) institutional capacities – financial, human and organizational, (3) entrepreneurship development in teaching and learning, and (4) university – business/external relationships for knowledge exchange. Afterwards, the study discusses the elements of entrepreneurial success of universities. The main findings of the paper indicate that all previously examined variables are related to entrepreneurial success. However, the intensity of this relationship varies. Hence, the paper is important both for scholars and university policy-makers.

Keywords: entrepreneurial orientation, institutional capacity, entrepreneurial study programs and research, university entrepreneurship, university-business collaboration, entrepreneurial success, Serbia.
1. Introduction

The modern world is based on knowledge as the most influential factor of production. Ever since the popular phrase "the knowledge economy" was introduced by P. Drucker, scholars and practitioners have been arguing on the importance of knowledge in economic development. A broad body of evidence inarguably indicates that the leading edge of developed economies is driven by technologies founded on knowledge and information (Powell & Snellman, 2004; Nelles & Vorley, 2010). The central role of knowledge creation is assigned to higher education, thus putting profound pressure on universities to reshape their visions and missions.

The economy of knowledge, turbulences in economy and unprecedented societal changes have refocused the role of universities and research institutions from teaching towards the "third mission" – contribution to the society and economic development in a more direct manner (Martinelli, Meyer & Tunzelmann, 2008). This paradigm shift has been based largely on expanding a variety of market-oriented and knowledge transfer activities (Gunesakara, 2006). The third mission provides universities with an important role in economic and cultural growth (Etzkowitz, et al., 2000). The important part of the market-oriented mission transformation is transition towards the "entrepreneurial university" (Clark, 1998).

Universities are expected to transform (Vorley and Nellesm 2008) and to adjust their model of cooperation to the business sector (Milanović, Žarkić Joksimović, Benković & Milosavljević., 2014). Arguably, universities around the world share some common missions and modes of operations which could shape their cooperation with external knowledge-seeking institutions and organisations. Thereafter, higher education institutions have to meet similar challenges of modernisation (European Commission, 2011). This argument collides with the situation-based approach stating that each university has different history, tradition, organizational culture, structure and values, and, accordingly, has to shape its own model of modernisation (Sánchez-Barrioluengo, 2014). Different backgrounds of universities affect their modernisation course.

The capacity building for full implementation of the third mission of Serbian universities is at its infancy. Very few examples of universities' entrepreneurial behaviour are worth mentioning (Novak and Stanković, 2002). Universities in Serbia are coping with the legacy of the past decades. The system of studies in Serbia was monopolized by the state throughout the second half of the twentieth century. Similarly to other East and Central European countries, social science studies were largely politicized in this era, putting economics and management teaching under the influence of Marxism-Leninism (Auers, Rostocs & Smith, 2007). Therefore, all the entrepreneurship-centred behaviour was largely neglected in both academic literature and teaching processes. The transition to market economy triggered the
need for a large and complex adaptation of not only the curricula, but also the mission of the universities as well. However, the changes in the marketplace were more dynamic and rapid than the changes in academia.

The main objective of this paper is to examine and explore the relationship between various determinants of entrepreneurial universities on one side, and entrepreneurial success on the other. Academic entrepreneurial activity is very important, as it generates knowledge spill-over (Di Gregorio & Shane, 2003) and drives local economic development, as technology transfer tends to be geographically close to the university (Audretsch, Lehmann & Warning, 2004). Therefore, it is of vital importance to explore the nature of the entrepreneurial activities of specific universities. To the best of the authors' knowledge, a study of this kind has never been conducted before, particularly in the Western Balkans region.

The paper comprehensively examines the relationship between the main determinants of entrepreneurial action of universities and their entrepreneurial success. This relationship provides systematic frameworks which are important for updates of the knowledge in this field. Hence, the paper is important both for scholars and university policy-makers.

The remainder of this paper includes: (1) theoretical background to the concept of entrepreneurial university and development of hypotheses, (2) brief background of higher education system and financing in Serbia, (3) methodology used in the research, (4) presentation of results and consequent discussion, and (4) conclusions and recommendations for university policy makers.

2. Theoretical background and development of hypotheses

2.1. A concept of entrepreneurial universities

An entrepreneurial university as a result of the new revolution in higher education is an important topic in various academic and professional debates (Beynaghi, Moztarzadeh, Maknoon, Waas, Mozafari, Hugé & Leal Filho, 2014). The most abstract conceptualisation of entrepreneurial university is that they are innovative, and able to recognize and create opportunities (Salamzadeh, Salamzadeh & Daraei, 2011). Guerrero, Cunningham & Urbano (2014) state that entrepreneurial universities “provide adequate environments for their students, academics and staff to explore/exploit the entrepreneurial activities.”

Rothaermel, Agung and Jiang (2007) reviewed extant literature in the field, and provided taxonomy of university's entrepreneurial activities. Nevertheless,
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it is still hard to find a unique and comprehensive definition of this concept and many scholars tend to describe any activity that is not strictly teaching or research as entrepreneurial (Jongbloed, Enders & Salerno, 2008). A very broad definition indicates that “an entrepreneurial university, on its own, actively seeks to innovate how it goes about the business” (Clark, 1998, p. 4). More precisely, Schulte (2007) suggests that entrepreneurial universities have to undertake two broad activities – they must train future entrepreneurs and act in the entrepreneurial manner.

Instead of elaborating on the definition of an entrepreneurial university, this paper focuses on several areas which are likely to characterize an entrepreneurial university defined by EC-OECD (2012). These areas are hypothesized as the main factors affecting entrepreneurial success of an university in this study. Considering the specific nature of the region's higher education system, the study will follow EC-OECD (2012). However, some of the features will be adjusted due to geographical specifics of the study.

2.2. Leadership and governance and the entrepreneurial success of a university

A university leadership and governance model plays an important role in facilitation of entrepreneurial spirit in academia. The most remarkable model that recognizes this fact is “Triple Helix” model (Etkowitz & Leydersdorff, 2000), which sets a scene for establishment of functional relations and links among industry, university and governance. Herein, a university tends to have an essential role in the context of consequent economic boost (Marques, Caraça & Diz, 2006). This essential role means that university needs to integrate entrepreneurial elements into its strategy. It does not imply that this has to be the only mission of a university. Moreover, universities should critically approach the process of entrepreneurship-centricity. Conceição, Veitor & Oliveira (1998) emphasize the fact that “university based policy of intellectual property should protect the academic interest, avoiding an excessive move into commercialization concerns, which could threaten the university’s institutional integrity.”

Leadership and governance could be created in a top-down and down-top manner. Creation of specific university governance models and initiatives can facilitate entrepreneurial action, such as in the case elaborated in Wong, Ho & Singh (2007). On the other side, Rasmussen, Mosey and Wright (2014) find that, regardless of the university support, the most important driver of spin-offs is at the departmental level.

Accordingly, this study hypothesizes that:

H1: Leadership and governance affect the entrepreneurial success of university.
2.3. Institutional capacity and the entrepreneurial success of universities

Organizational capacity, people and incentives create a set of institutional resources. They are considered to be one of the most important entrepreneurial success determinants (O'Shea, Allen, Chevalier & Roche, 2005). Firstly, organizational capacity refers to having a sound financial strategy for entrepreneurial acting of a faculty and diversified funding for these purposes. This is particularly important for Serbia, since higher education in general has very poor financial capacity (Žarkić Joksimović, Benković & Milosavljević, 2013). Secondly, institutions have to involve practitioners with entrepreneurial backgrounds in the teaching process. Thirdly, the staff is the key resource in delivering the entrepreneurial agenda (EC-OECD, 2012). In fact, institutions that have pioneers in entrepreneurship are more likely to spread this influence to all faculties (Shane, 2004). Finally, institutions have to incentivize entrepreneurial behavior. Todorovic, McNaughton & Guild (2011) state that "performance/reward structures and other policies that can incentivize or discourage entrepreneurial behaviors are typically university-wide; their interpretation and implementation can differ substantially between faculties and departments."

According to the previous discussion, this study hypothesizes that:

H2: Organizational capacity, people and incentives affect the entrepreneurial success of a university.

2.4. Entrepreneurship development in teaching and learning and the entrepreneurial success of a university

Teaching entrepreneurship is probably one of the most complex processes in higher education (Mueller and Anderson, 2014). There is no consensus among academics and practitioners on effects emanating from entrepreneurship education on perceived attractiveness and feasibility of a new venture initiation or even on an actual start-up activity (Graevenitz, Harhoff & Weber, 2010), as the studies range from finding positive (Souitaris, Zerbinati & Al-laham, 2007) to finding negative effects (Oosterbeek, Van Praag & Ijsselstein, 2010). The question emphasized by Fiet (2000) whether entrepreneurship can be taught at all is still a conundrum for the researchers in the field. With regards to Serbian higher education specifically, Damnjanovic (2010) finds that students only acquire limited management-related attitudes, problem-solving skills and practical competences for implementation of theoretically-based knowledge into real practice.

A broad body of evidence indicates that entrepreneurial education impacts entrepreneurial success of individuals. Education and knowledge have long been argued to be the essence of entrepreneurial success (Iyigun and Owen, 1998). This has been supported with empirical evidence, particularly for specific
entrepreneurship performances such as the period of survival or profit (Praag van, Witteloostuijn & Sluis van der, 2013). However, these studies neglect the fact that entrepreneurial study programs and research can affect the entrepreneurial success of a university. University is a place that disseminates knowledge, skills and attitudes of the highest rank. This indicates that entrepreneurial knowledge, skills and attitudes can be acquired at the university as well. The better the university’s entrepreneurial education gets, the greater the entrepreneurial success. Accordingly, this study hypothesizes that:

\[ H3: \text{Entrepreneurship development in teaching and learning affects the entrepreneurial success of a university.} \]

2.5. University – business/external relationships for knowledge exchange and the entrepreneurial success

The exchange of knowledge between science and industry can be based on both informal and formal relations. For instance, The World Intellectual Property Organization (WIPO) recognizes informal relations such as publication of articles, personal relations and employee mobility. However, this study takes no consideration of informal relations, and rather focuses on more formal ones, such as contractual relations, joint research projects and the provision of qualified human capital for the business sector.

The rationale for university-business knowledge transfer is not only commercial by its nature. Moreover, European Commission (2007) asserts that the main benefits are long-term and indirect. Among others, they include development of mutual trust among key actors, which is essential for strategic partnerships, improvements in research–access to new technologies, expansion of university core competences, and better understanding of market needs and demands, improvements in teaching processes by engaging skilled professionals from the practice and application of theories to real business problems, and promotion of scientific activities and projects.

The key assumption for essential and efficient partnership between universities and businesses is an initiative of universities. This means that university policy makers have to include promotion of quality, productivity and need for valorization of research. Also, they have to encourage researchers in their efforts to implement and market their expertise in the real economy. This encouragement has to be comprehensive and to include both financial and other forms of support.

The myriad of moderating factors should be considered in examining the influence of external knowledge exchange on the entrepreneurial success of universities. For instance, the presence of spin-offs might discourage the business sector to cooperate with universities, as unintended spill-overs of knowledge
could occur (Looy, Landoni, Callaert, Pottelberghe, Sapsalis & Debackere, 2011). Nevertheless, these and similar phenomena are not within the scope of this study.

Having all the aforementioned in mind, this study hypothesizes that:

**H4: External relationships for knowledge exchange affect the entrepreneurial success of a university.**

### 2.6. The entrepreneurial success of university

The extant literature provides a myriad of factors that shape the entrepreneurial success of a university. Creation or involvement in operations of technology parks or business incubators is the most complex entrepreneurial activity of a university (Milosavljević, Žarkić Joksimović & Okanović, 2012). A rudimental entrepreneurial activity of universities is creation of new organizations – high-tech spin-offs (Kofsten & Jones-Evans, 2000). A spin-off company is an alternative form of commercialization, since it requires a long term and risk-taking commitment of a university (Gurba, 2014). Kofsten and Jones-Evans (2000) indicate that specific contracts with external business organizations are also an important entrepreneurial action undertaken by university staff. Philpott (2011) adds to this list activities such as patenting and licensing, industry training courses and consulting.

### 2.7. The theoretical model

With regards to the previous references review, the study sets a model, shown in the graph below.

![Figure 1. The research model](image-url)
Finding the right path

The study sets four hypotheses. The dependent variable in the model is entrepreneurial success. Independent variables are leadership and governance, institutional capacity, entrepreneurship in study programs and research and university-business relationships.

2.8. A background note on higher education system in Serbia

Development of entrepreneurial universities is a highly regionally specific category. A review of various country-specific factors that affect entrepreneurship among academics is given in Payumo et al. (2014). They state that universities in developed countries shift their roles towards "entrepreneurial, research-intensive" university models that emphasize interdisciplinary engagement, commercialization of institutional IP, knowledge partnerships and active contribution to the development of private enterprises in the local and regional economy. These processes are at their infancy in developing countries. This is attributable to Serbia as well.

From this point of view, development of entrepreneurial universities is related to the history of higher education system and macroeconomic features of a country. Furthermore, it is related to the system of governance and financing of higher education.

The most remarkable determinants of development of higher education in Serbia are related to disintegration of universities. This process started in 1980s (Babin & Lažetić, 2009; Zgaga, 1996), and led to the realm of faculties as legal entities and the focal point of development of universities. Instead of using the term "entrepreneurial universities", it would be more appropriate to address this concept as "entrepreneurial faculties" in Serbia and the region. The second important historical driver that affects the entrepreneurial philosophy of Serbian universities is a process of massification of education. This process was started in 1960s and has never stopped ever since. This seriously affects the entrepreneurial behavior of two important stakeholders – students and professors. Firstly, entrepreneurial education is almost impossible in overcrowded classrooms. Secondly, the teaching process becomes the only preoccupation of the university staff. This leaves very little time and space for entrepreneurial maneuvering for both students and professors.

From macroeconomic standpoint, Milosavljević & Benković (2013) state that "as fiscal pressure increases over time, the public funds for financing of higher education will partially or totally deplete." The same authors indicate that the majority of the countries in the region of Southeast Europe lag behind international recommendations or the EU average. For instance, UNESCO recommends 6% of GDP for education, whilst European Commission recommends 2% for higher education (see: “Delivering on the Modernisation Agenda for Universities: Education, Research and Innovation”). For the year 2010, total public expenditure
for higher education in Serbia was only 0.76% of (relatively low) GDP. These financial constraints profoundly affect entrepreneurial activities. University staff has to be very resourceful in terms of gathering funds for new ventures.

4. Methodology

The aim of this study is to determine the main factors that affect entrepreneurial activities at Serbian faculties. For validation of a theoretical model, the study used primary data gathered by a questionnaire. This section presents mechanics of a questionnaire administration, sampling procedure, variables, the procedures of data collection and analysis and the demographic statistics - faculty profile.

4.1. Questionnaire administration

As aforementioned, the study used a questionnaire as a main research tool. The study was initially based only on the CATI technique [Computer Aided Telephone Interviewing]. This technique is currently dominant as cost effective, more adjusted to the needs of examinees, and more controllable than PAPI [Paper-And-Pencil Interviewing] (Couper, 2000), although it has some downsides (Bowling, 2005; Lavrakas, 1993). However, in certain cases examinees insisted on a hard copy questionnaire.

The questionnaire had six sections (A-F). Section A aimed to determine the profile of the examinee (personal data and data about the faculty). The goal of Section B was to provide insights about the entrepreneurial success of faculties. Sections C-F inquired about the main determinants of the entrepreneurial success of faculties. The questionnaire was pre-tested prior to sending it to the examinees. Pilot testing was done at the University of Belgrade by 11 academics. Afterwards, the questionnaire was adjusted in order to improve its readability.

4.2. Sampling procedure

The study primarily targeted faculties with at least two years of university involvement. The sample also included administrative staff with the experience in entrepreneurial activities or university/faculty governance. The list of contacts was provided by the Faculty of Organizational Sciences. Hard copy questionnaires were distributed at various university meetings, seminars and conferences.

Having this in mind, it was difficult to determine the total sample size. The total number of filled questionnaires was 79. Seven questionnaires were excluded from this analysis as they did not fulfil the five-year involvement assumption or had less than 60% of answers. Hence, 72 questionnaires were actually analyzed.
4.3. Variables

Following the aim of the study and arguments presented in the theoretical background, one dependent and four independent variables were defined. Independent variables were (1) leadership and governance, (2) institutional capacity, (3) entrepreneurship in teaching and research, and (4) university-business relationships, while the dependent variable was entrepreneurial success. Operationalisation of these variables is shown in Table 1.

Table 1. Operationalisation of research questions

<table>
<thead>
<tr>
<th>No.</th>
<th>Research questions</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>C01</td>
<td>Entrepreneurship is integrated into the faculty mission</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>C02</td>
<td>The Faculty is committed to entrepreneurial activities</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>C03</td>
<td>The Faculty has a special model for development of entrepreneurial activities</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>C04</td>
<td>Departments have the autonomy in development of entrepreneurial ventures</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>C05</td>
<td>The Faculty is an important driver for development of entrepreneurship in Serbia</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>D01</td>
<td>The Faculty has diverse sources of financing for entrepreneurial ventures</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>D02</td>
<td>Financing is not the primary problem for entrepreneurial ventures</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>D03</td>
<td>The Faculty can easily engage external experts with entrepreneurial experience</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>D04</td>
<td>The Faculty invests into employees with entrepreneurial ideas</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>D05</td>
<td>The Faculty rewards employees with entrepreneurial ideas</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>D06</td>
<td>The Faculty particularly appreciates and rewards external individuals and institutions with whom it cooperates</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>E01</td>
<td>The Faculty has entrepreneurial courses for students</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>E02</td>
<td>Teachers stimulate entrepreneurial thinking among students</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>E03</td>
<td>Teaching is based on the cases of entrepreneurship</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>E04</td>
<td>The Faculty validates entrepreneurial actions of students</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>E05</td>
<td>Research at the Faculty can easily be implemented in an entrepreneurial venture</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

University-business relationship
The drivers of entrepreneurial university: evidence from Serbia

<table>
<thead>
<tr>
<th>No.</th>
<th>Research questions</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>F01</td>
<td>The Faculty is committed to cooperation with business, society and public sector</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>F02</td>
<td>The Faculty demonstrates involvement in cooperation with stakeholders (business</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td></td>
<td>associations, chambers, alumni, regional and local initiatives for development)</td>
<td></td>
</tr>
<tr>
<td>F03</td>
<td>The Faculty established cooperation with business parks and incubators</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>F04</td>
<td>The staff has a possibility to work in industry and public sector</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>F05</td>
<td>Internships in industry and public sector are mandatory for students</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

Entrepreneurial success – the dependent variable

<table>
<thead>
<tr>
<th>No.</th>
<th>Research questions</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>B01</td>
<td>Involvement in establishing/operating business parks/incubators</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>B02</td>
<td>Number of spin-offs</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>B03</td>
<td>Number of patents/licenses</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>B04</td>
<td>Number of contractual agreements with the business sector entities</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>B05</td>
<td>Number of courses and seminars for the business sector</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>B06</td>
<td>Consulting</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

The variables were measured on a Lykert-type scale (varying from 1 – strongly disagree to 5 – strongly agree with the statement). All the measures were perceptions of examinees.

4.4. Data collection and analysis

Trained assistants gathered the data for this study. E-mails were sent to examinees and all requested explanations were done by telephone. Assistants were trained to provide additional explanations for different terms of entrepreneurial activities in various scientific fields of faculties. Data collection was done in the first half of December 2014.

Data was analyzed in SPSS 20.0 (Statistical Package for Social Sciences). Quantitative data was analyzed by frequencies, means and standard deviation. The relationship among independent and dependent variables was analyzed with correlations (Pearson moments two-tailed correlation coefficient analysis) and multiple regressions. For multiple comparisons, the study used analysis of the variance and standard deviation. These statistical techniques are widely used in practice and will not be explained in detail.

4.5. Descriptive statistics – the profile of examinees

Participants were asked to provide an answer regarding their position at the faculty, as well as the period of their engagement at the faculty. The majority of
Examinees were professors (59.2%), and teaching assistants (25%). Frequencies and percentage are displayed in Table 2.

Table 2. The examinees' position at the faculty

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative</td>
<td>10</td>
<td>13.2</td>
<td>13.2</td>
</tr>
<tr>
<td>Assistant</td>
<td>19</td>
<td>25.0</td>
<td>38.2</td>
</tr>
<tr>
<td>Professor</td>
<td>45</td>
<td>59.2</td>
<td>97.4</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>2.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>76</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

The second demographic feature was used as precondition for the inclusion in the sample. All the examinees that were employed for less than two years were excluded from the data set. The structure of the involvement periods of the examinees is given in the following tables:

Table 3. The structure of examinees' enrolment

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-5 years</td>
<td>28</td>
<td>36.8</td>
<td>36.8</td>
<td>36.8</td>
</tr>
<tr>
<td>6-10 years</td>
<td>25</td>
<td>32.9</td>
<td>32.9</td>
<td>69.7</td>
</tr>
<tr>
<td>16-20 years</td>
<td>21</td>
<td>27.6</td>
<td>27.6</td>
<td>97.4</td>
</tr>
<tr>
<td>over 20 years</td>
<td>2</td>
<td>2.6</td>
<td>2.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>76</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

5. Results and discussion

This section presents the results of the empirical study and discussion. Firstly, the study elaborates on descriptive statistics – frequencies, means and standard deviations. Secondly, the study tests the hypotheses. Finally, it validates the theoretical model and discusses the results.

5.1. Descriptive statistics – frequencies

With regards to entrepreneurship as a mission of Serbian faculties, the study finds very mild inclusion of various determinants of the mission into the strategic activities of faculties. An interesting finding is that examinees perceive their faculty as an important driver of entrepreneurship in Serbia (average score 3.18). However, standard deviation is relatively high. Individual scores are computed to a single
independent variable with high reliability. Within the segment of institutional capacity, the perception of examinees is that diversified sources of funding are the most problematic category. On the other side, faculties can relatively easily engage experts from the practice and reward all the external partners. These variables are bundled into a single variable with high reliability. Table 4 displays mean and standard deviations for the two aforementioned variables.

Table 4. Descriptive statistics for variables Entrepreneurial mission and Institutional capacity

<table>
<thead>
<tr>
<th>Entrepreneurial mission</th>
<th>N</th>
<th>Mean</th>
<th>Std.D</th>
<th>Institutional capacity</th>
<th>N</th>
<th>Mean</th>
<th>Std.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurial mission</td>
<td>76</td>
<td>2.82</td>
<td>1.334</td>
<td>Diversified financing</td>
<td>74</td>
<td>2.58</td>
<td>1.434</td>
</tr>
<tr>
<td>Commitment</td>
<td>76</td>
<td>2.42</td>
<td>1.181</td>
<td>Financing – key issue</td>
<td>75</td>
<td>2.99</td>
<td>1.268</td>
</tr>
<tr>
<td>Specific model</td>
<td>73</td>
<td>2.85</td>
<td>1.543</td>
<td>Experts from practice</td>
<td>76</td>
<td>3.75</td>
<td>1.223</td>
</tr>
<tr>
<td>Autonomy</td>
<td>76</td>
<td>3.34</td>
<td>1.292</td>
<td>Investing into employees</td>
<td>76</td>
<td>2.97</td>
<td>1.346</td>
</tr>
<tr>
<td>Entrepreneurial driver</td>
<td>76</td>
<td>3.18</td>
<td>1.440</td>
<td>Rewarding employees</td>
<td>76</td>
<td>3.28</td>
<td>1.150</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Rewarding external partners</td>
<td>74</td>
<td>3.72</td>
<td>1.067</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>73</td>
<td></td>
<td></td>
<td>Valid N (listwise)</td>
<td>72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cronbach Alpha</td>
<td></td>
<td>0.623</td>
<td></td>
<td>Cronbach Alpha</td>
<td></td>
<td>0.762</td>
<td></td>
</tr>
</tbody>
</table>

Inclusion of entrepreneurial activities into study programs and research are perceived as neither good nor bad. The highest rank is attributed to the inclusion of entrepreneurship into research. This is somehow logical, as most of research is not fundamental, but applicable by nature. The other variable, the university-business cooperation is marked as relatively good, which is shown in the table below.

Table 5. Descriptive statistics for the variables Institutional capacity and Entrepreneurship, study programs & research

<table>
<thead>
<tr>
<th>Entrepreneurship, study programs and research</th>
<th>N</th>
<th>Mean</th>
<th>Std.D</th>
<th>University-business cooperation</th>
<th>N</th>
<th>Mean</th>
<th>Std.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurial curriculum</td>
<td>75</td>
<td>3.41</td>
<td>1.152</td>
<td>Commitment to cooperation</td>
<td>75</td>
<td>3.47</td>
<td>.977</td>
</tr>
<tr>
<td>Entrepreneurial thinking</td>
<td>76</td>
<td>2.97</td>
<td>1.306</td>
<td>Cooperation with industry</td>
<td>75</td>
<td>3.43</td>
<td>.918</td>
</tr>
<tr>
<td>Entrepreneurial case studies</td>
<td>76</td>
<td>2.78</td>
<td>1.250</td>
<td>Cooperation with bus. incubators</td>
<td>75</td>
<td>3.65</td>
<td>.908</td>
</tr>
<tr>
<td>Rewarding entrepreneurial students</td>
<td>76</td>
<td>2.89</td>
<td>1.342</td>
<td>Employees in industry</td>
<td>75</td>
<td>3.47</td>
<td>1.057</td>
</tr>
<tr>
<td>Entrepreneurial-based research</td>
<td>76</td>
<td>3.26</td>
<td>1.237</td>
<td>Student internship</td>
<td>75</td>
<td>3.49</td>
<td>1.045</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>75</td>
<td></td>
<td></td>
<td>Valid N (listwise)</td>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cronbach Alpha</td>
<td></td>
<td>0.762</td>
<td></td>
<td>Cronbach Alpha</td>
<td></td>
<td>0.763</td>
<td></td>
</tr>
</tbody>
</table>
Table 5 displays results for the dependent variable in the study – entrepreneurial success. It is interesting to note that examinees find that an industry project or course, seminar or training tends to be the most dynamic category in the university-business cooperation (means are 3.58 and 2.31, respectively). This particularly refers to industry project, where the standard deviation is relatively low.

Table 6. Descriptive statistics for the dependent variable

<table>
<thead>
<tr>
<th>Entrepreneurial success</th>
<th>N</th>
<th>Mean</th>
<th>Std.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involvement into business incubation processes</td>
<td>73</td>
<td>2.99</td>
<td>1.286</td>
</tr>
<tr>
<td>Number of spin-offs</td>
<td>75</td>
<td>2.85</td>
<td>1.074</td>
</tr>
<tr>
<td>Patents, licenses, new products, software etc.</td>
<td>75</td>
<td>2.96</td>
<td>1.409</td>
</tr>
<tr>
<td>Projects for industry</td>
<td>72</td>
<td>3.58</td>
<td>.915</td>
</tr>
<tr>
<td>Courses, trainings and seminars for industry</td>
<td>75</td>
<td>3.31</td>
<td>1.241</td>
</tr>
<tr>
<td>Consulting</td>
<td>75</td>
<td>2.85</td>
<td>1.343</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cronbach Alpha</td>
<td>70</td>
<td>0.650</td>
<td></td>
</tr>
</tbody>
</table>

The single variable (entrepreneurial success) is calculated from the aforementioned individual ones with high reliability (Cronbach Alpha – 0.650).

5.2. Hypotheses testing

The study aimed to examine the influence of four factors – entrepreneurship in leadership and governance, institutional capacity for entrepreneurship, entrepreneurship in teaching and research and university-business cooperation – on entrepreneurial success. Table 7 displays the results for the correlation analysis.

Table 7. Entrepreneurial university correlation matrix

<table>
<thead>
<tr>
<th>Leadership and governance</th>
<th>Leadership</th>
<th>Institutional capacity</th>
<th>Entrepr. in teaching and research</th>
<th>University-Business cooperation</th>
<th>Entrepreneurial success</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>.643**</td>
<td>.621**</td>
<td>.348**</td>
<td>.516**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.003</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>70</td>
<td>72</td>
<td>72</td>
<td>69</td>
<td></td>
</tr>
</tbody>
</table>
As the results show, the relationship between dependent and independent variables is statistically significant in all the cases. The strongest relationship is between institutional capacity and entrepreneurial success (0.639). These results were expected, since the faculties that have high capacities (both tangible and intangible) will have better scores of entrepreneurial success. Relatively strong relationship exists between entrepreneurial curriculum and research and entrepreneurial success.

In order to determine the intensity of varying dependent variable by varying independent ones, a regression analysis was conducted. The summary of the model is displayed in Table 8.

### Table 8. Model summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.707a</td>
<td>.500</td>
<td>.466</td>
<td>.57924</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), University-Business cooperation, Leadership and governance, Institutional capacity, Entrepreneurship in teaching and research

As indicated in the previous table, 46.6% of the model was explained by independent variables. The ANOVA test (Table 9) indicates that the score of the F-test is high. Therefore, the model is statistically significant.
The regression coefficients are displayed in Table 10. The only statistically significant factor is institutional capacity. This means that changes in institutional capacity will most efficiently affect entrepreneurial success of the examined faculties.

5.3. Discussion of the theoretical model

(a) Leadership and governance and entrepreneurial success:

The study finds a positive relationship between entrepreneurship-centred leadership and inclusion of entrepreneurial elements into the mission of a faculty on one side, and entrepreneurial success on the other. This is in line with a myriad of other studies indicating that universities around the world have reformed their policies in order to change the paradigm of teaching and research based towards the entrepreneurial based institutions (Krabel & Mueller, 2009). This is also a contribution to comparative studies conducted among European countries, such as Kalar & Antonicic (2014), although this study puts an emphasis on the comparison between natural and social sciences of four European countries. The results of this study are, also, a contribution to the Tijssen's (2006) study. This author suggests that the phenomenon of entrepreneurial university has to bring changes to the culture, policies and routines of universities.
(b) Institutional capacity:

This study finds a positive relationship between institutional capacity and entrepreneurial success of Serbian faculties. Moreover, the study finds that the changes in institutional capacity are the single most important driver of the “entrepreneurial universities” concept in Serbian higher education system. Notably, the changes of university financing most profoundly affect academic involvement in entrepreneurial activities. These findings are consistent with the theoretical findings of Milosavljević & Benković (2013), who stated that “the problem of financing higher education in the Western Balkan countries is not comprehensively solved and new mechanisms have to be found for sustainable solution of this problem.” At the moment, public financing is the most important source of financing. However, this stream is not sufficient for the growing need for implementation of national strategic objectives in the field of education. These, and other capacity issues, cannot be changed in a short period. However, a commitment to the strengthening of capacities could vitally change not only entrepreneurial success, but sustainability of economy in general.

(c) Entrepreneurial study programs and research:

This study finds a positive relationship between entrepreneurial study programs and research and entrepreneurial success of faculties. The issue of entrepreneurship in teaching and research is a multiplex phenomenon. This is addressed in Mueller & Anderson (2014) and Solomon (2007). However, their focal point is the influence of entrepreneurial education on the success of graduates as future entrepreneurs.

Regarding the findings of this study, they tend to partially differ from the findings of Ellert, Andersson & Wennberg (2015). These authors state that participation in entrepreneurial education increases the probability that an individual will engage in entrepreneurship by starting a firm and that their income from these firms will be higher.

(d) University-business cooperation:

Finally, the study finds a positive relationship between university-business cooperation and entrepreneurial success of Serbian faculties. It should be noted that the motives of knowledge transfer from a university to industry should not be strictly financially-based. In spite of the fact that revenue streams through knowledge transfer are important source of financing for universities, the main benefits are indirect and long-term by nature (Milanović et al., 2014). According to Tijssen (2006), these benefits encompass: (1) development of mutual trust between a university and business sector partners, which is the key to the establishment of long-term strategic partnerships; (2) promotion of scientific research (access to modern technologies, development of skills in project management, expansion...
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of core competencies of faculty skills developed in cooperation with the business sector, an improved understanding of market needs and business issues; (3) improvement of the process of teaching (involvement of industry experts as guest lecturers, enrichment of teaching material with practical examples, application of knowledge and skills in solving real business problems); (4) identification of potential clients or partners for future research; (5) attracting, retaining and motivating high quality scientists who are interested in entrepreneurship and the professional career; (6) promotion of socioeconomic importance of scientific research projects.

Establishing partnerships of universities and the business sector significantly improves the climate for innovation. Modernization of the higher education system in the EU defines strengthening the links between higher education, research and business sectors, with the aim of encouraging innovation as a priority. In support of that, there are future EU programs in the fields of education (Erasmus for All) and Research and Innovation (Horizon 2020). The above partnership can be classified into four categories: (1) partnership that develops new flows of financial resources, (2) partnership with a significant impact on education and learning, (3) partnership that transforms the traditional role of universities and (4) strategic partnership (Science|Business Innovation Board AISBL, 2012).

6. Conclusions

The outcomes of this study provide insight into the factors that drive entrepreneurial success in a university context. In the broadest sense, development of entrepreneurial activities at Serbian universities is still at its infancy. However, this study confirms elements of entrepreneurial activities among Serbian academics. This certainly indicates a change in the classic paradigm of university mission and a transition towards the more market-centric activities. As all other transitions, a shift from a traditional to an entrepreneurial university has no fixed endpoint. Hence, the studies of this kind can contribute to the creation of more suitable models of development of entrepreneurial activities.

This study examined various factors that affect the entrepreneurial success of universities. An important finding of the study is that institutional capacity tends to be the most substantial driver of the entrepreneurial success of Serbian universities. Thus, higher education policy holders should put more effort into more rational use of tangible, intangible and financial efforts, with the aim of maximizing entrepreneurial output. The important presumption is cooperation of universities and the business sector. The development of an entrepreneurial university requires closer bonding of the academia and industry. In the case of Serbia, particular emphasis should be given to the establishment of cooperation with the private
sector. Research should be focused on those categories that can be easily marketed, and closer to real world.

This study, as all other quantitative studies, has certain limitations which can jeopardize the use of the results – in both academic and practical sense. These limitations or presumptions could be categorized as fundamental and methodological. The key fundamental limitations are based on the selection of contingent variables that affect entrepreneurial success. A myriad of factors outside of the model can strongly affect the entrepreneurial success of a specific department, faculty or university. Therefore, a situation approach, which puts spotlight on situation (case-based) variables could bring more effective conclusions.

Methodological limitations include:

1. The study is cross-sector, which means that it has been done across the sector at a specific point of time (a period from the beginning of December 2014 to mid-January 2015). Entrepreneurial success can, however, evolve over time. Thus, a longitudinal study would be very useful.

2. The study uses statistical techniques and is accordingly affected by statistics-based limitations. Quantitative techniques are good for the analysis of large scale data, but a quantitative study of the problem could provide effective conclusions, particularly regarding the directions for university policy holders. Other limitations are linked to the sample size and correlation and regression models, which are more or less the same for the studies of this kind.

3. The main focus of the questionnaire is to collect data on the examinees’ perception of entrepreneurial success. Perceptions allow comparison among the categories which differ significantly. Nevertheless, the study could be based on more objective measures of entrepreneurial success and the factors that affect entrepreneurial success.

4. Finally, the study has geographical limitations. The research was carried out among Serbian universities. This means that the conclusions could be valid for the countries of similar background and level of development. Still, using these findings for other regions would be very risky.

Recommendations for further research are based on the implications and main limitations of the study. Firstly, new studies in the field of entrepreneurial universities in Serbia should include a broader scope of factors into analysis. This could contribute to the extant body of evidence. Secondly, a longitudinal study could be very interesting. The theory of entrepreneurial universities almost dogmatically states that entrepreneurial universities are a dynamic category. Therefore, a cross-time analysis could expand the existing knowledge in the field. Finally, more objective measures of entrepreneurial success could even more effectively improve the importance of scholarly studies. Nevertheless, the matrix for the appraisal of entrepreneurial success is determined by higher education policy holders and other external factors.
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The drivers of entrepreneurial university: evidence from Serbia


PART V

HIGHER EDUCATION FINANCING
IN BOSNIA AND HERZEGOVINA
Starting from the fact that Bosnia and Herzegovina adopted the Bologna Declaration during 2003, and that it has been a signatory of the Convention on the Recognition of Qualifications Concerning Higher Education in the European Region since 2004, it can, from a distance of about a decade, look at the changes that the implementation of these strategic documents brought to this education region.

The Framework Law on Higher Education in BiH was adopted in 2007, which enabled reforms of higher education and construction of new institutional capacities. Those changes are primarily visible in the fact that the new legal framework included introduction of a three-cycle structure based on accumulation and transfer of ECTS (European Credit Transfer System) points that reflect the outcomes of studying and the load on the students, as well as in the introduction of teaching quality evaluation. The implementation of the changes is in different phases and some elements of the reform have not been fully implemented yet, but they still inspire a discussion of the present financing mechanisms. The laws of the Republic of Srpska and ten cantons of FBiH, as well as Brcko District in FBiH, as a lower level of government, that were adopted after the abovementioned Framework Law have been coordinated with it. It is important to point out that the Framework Law itself does not deal with higher education financing; that issue is covered by entity and cantonal laws and the law at the level of Brcko District in BiH.

For that reason, it is not surprising that the introduction of the reforms inspired by the Bologna process started numerous discussions and debates about changes in higher education financing policies, which reflects on distribution of power in the higher education financing system and the countries in the region. Modernization of higher education institutions' management, where integration
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of universities appeared as a new way of distribution of financial means at public universities in the Republic of Srpska and currently at the three public universities in the BiH Federation significantly contributes to that. At the same time, a higher level of autonomy that the public universities now have has enabled merging of resources of faculties that have larger intake of students, compared to the ones that are less in demand.

It can be concluded that the integration of public universities in Bosnia and Herzegovina, besides the changes in the faculty financing system, which recognizes only universities as legal persons and awards funds to the university, not faculties of a university, also brought changes in the conditions for awarding funds to faculties. The consequence of that is rationalization of spending, i.e. careful planning of use of higher education funds per student, which, essentially, means changes in the financial management in the higher education system. These changes include introduction of a detailed strategic development plan for public faculties and universities, and, at the same time, contribute to higher transparency levels of student enrollment criteria. For these very reasons, integration of public universities caused interest in different target groups, which are difficult to reconcile in complex higher education systems, as is the system in Bosnia and Herzegovina.

The education system in Bosnia and Herzegovina is complex and decentralized. Therefore, the institutional picture of the education system is a reflection of the state organization, defined by the Constitution of Bosnia and Herzegovina, Constitutions of the entities and cantons, as well as the Statute of Brcko District in BiH, based on which jurisdiction in the area of education has been defined. Full and undivided jurisdiction in the education system was given to the Republic of Srpska, ten cantons in the Federation of Bosnia and Herzegovina and Brcko District in BiH.

Federal Ministry of Education and Science is in charge of organization of the education sector on the territory of the Federation of Bosnia and Herzegovina (Law on Federal Ministries and Other Bodies of the Federal Administration, No. 58/02,19/03, 38/05, 2/06, 8/06, 61/06). At the same time, the Ministry of Education and Culture of the Republic of Srpska has full jurisdiction over the education sector on the territory of the Republic of Srpska (Law on Republic Administration, No. 11/09, 74/10, 86/10, 121/12). In the government of Brcko District, Department of Education has jurisdiction over implementation of laws and regulations of authorized bodies and institutions of Bosnia and Herzegovina and Brcko District in the area of education.

Education in Bosnia and Herzegovina is mostly financed from the budget, i.e. entity and canton budget and the budget of Brcko District. The Republic of Srpska, as well as each canton in the Federation of Bosnia and Herzegovina, have jurisdiction over determining the budget and resources for education.
Apart from budget financing, according to the education laws in cantons/entities in BiH, public higher education institutions get their funds from other sources:

α) from the founders' funds (according to higher education laws, founders of higher education institutions can be public – proper governments, then private, and then those persons provide funds for funding higher education institutions in this category)

β) from funds

χ) from donations, endowments and presents

δ) from tuition

ε) selling intellectual, cultural, material and commercial goods and services

φ) from income from copyrights and patents

γ) from other sources, in accordance with law.

Detailed information on own income from public higher education institutions is not available; neither is information on all the sources of financing of public higher education institutions. Still, while the budget of public higher education institutions is discussed and approved by the parliaments of entities/cantons and they are published in the Official Gazettes, there are no available public data on the income of private higher education institutions.

The Ministry of Civil Affairs of BiH published a document in 2011 titled 'Basic information on education', which states that the average education funding in the Federation of BiH is about 6% GDP (Gross Domestic Product), in the Republic of Srpska about 4% GDP, while in Brcko District it is around 11.2% of the district budget. It can be concluded that the spending in Bosnia and Herzegovina for the whole education sector is among the highest in Europe. However, the spending for higher education only is 50% lower than in Europe, which points to the fact that higher education is not high on the priorities' list. Budget funds for higher education mostly cover only salaries, while very little goes to organization of teaching, research, capital investments and the like. The issue of higher education financing is inevitable in defining higher education policies. Limited public funds, reforms, mass higher education brought significant pressure on the processes of higher education funding from public sources. On one hand, introduction of Bologna reforms and three-cycle structure of studies based on transfer of ECTS points and the reform of study programs based on learning outcomes, and, on the other hand, introduction of the quality insurance system and accreditation process, create the need to examine the possibility of introduction of adequate changes in the approach and way of their financing. Discussions on financing in BiH and other places start from the statement that the higher education system is under-valued and under-financed, i.e. that the budget and total financial funds are not enough, and finish with the statement that the existing funds are not used efficiently, rationally and transparently enough.
Everything previously said points to the need to pay more attention to the specific characteristics of higher education funding in Bosnia and Herzegovina, from the aspect of higher education financing in the Republic of Srpska, as well as from the aspect of higher education financing in the Federation and on the example of Herzegovina-Neretva Canton.

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Abstract: The paper presents how higher education is financed in the Republic of Srpska. It aims to identify system and institutional weaknesses that could help HEIs and authorities in the Republic of Srpska establish more effective, efficient and equitable financing of higher education. In the middle of the last decade, the Republic of Srpska started to reform higher education in compliance with the Bologna process and other trends in European higher education. The introduction of a three-cycle system of study and the integration of universities were two main changes. Looking inside, one can encounter a number of modern learning concepts. Self-evaluation process has been understood as a way to improve the overall QA systems being put in place.

During the period of the reform and afterwards, the Ministry of Education and Culture is responsible for managing the primary source of public HEIs funding of the Republic of Srpska. Still, besides governmental funds, higher education institutions of the Republic of Srpska generate more income from external resources. It is called “own revenues”. It consists of student tuition fees, grants and donations, income generated from research projects and services for local community. This amount is about 1/4 of the government budget. However, institutional leaderships cannot draw its managerial power from this resource. The greatest part of it belongs to project participants and departments that realize it. Still, there is a lack of either requests or opportunities for finance planning, as teaching costs are being regulated by the Ministry, while research income and expenditure cannot be known in advance. In spite of that, institutions are striving for better quality of teaching and more research activities for their own sake.

Keywords: higher education financing, budgetary funds, negotiated funding, input based funding, state student support, accountability
1. Introduction

This paper provides an insight into the current situation in financing of higher education (hereinafter abbreviated as “HE”) system in the Republic of Srpska. This is obtained by combining data based on the analysis and experience of the informed authorities of HE landscape. The data is collected through an elaborate questionnaire filled out by representatives of the University of Banja Luka and the Ministry of Education and Culture of the Republic of Srpska. The experience and knowledge of HE authorities is obtained through interviews and discussion with the ministry and institution leadership, as well as managers dealing with financial issues. The main purpose of the paper is to assist government authorities and institutional leadership in tracing a roadmap toward a more appropriate and functional model of financing of higher education.

The report is organised into five chapters. After this introduction, we inform about the status and position of higher education in the Republic of Srpska. In chapter 2 we address the size and structure of HE system and role and responsibility of state bodies versus institutional leadership. In chapter 3 we provide a descriptive account of the system-level funding framework in the entity. In chapter 4 we explain a model of public funding and procedures related to allocation of funds and institutional accountability related to spending. Chapter 4 is dedicated to other sources of financing, while chapter 5 contains concluding remarks.

2. Structure, size and status of higher education in the Republic of Srpska

Bosnia and Herzegovina signed the Bologna Declaration in 2003 and the Convention on the Recognition of Qualifications Concerning Higher Education in the European Region in 2004, meaning that competent institutions gave their consent for the introduction of all reforms that included restructuring of the education provision system – in line with the three cycle system, curricula modernization, development of quality assurance mechanisms, enhancement of student and staff mobility, promotion of European cooperation, recognition of study periods abroad, qualifications frameworks, etc.

The Framework Law on Higher Education in Bosnia and Herzegovina was adopted 4 years later (2007) for the first time and was amended in 2009. Since the jurisdiction for higher education in BiH is at the entity/cantonal level, the Law on Higher Education in the Republic of Srpska was adopted one year before the Framework Law, in 2006, but was harmonised with the Framework Law once the
latter was adopted. Besides the promotion of the Bologna reform, the Law on Higher Education in the Republic of Srpska introduced integrated university for the first time, providing the legal entity status only to the university, but not to its constituent parts. Faculties lost their legal entity status that they had ever since the first higher education institution was founded in the country. So, this was a huge change and shift from a high level of autonomy and responsibility at faculties to the central level. New Law on Higher Education in the Republic of Srpska was adopted in 2010 and amended several times until the present date; it prescribed that the structure of the system needed to be in line with Bologna reforms.

Besides the Ministry of Education and Culture of the Republic of Srpska, as the highest authority for education policies, several national bodies responsible for governance in higher education are defined by the new Law. Those bodies are: Rectors’ Conference of the Republic of Srpska, Conference of Colleges, the Council for the Development of Higher Education and Quality Assurance, Student Union of the Republic of Srpska, Higher Education Accreditation Agency of the Republic of Srpska, Commission for Information and Certification in Higher Education.

A body representative from all universities in the entity is the Rectors’ Conference and a body representative from all colleges is the Conference of Colleges. The Council for the Development of Higher Education and Quality Assurance is the advisory body to the Government. Student Union of the Republic of Srpska is the highest representative students' body, but it is registered as an NGO and it is composed of elected representatives, members of the students' parliaments of the two public universities – the University of Banja Luka and the University of East Sarajevo. Higher Education Accreditation Agency of the Republic of Srpska is the body responsible for accreditation of HEIs and study programs. The Commission for Information and Certification in Higher Education handles recognition of higher education certificates for the purposes of employment.

To have the overall picture of the system complexity, one needs to keep in mind that the Framework Law on Higher Education in Bosnia and Herzegovina also defined several national bodies: Rectors' Conference of Bosnia and Herzegovina, Agency for Development of Higher Education and Quality Assurance of Bosnia and Herzegovina and Center for Information and Recognition of Qualifications in Higher Education of Bosnia and Herzegovina.

The Law on Higher Education in the Republic of Srpska enabled founding of private higher education institutions. With regards to ownership, there are public and private HEIs in the Republic of Srpska. Regarding the organizational structure and capacity of an institution, two types can be distinguished as well: universities and colleges. The main difference between the two is that the universities must have the capacity to deliver study programs at all three cycles from diverse scientific fields, whilst the colleges organize lectures mostly at the first cycle and in one disciplinary field.
Nowadays, at the end of 2014, there are 2 public universities and 2 public colleges. On the other side, there are 7 private universities and 10 private colleges. So, in total there are 21 higher education institutions, 9 universities and 12 colleges in the Republic of Srpska.

The first private HEIs were founded in 2000, most of them being founded during 2003/2004. In 2006, there were 4 private universities and 5 private colleges. The largest number of them existed in 2009/10, 6 universities and 15 colleges and after that some colleges were closed. The situation stabilized in 2012 with 7 private universities and 10 private colleges1.

The number of study programs has been increasing, not only at private, but at public HEI too, as well as the number of students (Figure 1), the number of graduates (Figure 2), and the number of employees (Figure 3). The highest growth refers to the number of graduates at Bachelor level, and the lowest in the number of academic staff. The only decline is evident in the number of enrolled and graduating PhD students.

Figure 1. Total number of students in the Republic of Srpska

Source: The Institute of Statistics of the Republic of Srpska

The data show growth of the total number of students until 2011/2012. The number was increasing at both public and private HEIs, but considerably faster at the private institutions. After 2011/2012, there was an evident decline in student population, again faster at private and just slightly at public institutions.

1 Institute of Statistics of the Republic of Srpska
In 2013/2014 academic year, there was a total of 419 882 students at all higher education institutions in the Republic of Srpska, out of which 302 263 at public and 11 762 at private HEIs.

The University of Banja Luka is the oldest and the largest higher education institution. It was founded in 1975 and currently has 16 faculties, one institute and one associate member (College of Internal Affairs). There are around 18 000 students enrolled that are attending one of the 58 licensed study programs at the first cycle, 48 licensed study programs at the second cycle or 2 licensed study programs at the third cycle.

The University of East Sarajevo is the second largest higher education institution. It was founded in 1992 and currently has 15 faculties and 2 academies of arts. There are around 15 000 students enrolled that are attending one of the 53 licensed study programs at the first cycle, 43 licensed study programs at the second cycle or 1 licensed study program at the third cycle.

A much clearer picture of this matter is obtained if we consider only university type of HEIs, since colleges are not quite well classified statistically in terms of public/private division. The data are given in Table 1, which also contains data for the University of Banja Luka (UBL) and the University of East Sarajevo.

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**Figure 2. Total number of academic staff in the Republic of Srpska**

Source: The Institute of Statistics of the Republic of Srpska

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2 Without Religious faculties, as data were not available,
3 Data assessed as number of students at colleges were not divided between public and private.
Finding the right path

(UES) separately. It is easily observed that private universities amount to only one quarter of public university academic staff, although there are three times as many of them. It means most of them are small universities.

Table 1. Academic staff at universities of the Republic of Srpska

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>UBL</td>
<td>1084</td>
<td>1101</td>
<td>1260</td>
<td>1282</td>
<td>1280</td>
</tr>
<tr>
<td>UES</td>
<td>701</td>
<td>703</td>
<td>759</td>
<td>681</td>
<td>756</td>
</tr>
<tr>
<td>Public Universities (total)</td>
<td>1785</td>
<td>1804</td>
<td>2019</td>
<td>1963</td>
<td>2036</td>
</tr>
<tr>
<td>Private universities</td>
<td>369</td>
<td>500</td>
<td>398</td>
<td>476</td>
<td>527</td>
</tr>
</tbody>
</table>

To complete the information needed for the discussion of HE financing, the following is also significant. The data given above present the total number of academic staff, meaning full-time plus part-time. The ratio between the two for a particular group or a single institution was not known to the authors at the time when this paper was written, but the estimate based on the known data shows that full time academic staff makes 60% to 65% of total staff. However, it is not very relevant information, since part time staff workload is very variable, most often very small. Hence, more relevant is the full-time equivalent which is, according to evidence, around 75% or 3/4 of the total number of academic staff. It follows that in 2012 we can calculate approximately 1555 full-time teaching staff (3/4 of 2074) at public HEIs in the Republic of Srpska. Finally, non-teaching staff makes around 40% of academic staff. Precise data for the University of Banja Luka at the end of 2014 are as follows:

- Full-time academic staff: 766
- Part-time academic staff: 481
- Full-time equivalent: 935 (estimated)
- Non-academic staff: 585

In the Republic of Srpska, employees’ salaries in the public sector are calculated according to coefficients defined by the law. Each employee of the university is classified into a category based on his or her position and education level. Each category is assigned a coefficient which is multiplied by the base salary, that is, 100 KM (approximately 50 EUR). The basic salaries are shown in Table 2. An amount calculated for the years of service for each employee is added to the basic salary.
Table 2. Basic salary of academic staff

<table>
<thead>
<tr>
<th>Title</th>
<th>Salary (KM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full professor</td>
<td>2 200.00</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>1 800.00</td>
</tr>
<tr>
<td>Lecturer, researcher, consultant with a doctorate</td>
<td>1 600.00</td>
</tr>
<tr>
<td>Research assistant with a doctorate</td>
<td>1 300.00</td>
</tr>
<tr>
<td>Senior lecturer or senior lector</td>
<td>1 400.00</td>
</tr>
<tr>
<td>Teaching assistant</td>
<td>1 200.00</td>
</tr>
</tbody>
</table>

The Rector, the Senate and the Steering Board are the governing bodies of universities, whilst at faculties those are the Teaching-Scientific Council and the Dean. The rector manages the university, or in the case of colleges, it is the director. Some of the responsibilities of the rector/director are as follows: to carry out the financial plan adopted by the Steering Board and to submit a financial report at least once a year to the Steering Board, but also he/she has the autonomy to make financial decisions up to the limit prescribed in the statute of HEI. Senate is the highest academic body of HEIs, not responsible for financial matters. Steering Board of public universities is the highest body responsible for managing business activities. Some of the responsibilities of the Steering Board are to determine the funding and development plans, to approve the annual financial report, to direct, control, and evaluate financial activities of the rector/director, and to make decisions on expenses that exceed the given amount defined by the institution’s statute. Members of the Steering Board are representatives of university academic staff, university non-academic staff, students and the founder (nominated by the Government of the Republic of Srpska). Steering Boards of public universities have 9 members, of which 4 members come from the academic staff, one from the non-academic staff, one member from student cohort and 3 members are nominated by the founder.

One difference between HEIs in the Republic of Srpska compared to other HEIs in the region is the position of the financial director at public universities, for the first time introduced by the changes of the Law in 2008 and stipulated in detail by the new Law in 2010. The financial director is elected by the Steering Board of the HEI, in the public announcement procedure and as proposed by the rector. The financial director recommends internal regulations concerning financial activities and funding, and development plans to the rector, directs and controls activities of the financial services, both central and faculty, and prepares annual financial reports.

Responsibility for higher education in the Republic of Srpska is under the Ministry of Education and Culture.
The Ministry is in charge of developing and implementing overall policy in HE. The main responsibilities are related to the assessment and approval of study programs in the procedure called 'licensing', quota of students that can be enrolled in a particular study program, financing of public HEI, student scholarships, the amount of tuition fees, etc.

On the other hand, the Ministry for Science and Technology is responsible for policy in scientific research and technology development. The Ministry distributes the budget aimed to support research projects, technology development, purchasing equipment and innovation activities. The support is managed in the form of competitive research grants on an annual basis.

3. Model and procedure of public funding (Primary Financing)

There is an abundance of issues from European Higher Education reform that are accepted and being implemented in the Republic of Srpska Higher Education area. Mostly through Tempus projects, a large number of them, academic staff has become familiar with Capacity building, Quality assurance, Academic standards, Qualification frameworks, Learning outcomes, Competence based curricula, Self-evaluation process, Accreditation and other Bologna concepts. But somehow, financing issues were kept aside and, more or less, remained the same as they were before the reform. The budget for HEIs is determined on an annual basis in the process of negotiation between HEI and the Government. It is structured following a traditional line-item budgeting model, where the funds are earmarked for general categories (e.g. salaries, maintenance, etc.). The largest part of the budget is allocated for employees' salaries. The remaining funds make a much smaller part, but their spending is also specified and can be done only according to predefined cost categories, like maintenance, heating, travel costs, engineering costs, professional services, and so on.

3.1. The structure and amount of HEIs budget

The budget of a higher education institution is structured into the next categories:

1. budgetary funds,
2. institutional own incomes,
3. grants

There are two types of budgetary funds:

1.1. the funds that support regular activities (the primary budget),
1.2. capital investment
Finally, the primary budget covers two types of costs:

1.1.1. employees' salaries and reimbursement,
1.1.2. goods and services,

Usually, when talking about budgetary funds, one only sees ‘the funds that cover regular activities’, even though the capital investment is not negligible. Further, a great ratio of institutional own incomes and grants come from the government, again as a result of a public call for proposal of research projects, conferencing, printing and publishing support, and so on. Further, from time to time, the government invests a significant amount of money in new facilities or laboratory equipment for public HE institutions through special programs. But, regardless of these facts, only public ‘funds that cover regular activities' are considered 'real budget' or shortly 'the budget' and criticized accordingly. In the paper, we will call it 'the primary budget'. What comprises these funds?

As stated above, the primary budget is intended to cover regular activities. When talking of public HE financing, the primary aim of the government is to pay for teaching activities and other teaching process related costs. It follows that public funding of higher education institutions covers: salaries of academic staff, salaries of administrative and technical staff, other employees' salaries, and visiting professors travel costs, teaching supplies, some types of maintenance costs, professional services, and so on. But the bulk of the costs covered are related to the salaries of employees, both academic and non-academic. For example, in the 2012 budget year of the University of Banja Luka, 94% of the (primary) budget was allocated to employees' salaries and remaining 6% to other costs (Table 4). That is why the primary budget is the most significant for many people – it contains their salaries.

<table>
<thead>
<tr>
<th>Year</th>
<th>Employees' salaries and reimbursement (KM)</th>
<th>Goods and services (KM)</th>
<th>Accounting type expenditures (KM)</th>
<th>Investment (KM)</th>
<th>Own incomes (KM)</th>
<th>Grants (KM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>58 554 621</td>
<td>3 843 223</td>
<td>5 273 254</td>
<td>150 000</td>
<td>21 666 379</td>
<td>4 221 798</td>
</tr>
<tr>
<td>2012</td>
<td>57 558 109</td>
<td>4 125 943</td>
<td>5 184 505</td>
<td>35 000</td>
<td>21 041 269</td>
<td>3 867 052</td>
</tr>
<tr>
<td>2013</td>
<td>55 750 146</td>
<td>4 330 514</td>
<td>7 366 032</td>
<td>333 000</td>
<td>17 703 419</td>
<td>3 625 421</td>
</tr>
</tbody>
</table>

Source: The Ministry of Education and Culture of the Republic of Srpska
Table 4. The budget of the University of Banja Luka (KM)

<table>
<thead>
<tr>
<th></th>
<th>UBL BUDGETARY FUNDS (01)</th>
<th>Own incomes (02)</th>
<th>Grants (03)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary budget</td>
<td>Capital investment</td>
<td></td>
</tr>
<tr>
<td>Employees’ salaries and reimbursement</td>
<td>32 931 700</td>
<td>1 910 663</td>
<td>3 084 347</td>
</tr>
<tr>
<td>Goods and services</td>
<td>34 137 512</td>
<td>2 325 570</td>
<td>3 188 510</td>
</tr>
<tr>
<td>Accounting type expenditures</td>
<td>31 084 000</td>
<td>1 645 000</td>
<td>3 724 716</td>
</tr>
</tbody>
</table>

Source: University of Banja Luka – Financial Department

The data in Table 3 show a slight decrease of governmental budget for HE. Year in year out, it sums to 62 547 844; 61 719 052; 60 413 660 KM. It is well correlated with the number of employees (see Figure 1). But, since the number of study programs increased during these years and, thus, correspondingly, the workload of teaching staff as well, one could expect the growth of the budget, too. But it did not happen since the government, being burdened by poor economic situation, only paid for basic salaries.

Budgetary resources, beyond the primary budget, may be significant. In the first place, there is the line titled 'capital investments' that represents a regular budget item. It is, however, almost fully (above 95%) earmarked for amortization and other accounting type expenditures and only 5% for investment into new capital goods (see Table 3).

Further, there are budgetary funds completely outside of the official higher education budget that are, even though offered regularly, not considered regular public support. The most striking example is the budget for science and technology development managed by the Ministry of Science and Technology. The amount of these funds is not known in advance, as it depends on successful application of the research projects submitted to the ministerial open call for proposals. Even though these funds are allocated regularly, on an annual basis, universities do not count the income obtained in such a way as regular public support, but rather as supplementary funding or their "own income". Officially, they fall into the "grants" budget line. What the true institutional own incomes are and how high they are, we will inform about later on in this chapter.

Moreover, there are examples of very significant public support that is not at all visible in the presented tables. As it was mentioned before, from time to time, the Government invests into new buildings, facilities and new laboratory equipment from other public resources, such as the Development program of the Republic of
Srpska and the Credit of Austrian Government. The funds allocated from these arrangements, in the period of the last five years, amounted to approximately 13 million Euros to the University of Banja Luka and even more to the University of East Sarajevo. These funds are a matter of development of a particular subject for which the faculty and the University leadership obtained the political authority's agreement to take care of.

1.2. Allocation mechanism

The budget for HEIs is determined on an annual basis in the process that follows 'negotiated funding' model. The starting point of the process of negotiation is the amount from the budget in the previous fiscal year. Then, the accumulated experience of how it fulfilled the needs in the previous year is taken into account. Next, a kind of analysis and calculation is done based on envisioning what new needs HEI will face. It is again related to new teaching activities, for example new study program delivery and so on. Also, maintenance costs may change according to building and facilities resources. Reconstruction of the existing facilities is taken into account, too. Based on this investigation, HEIs design their budgets, propose them to the government and negotiate them. This process usually results in a certain percentage of budgetary increase or decrease of the institution's overall funding, depending on the needs presented and economic situation forecasted. The final budget of a higher education institution (which relates primarily to teaching activity) is finalized by the Ministry of Education and Culture together with the Ministry of Finance. Funding for research projects, technology transfer, publishing of research results, writing books and other research activities is determined by the Ministry of Science and Technology and is not part of this negotiation process.

The final budget is determined as an annual amount and is integrated into the government's annual budget. However, it is not transferred to HEIs as a lump sum, but in twelve monthly tranches. Monthly tranches of funds have pre-defined purposes – the major part being earmarked for salaries and just a small part for material costs for that month. Moreover, they are transferred to a single institution account, because universities are integrated. This means that institutional leadership has very little freedom to manage them, as the funds must be used strictly for the predefined purposes. The funds that the institution leadership can, and has to, manage is the fund “Goods and services” that is intended to meet the needs of faculties and other organizational units. It is distributed according to internal allocation mechanisms, but it does not meet all the needs related to equipment, maintenance, travel, software, energy, printing and publishing, etc. Thus, organizational units have to compensate the difference from their own incomes.
The sources of an institution's own revenues and their distribution across different budget lines are very complex and hard to understand. More on these funds, their sources and internal allocation will be given in Chapter 5.

In case a university closes a fiscal year with a certain level of surplus, there are defined procedures for transferring those funds to the next fiscal year. However, this rarely happens in practice, rather the deficit of institutions is compensated for by governmental rebalance of public budget. Still, in case a higher education institution would remain with a surplus, it could be reused only following the agreement of the Ministry of Finance, and according to the decision of the National parliament of the Republic of Srpska. Actually, this means that the surplus is transferred back to the government budget, and could become reassigned to other institutions or become part of the university's next budget. In addition, the category of expense which resulted in the surplus would be regarded as being overfunded and consequently reduced in the institution's budget in the following year.

Private higher education institutions obtain their funding from their own revenues, from donations, or from other sources. The government is not obliged to fund private higher education institutions; however, the Law on Higher Education foresees the possibility of private-public partnerships in higher education. Until now, there were no such examples in the Republic of Srpska.

As can be seen, this model of financing is weakly connected to a number of income factors and not at all of them are related to outcomes and efficiency of an institution. That is why, for a number of years, the Ministry of Education and Culture has been trying to establish a system based on a set of indicators. As a prerequisite for this model, the Ministry adopted the document "The rulebook on prerequisites for establishment and launching of higher education institutions". In this document, HE authorities have determined a set of academic and technical standards a HEI has to fulfill in order to start or continue its work. The technical standards are related to physical premises, student services and facilities, library capacities, number of computers, quality of laboratory equipment, etc. Even though they are important, these criteria are not very relevant for the contents of this paper. More relevant for financial issues are academic standards that are also prescribed in the document. They are related to quality of academic staff and teaching process. First, for a particular subject area, min-max number of students in a single teaching group is defined. It means a course cannot be delivered with a group of students under the minimum number defined, while large groups are to be split into two or more groups of standard size. Based on the number of students and these criteria, the number of teaching hours can be computed. The crown of this normative job is the norm of teacher's workload. It is defined in another document titled "The rulebook on standards and norms for financing of higher education institution". There is a rule for a teacher to deliver a minimum of 6 hours of lectures a week, whilst in the case of a teaching assistant, it is 10 hours a week. From all these numbers, the
number of teaching staff might be computed. Finally, thus defined teachers’ salaries and the costs of teaching process, which make the greatest part of budgetary funds, can be determined.

In such a regulated environment, the government may be able to control costs of higher education by means of number of students for which it is responsible or through other mechanisms. For example, the minimum number of institution’s own teachers as a ratio of the total required number is specified, too. Based on that rule, one can determine the number of teachers for a known student cohort or vice versa. In other words, a new study program may be rejected if the number of own teachers falls below the minimum.

All in all, it is obvious that the Ministry of Education and Culture is undertaking a difficult task of development of an input based model of financing, in which the budget would be calculated according to indicators such as the number of employees at the institution, the number of students, the number of study programs, etc. But, this not being an easy task, it was not successful until now, and an answer to the question ‘why” deserves greater attention. First, one must have in mind that higher education is a very dynamic area that often changes faster than the legislation. It is achieved with creative work and pronounced individualism, where individualism and freedom of thinking are often the keys for success and great results. To measure and calculate every step and task is neither possible, nor even effective and can damage HE. While looking for an answer, it might also be useful to think about the network of diverse interests that oppose the intention of controlling the costs of higher education. They come from students and their parents, academic staff, political authorities and even responsible bodies. In a small country, members of each interest group may be in such a close relationship that they influence final decisions considerably. To conclude – every model does not suit well every environment. Investigating a suitable model in such a special environment is a matter of ingeniousness.

4. The system of student support

There is a solid and stable student support system in the Republic of Srpska. There are a number of different student support programs at the state and municipality level. The most important and best known are scholarship programs, but there are also ones related to the benefits regarding student dormitories, transportation costs, social and health insurance, etc.

The Law on Higher Education of the Republic of Srpska discerns between two main student categories:
- Full-time students (‘redovni studenti’) and
- Part-time students (‘vanredni studenti’).
Regarding payments for costs of study (tuition fee), full-time students are grouped as follows:

- Students whose costs of study are covered from the state budget and who do not pay tuition fee at all,
- Students whose costs of study are partially covered by the state budget and who pay a tuition fee.

Part time students pay higher tuition fee. This category of students has no access to any support program mentioned above. The reason to establish the category of part-time students is to create an opportunity for those that are employed to further educate themselves, either to obtain a higher level of qualification or to advance their knowledge and skills. The lectures for those students are organized in the evening hours and on weekends. As such, part-time students have fewer obligations with regards to attending lectures, sitting at in-teaching assessment tests, participating in pre-exam activities and, in general, have less pre-exam obligations than their full-time colleagues. On the other hand, they do not have the same rights regarding student benefits.

Only full-time students or students whose cost of study is covered fully or partially from the Republic budget have the right to benefits. According to the data provided by the Ministry of Education and Culture, the ratios of students that use different kinds of support are as follows:

- approximately 80% of students from public higher education institutions use total or partial exemption from study costs;
- approximately 6% of the total number of students get subsidized accommodation in student dormitories;
- approximately 10% of them get subsidized meals in student restaurants,
- about 10% of total number of students receive study scholarships, either state or municipality one;
- each full time student has social and health insurance and subsidized public transportation costs.

Student dormitories in the Republic of Srpska are owned and managed by the Government, the Ministry of Education and Culture. Such a solution makes that system of support rather simple. The amount by which the Government subsidizes accommodation and food in student dormitories is very high. In other words, students' participation in these costs is extremely low, almost symbolic. The cost of a bed in student dormitories is about 10 KM a month, and the food in student restaurants is about 1.6 KM a meal.

As for tuition fee, it should be noted that it is not correlated with the real costs of study, since the latter has never been estimated. Instead, it is about the amount by which full-time students from the second category participate in the financing of their study by paying a portion of costs. Estimated like that, nobody can claim what portion of study cost the student tuition fee makes. Instead, tuition
fee is determined on the basis of living standards and the overall socioeconomic and political situation in the region. The amount of tuition fees is adopted by the Government on the basis of the recommendation of the Ministry and the proposal that comes from higher education institutions. Consequently, they have not changed significantly during the last few years. For master studies, tuition fee is formed in the same way, but is slightly higher, while the fee for doctoral education is approaching the real costs of teaching and research. The data on tuition fee at HEIs in the Republic of Srpska are given in the next chapter (see Table 5).

Besides covering study costs for a certain number of students (full-time ones), the government allocates extra funds through the well-established scholarship and grant system. This is shown in Figure 3 below. As the figure indicates, grants and scholarships have more than doubled in the past years and similar increase is visible in the domain of subsidies for student accommodation. In some circumstances, the government launches special measures to regulate the situation. An example of this is the support for students studying scarce and in demand professions. Even though that fund does not constitute a significant part of the governmental allocations for student support, it was very important and effective since it stimulated greater interest of students for studying engineering and sciences.

![Figure 3. Government allocation for the student support system (in KM)](image.png)

Source: The Ministry of Education and Culture of the Republic of Srpska
Each year the Ministry organizes an open call competition for around 1,000 scholarships to the best performing students and other groups of students who deserve support for other reasons. The overview of the criteria, supported groups and types of scholarships is given in the following section of the paper.

- **Scholarships for the most successful students** (around 500-700 such scholarships are offered each year). This scholarship is offered to students at each level of study, undergraduate, graduate and PhD students. The main condition to win this scholarship is students' performance in the previous period of study. Among other things, students have to prove that they passed all their exams in the previous academic year with an average grade equal to or higher than 8.50.

- **Scholarships for students from underdeveloped regions** (around 20 such scholarships are offered each year). This scholarship is offered only to students of undergraduate studies. Besides students' performance in the previous period of study, an additional criterion is the social status of the student. Students have to demonstrate that they passed all their exams in the previous year with an average grade equal to or higher than 8.00 and that they have residence status in an underdeveloped region of the Republic of Srpska. To get the scholarship, students have to agree that they will look for an employment in the region of their residence after their graduation and work at least for the same number of years as the duration of their scholarship.

- **Scholarships for disabled students**, who are eligible for allowance and care by a third person (around 20 such scholarships are offered a year). This scholarship is offered to students at all levels of study, undergraduate, graduate or PhD studies. It is based on the students' performance in the previous period of studies. Additional criteria for receiving the scholarship require that the student is enrolled for the first time in the given academic year in which he/she is applying for the scholarship.

- **Scholarships for other undergraduate students** (more than 200-300 such scholarships are offered yearly). This scholarship is offered only for students enrolled at undergraduate studies. It is based on students' performance and her or his social status. Students have to prove they passed all their exams in the previous academic year with an average grade equal to or higher than 7.50.

- **Scholarships for students studying abroad** (around 100 such scholarships are offered annually). This scholarship is offered to all students: undergraduate, graduate or PhD. The basic criteria are students' performance during the previous period of study - average grade in the previous academic year must be at least 9.00. Besides, they have to prove they are studying at an accredited foreign higher education institutions.
The scholarship also requires recipients to look for employment in the Republic of Srpska after their graduation, and work for at least the same duration as they were receiving the scholarship.

Since the criteria for receiving a scholarship are largely based on students' performance during his/her previous studies, the number of available scholarships can vary from year to year. Similarly, the amount of each scholarship varies, since it is determined by the annual budget plan of the Republic of Srpska.

In addition to these government scholarships, local municipalities also offer scholarships to students according to their own criteria. It is not allowed that a single student receives both kinds of scholarships.

5. Institutional own revenue and spendings (secondary financing)

In this chapter, we will discuss 'Own incomes' and 'Grants' budget lines, as both of them represent an institution's own revenues. According to the Law and institutional internal legislation, the so-called own revenues can be acquired from the realization of scientific/art programs, international and national projects, realization of vocational education and training, fees paid by students, income from publishing and information activities, income from copyrights and patents, income from management of land and buildings in their ownership, gifts and bequests and other sources arising from activities under special contracts. The most visible lines are students' tuition fees, vocational education, non-research and research projects and expert services to business and society.

As can be seen from Table 3 in Chapter 3, HEIs own revenues in the Republic of Srpska vary from 21 000 000 to 25 000 000 KM in the given period, which amounts to 31% to 37% of total government budget for HE.

Public HEIs in the Republic of Srpska obtain most of their own revenues by means of tuition fees. The amount of tuition fees is proposed by the public HEIs, which need to be in line with internal institutional regulations on defining tuition fees, but final decision on the amount of tuition fees is made by the government, in collaboration with the Ministry of Education and Culture. The same procedure is applied to enrolment of new cohort of students. However, when it comes to other services, HEIs have the autonomy to set the prices.

As it is presented in Chapter 4, there are three types of students:

• full-time students whose cost of study is paid for from the budget (budget students),
• full-time students whose cost of study is partially paid for from the budget (co-financing students) and
• part-time students.
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Tuition fee is linked to 'co-financing students', since 'budget students' don’t pay tuition fee at all. The student fees have not changed significantly for more than ten years, because the fees do not actually reflect the real cost of study, but of living standard and the overall socioeconomic situation in the region. The overview of the fees is given in Table 5.

Table 5. Tuition fees at public HEIs at study programs of the first cycle

<table>
<thead>
<tr>
<th>Subject</th>
<th>Tuition fee (KM)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First cycle</td>
</tr>
<tr>
<td>Drama arts: Movie, TV, and Animated Movie and Production</td>
<td>1 500.00</td>
</tr>
<tr>
<td>Drama arts: the Production</td>
<td>1 000.00</td>
</tr>
<tr>
<td>Other drama arts</td>
<td>660.00</td>
</tr>
<tr>
<td>Music arts and Painting</td>
<td>660.00</td>
</tr>
<tr>
<td>Medicine</td>
<td>660.00</td>
</tr>
<tr>
<td>All other study programs</td>
<td>440.00</td>
</tr>
</tbody>
</table>

For most of the study programs at public HEIs, the fee for full-time co-financing students is around 220 Euros per academic year at the first cycle, and 440 Euros at the second cycle. These quite low amounts make the Republic of Srpska the best place to study in the region from the point of tuition fee. Part-time students pay double the amount of fee for full-time students.

Tuition fees and enrolment quotas at private HEIs are determined by the institution and they are not obliged to ask for the approval from the Government. Since financial revenues are theirs, institutional private HEIs do not need to send financial reports to the Government and they determine their own institutional regulations on financial management.

The next significant sources of own revenues are those obtained through different kinds of projects and services. The income generated through research and educational EU projects (FP7, IPA, HERD, TEMPUS, etc.), as well as the government research projects belongs to the 'Grants' budget line, whereas income from non-research projects and services for business and community are recorded in the 'Own incomes' budget line. In such a situation, it is not easy to distinguish between different types of incomes. Thus, Figure 5 can lead to a wrong conclusion of very high income realized through donations, as income from some research projects is recorded there. What we can conclude is that methodological issues of HE financing deserve a focused attention. For the same reason, we cannot directly see the public money in the categories defined, even though it exists in a significant amount. It is about government support for scientific research, development or transfer of technology, modernization of equipment (including software) and other science
promotion activities. These very informative data cannot be obtained without deep digging into accounting books.

In the case of the University of Banja Luka, the average distribution of own revenues during the period from 2008 to 2013 is given in the next figure.

![Figure 4. Distribution of own revenues at the University of Banja Luka (in KM)](image)

Own revenues are the only resources that an HE institution and its units can spend according to their own policy and strategies. To spend these funds, there is no need to ask for the approval from the Government. But, distribution of own revenues is regulated by institutional regulations. Since only public universities/colleges have a legal entity status and the academic and financial autonomy of these institutions is defined by the statute of the university, public HEIs, regardless of their internal organization, have just one joint bank account that the Treasury of the Republic of Srpska is in charge of. Public universities have several organizational units: faculties, academies, and research institutes, and each organizational unit has its sub-account to manage its own revenues to some extent.

In the case of the University of Banja Luka, there is a document titled 'Regulations on acquisition, distribution and use of own revenues and revenues from grants', which defines distribution between the University and its organizational units. The ratio depends on the category of the revenue. So, when it comes to tuition fees and income from lease, 80% is the revenue of the organizational unit and 20% is the revenue for the joint needs of the University. Then, administrative
Finding the right path

fees are divided 50-50%, the income from realization of vocational education and training is divided 90% for the organizational unit and 10% for the joint needs of the University. Other categories are divided between organizational units - University in the amount of 95% for the unit and 5% to the University: income from the realization of scientific-research projects, from development of professional studies and projects, providing supervision and other professional services, developing software, consultancy, provision of certified laboratories, etc.

Grants belong in total to the unit that acquired it, as well as the income acquired from organization of scientific-professional conferences and artistic creative work, publishing and diploma equivalence. Grants cannot be used for any other purposes except for the one they have been acquired for (those are mostly public funds based on public calls for different projects).

Joint needs of the University are joint operating expenses of the University planned by the annual financial plan that is proposed by the Rector and adopted by the Steering Board. Most of the joint operating expenses of the University go to faculties that do not have enough of their own financial resources for educational purposes because of the number of students, tuition fees, some state measures (all students of deficit professions do not pay any tuition fees); such are technical faculties, medical and art programs. Since organizational units have some revenues at their disposal, they are obliged to adopt their own annual financial plans which are a part of the institutional annual financial plan.

Public HEIs in the Republic of Srpska own their buildings and properties. Still, the Government contributed to maintenance costs of the University of Banja Luka between 50% and 75% in 2008-2012. The remaining costs are divided between the University and its faculties.

Most of the public funding is for educational purposes and public funding used for research is treated as their own revenues, but these funds are obtained through competitive grants.

To what extent are public funds predominant compared to their own revenues of the public HEIs in the Republic of Srpska is most visible in the example of the University of Banja Luka, compared to some universities in the region. “The University of Banja Luka, while it is not the smallest university in terms of student numbers, generates the least amount of private revenues.”

When considering the third mission of the universities (cooperation with industry/business sector, knowledge transfer activities, spin-off companies, cooperation with the private sector) at HEIs in the Republic of Srpska, there is a lack of strategic activities with clear goals. There are a few examples of good practice, but this is still an area that needs to be explored.

The Steering Board of a public institution is collectively accountable for the lawful and purposeful use of resources allocated in accordance with the Law on Higher Education. The founder of public higher education institutions is the
Higher education financing in the Republic of Srpska

National Parliament of the Republic of Srpska on behalf of the Republic. Therefore, public higher education institutions are required to report their financial activities (including the spending of public funds and their own revenues) to the National Parliament on an annual basis. Faculties and institutes are required to report to the governing board of the university, which becomes part of the institution's financial report towards the founder. There is also the possibility of external financial auditing carried out by the budgetary inspection agency that is part of the Ministry of Finances. Such audits are conducted upon the request of the ministry.

The financing system of higher education during the observed period has essentially remained the same. This means that the model in place is input based and is solely determined according to real costs, i.e. the costs of the permanently employed teaching staff, administrative staff and material costs. These expenses are largely covered through the budget of the entity. On the other hand, private higher education institutions obtain funding primarily from tuition fees. They can be founded by natural or legal entities, either nationals of the Republic of Srpska or registered in the entity or foreign natural or legal persons in cooperation with a local higher education institution. In this case, the founding board and the institution's governing board share the responsibility for the financial activity of the institution.

6. Conclusion

HEIs in the Republic of Srpska rely mostly on public funding (around 70% of their budgets were obtained from public sources). The budget for HEIs is determined on an annual basis in the process of negotiation between HEI and the Government. It is structured following a traditional line-item budgeting model, where the funds are earmarked for general categories (e.g. salaries, maintenance, etc.).

From the so-called ‘primary budget’ earmarked to cover regular teaching activities and other teaching process related costs, around 94% is allocated to employees’ salaries. The remaining funds make a much smaller part, about 6%, but their spending is also specified and can be done only according to predefined cost categories, like maintenance, heating, travel costs, engineering costs, professional services, and so on.

There are government funds beyond the official HE budget that support HE system in the Republic, too. They include the funds for supporting research projects, technology development and innovation activities managed by the Ministry of Science and Technology. This kind of support is not known in advance, but is provided in a form of competitive research grants on an annual basis. Further, from time to time, the government invests a substantial amount of money in new facilities or laboratory equipment for public HE institutions through special programs.
For a more clear and informative picture of HE financing, it is necessary to develop and implement a more useful methodology for financial data evidence and enquiry. In the existing solutions, a lot of important data are not easily visible.

It is obvious that the model of HE financing in the Republic of Srpska is weakly connected to a number of income factors and not at all related to outcomes and efficiency of an institution. But, there is an evidence that, for a number of years, the Ministry of Education and Culture has undertaken a difficult task of development of an input based model of financing in which the budget would be calculated according to indicators like the number of employees at the institution, the number of students, the number of study programs, etc.

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Regulations on acquisition, distribution and use of own revenues and revenues from grants of the University of Banja Luka. 2013.
Abstract: This paper aims to elaborate the system of higher education financing in the Federation of Bosnia and Herzegovina, with special emphasis on the financing system in the Herzegovina-Neretva Canton, where two public universities are performing their activities. The first part of the paper provides an overview of higher education financing in the Federation of Bosnia and Herzegovina, its legal provisions and defined competences of the Federation, as well as the cantonal level competence for education in general, and thus for the tertiary one. Its basic features, as well as the principles on which the model is built, are presented. In addition, the problems of distribution of the budget are indicated by pointing out the Strategic Directions of Higher Education Development in the Federation of Bosnia and Herzegovina from 2012 to 2020. The second part of the paper deals with the cantonal financing model represented in the mentioned Canton, providing its main features accompanied by concrete indicators, comments, critical review and the like, as seen from the viewpoint of the University of Mostar1, as one of the two higher education institutions operating in the Herzegovina-Neretva Canton. The paper presents and processes data related to students as the basic component of the higher education system, their status, and the incentives they have at their disposal. Among these incentives, a special place is also taken by activities the higher education institutions undertake to encourage excellence, quality and better performance. An appropriate conclusion in terms of the expectations of higher education institutions in the Herzegovina-Neretva Canton of the Tempus – FINHED project results is drawn at the end of the paper.

Key words: financing, model, law, revenues, expenses, students, scholarships, social dimension of higher education.
1. Introduction

According to the Constitution of Bosnia and Herzegovina, education in general, and thus the tertiary education, is falling within the competence of various levels of authorities in BiH. It is under the Ministry of Education of RS authority, and at the cantonal level, under their Ministries of Education, Science, Culture and Sport in the Federation of Bosnia and Herzegovina, and under the Department of Education authority in the Brčko District of Bosnia and Herzegovina. As it can be concluded from the abovementioned, it is a very complex model of organization and management, and consequently implies very different models of higher education financing. When it comes to the Federation of BiH, higher education financing is characterized by a decentralized and fragmented model. The formula for the allocation of cantonal revenues does not include a provision for higher education financing, and thus the burden of financing higher education institutions is divided unequally by cantons. In addition to a general explanation of the diversity present in this area, the situation is particularly specific in the Herzegovina-Neretva Canton and it will be explained in more detail in this paper.

2. Financing in the Federation of Bosnia and Herzegovina

2.1. Higher education system in the Federation of Bosnia and Herzegovina

Since the end of the war to date, Bosnia and Herzegovina has been facing a number of problems in the education system. Constitutional organization of BiH, different policies arising from different legal regulations and lack of national harmonization in education at the State, entity and Brčko District level, lead to a different attitude towards education and education policy.

Since the higher education system has not yet been defined by minimal common standards harmonized at all levels of government, a space is open for heterogeneity and deviations of working methods along with the violation of basic human rights, right to education, integrity and autonomy of the academic community in BiH, calling into question the quality of academic, scientific-research and university life.

Article III.4 of the Constitution of the Federation of BiH [1] stipulates that the cantons have all competencies that are not expressly granted to the federal government. In particular, they are competent for establishing education policy, including adoption of regulations on education, and establishing and implementing cultural policy.

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2 BiH = Bosnia and Herzegovina
Competencies of the Federation of Bosnia and Herzegovina in the area of education are determined by its responsibility to ensure the right to education. According to legal responsibilities in this area, Federal Ministry of Education and Science performs administrative, professional and other activities, as well cooperates and coordinates activities with the cantons. The key role and functions of the Ministry are at a consultation level and ensuring efficient coordination of the education sector activities in the Federation of BIH, and provision of technical and other support to cantons for successful implementation of policies agreed at the level of Bosnia and Herzegovina [2].

2.2. Basic statistical data on higher education in the Federation of Bosnia and Herzegovina

Within the Tempus - FINHED project we have collected data on the students enrolled according to study programs, number of higher education institutions (HEIs) by type of ownership and number of graduate students at higher education institutions by type of study program in the period from the academic year 2006/2007 to 2012/2013.

Table 1 shows the number of students enrolled in the period from the academic year 2006/2007 to 2012/2013 according to study programs:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor (I Cycle)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>60 536</td>
<td>58 977</td>
<td>56 283</td>
</tr>
<tr>
<td>Old study program</td>
<td>65 438</td>
<td>68 604</td>
<td>68 317</td>
<td>71 610</td>
<td>7 612</td>
<td>4 193</td>
<td>3 233</td>
</tr>
<tr>
<td>Master (II Cycle)</td>
<td>354</td>
<td>403</td>
<td>462</td>
<td>4 865</td>
<td>6 821</td>
<td>7 408</td>
<td></td>
</tr>
<tr>
<td>Integrated I and II Cycle</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1 473</td>
<td>4 405</td>
<td>5 117</td>
</tr>
<tr>
<td>Doctoral studies (III Cycle)</td>
<td>103</td>
<td>121</td>
<td>100</td>
<td>108</td>
<td>169</td>
<td>419</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>65 438</td>
<td>69 061</td>
<td>68 841</td>
<td>72 172</td>
<td>74 594</td>
<td>74 565</td>
<td>72 460</td>
</tr>
</tbody>
</table>

It is noticeable that the number of enrolled students began to rise from the academic year 2007/2008 through the academic year 2010/2011, but it decreased in the academic year 2011/2012. When comparing the academic years 2006/2007 and 2010/2011, with the highest number of enrolled students, there is an increase in enrolment by 14%.

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Data were taken from the Statistical Bulletins "Higher education in the Federation of Bosnia and Herzegovina," Federal Bureau of Statistics for each reported academic year.
Finding the right path

As shown in Table 2 below, the number of higher education institutions (i.e. universities and colleges) in the Federation of Bosnia and Herzegovina began to rise from the academic year 2007/2008, but only the private ones, along with the adoption of the Framework Law on Higher Education in BiH in 2007, and their number almost doubled in the academic year 2012/2013:

### Table 2 - Number of higher education institutions (HEIs) by type of ownership

<table>
<thead>
<tr>
<th>Year</th>
<th>Public Universities</th>
<th>Private Universities</th>
<th>Public Colleges</th>
<th>Private Colleges</th>
<th>Total HEIs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>6</td>
<td>0</td>
<td>5</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>2007</td>
<td>6</td>
<td>0</td>
<td>5</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>2008</td>
<td>6</td>
<td>0</td>
<td>5</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>2009</td>
<td>6</td>
<td>0</td>
<td>5</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>2010</td>
<td>6</td>
<td>0</td>
<td>5</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>2011</td>
<td>6</td>
<td>0</td>
<td>5</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>2012</td>
<td>6</td>
<td>0</td>
<td>5</td>
<td>2</td>
<td>13</td>
</tr>
</tbody>
</table>

Table 3 shows the number of graduate students by type of study program for the analyzed period from 2006 through 2012:

### Table 3 – Number of graduate students at higher education institutions by type of study program

<table>
<thead>
<tr>
<th>Year</th>
<th>Old Study Program</th>
<th>Bachelor (I Cycle)</th>
<th>Master (II Cycle)</th>
<th>Integrated I and II Cycle</th>
<th>Master of Science – Old Study Program</th>
<th>III Cycle</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>6 967</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>252</td>
<td>108</td>
<td>7 327</td>
</tr>
<tr>
<td>2007</td>
<td>7 898</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>354</td>
<td>103</td>
<td>8 355</td>
</tr>
<tr>
<td>2008</td>
<td>9 272</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>403</td>
<td>121</td>
<td>9 796</td>
</tr>
<tr>
<td>2009</td>
<td>6 671</td>
<td>3 303</td>
<td>122</td>
<td>0</td>
<td>462</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>2010</td>
<td>5 686</td>
<td>5 071</td>
<td>535</td>
<td>0</td>
<td>507</td>
<td>140</td>
<td>11 939</td>
</tr>
<tr>
<td>2011</td>
<td>5 040</td>
<td>4 945</td>
<td>1 157</td>
<td>67</td>
<td>140</td>
<td>140</td>
<td>11 995</td>
</tr>
<tr>
<td>2012</td>
<td>3 956</td>
<td>6 544</td>
<td>1 595</td>
<td>134</td>
<td>753</td>
<td>143</td>
<td>13 125</td>
</tr>
</tbody>
</table>

When comparing 2006, as the baseline reporting year, with the year 2012, there is an increase in graduate students of all study programs by 79%; the introduction of the Bologna system of studying mostly contributed to this. Since the target year for completion of old university degree study programs is 2015, a decrease in the number of graduate students can be noticed, but also an increase in the number of Master of Science graduates by 200% in 2012, compared to 2006.

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4 Data were taken from the Statistical Bulletins "Higher education in the Federation of Bosnia and Herzegovina," Federal Bureau of Statistics for each reported academic year.
2.3. Characteristics of higher education financing model(s)

As already stated, higher education financing in the Federation of Bosnia and Herzegovina is under jurisdiction of cantons. Federation of Bosnia and Herzegovina allocates funds to cantons according to an agreed formula, but the formula for the allocation of cantonal revenues does not include a provision for higher education financing, and thus the burden of financing higher education institutions is divided unequally by cantons.

The main problem in the area of higher education financing is, above all, the cantonal financing that does not take into consideration the origin of students, in terms that the heaviest financial burden is placed on the cantons that have universities / study programs which enroll more students (i.e. the University of Sarajevo), with only limited contributions of cantons having no higher education institutions, though students also come from these cantons to study elsewhere. The problem is also the allocation on the basis of input costs that does not take into consideration any principle of optimal allocation of the budget. The budget is mainly planned on the basis of the cost of salaries and contributions of staff/employees (i.e. traditional staffing-based allocation), representing almost 90% of the total public financing. This approach, proposed on the basis of input costs, is a huge obstacle to improving the quality of higher education since it is not based on indicators of performance or achievement of objectives agreed on in advance. In addition, the treasury system, currently being implemented by three public universities, without an effective expenditure management, also does not contribute to the measurement of results, cost-effective achievement of objectives, or any other indicators of quality in higher education and research at university institutions.

A mechanism used for allocation of public funds to public universities is negotiated and incremental funding and grant scheme, but also both negotiated and incremental funding. Research funds are not allocated by cantons (except the Sarajevo Canton, which amounted to KM 4 110 500 in 2011, but only KM 917 800 in 2012). Research activities are funded only by donations and grants from the Federation level (i.e. Federal Ministry of Education and Science) and they are insufficient and without continuity, as can be seen from Table 4 below:
Finding the right path

Table 4 - Investment in higher education from national public sources from 2006 to 2012 (in KM)\(^5\)

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government funding for HE (state level)</td>
<td>-</td>
<td>4 000</td>
<td>5 252</td>
<td>37 000</td>
<td>34 340</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Government funding for research only (separate from HE) allocated to HEIs (FMES(^6) and Sarajevo Canton)</td>
<td>1 337 000</td>
<td>3 394 397</td>
<td>4 222 067</td>
<td>5 696 143</td>
<td>7 269 756</td>
<td>6 880 146</td>
<td>3 478 160</td>
</tr>
<tr>
<td>Entity level</td>
<td>-</td>
<td>-</td>
<td>998 806</td>
<td>365 639</td>
<td>801 382</td>
<td>505 010</td>
<td>387 216</td>
</tr>
<tr>
<td>Cantonal level</td>
<td>73 515 037</td>
<td>87 308 819</td>
<td>109 919 942</td>
<td>108 378 581</td>
<td>113 218 618</td>
<td>112 902 815</td>
<td>109 863 292</td>
</tr>
<tr>
<td>City/municipality</td>
<td>-</td>
<td>150 500</td>
<td>67 000</td>
<td>950</td>
<td>20 000</td>
<td>41 500</td>
<td>9 500</td>
</tr>
<tr>
<td>Total:</td>
<td>74 852 037</td>
<td>90 857 716</td>
<td>115 213 067</td>
<td>114 478 313</td>
<td>121 344 096</td>
<td>120 329 471</td>
<td>113 738 168</td>
</tr>
<tr>
<td>% of GDP</td>
<td>0.62</td>
<td>0.64</td>
<td>0.81</td>
<td>0.74</td>
<td>0.76</td>
<td>0.73</td>
<td>0.68</td>
</tr>
</tbody>
</table>

It is visible that the total public investment in higher education is very low and it is almost two times lower than the European average of 1.3% of GDP.

Criteria for determination of the amount of public funding for HEIs mostly do not exist and funding by cantons is made on a lump sum basis, depending on availability of cantonal funds, largely based on costs from the previous year, regardless of the expressed needs of HEIs. Below are some explanations:

1. In the Una – Sana Canton, where a treasury system is in place, a basis for budget financing represents the total number of students enrolled at the University of Bihać, number of teaching and non-teaching staff according to the standards of higher education, capital investment and costs in accordance with the University vision of the development and other budgetary positions proposed by the University and accepted by the Government of the Canton. The University is required to comply with the legally stipulated deadlines to submit an annual budget proposal, based on established criteria, which should be correlated with the annual financial plan of the University. A request for funding is an instrument by which the University presents its needs for budget allocation. The process of preparing each annual budget begins by planning a three-year rolling budget plan representing an estimate of the preliminary budget projections for the next two years. The three-year budget and projections

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\(^5\) Data were taken from the Questionnaire for CEP and the ministries (Parts I and II) filled out by public universities in the Federation of BiH, as well as cantonal budgets and financial database of the Federal Ministry of Education and Science

\(^6\) FMES- Federal Ministry of Education and Science
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for the next two years aim to simplify and improve transparency in budget planning, as well as to improve the predictability of funding from the budget.

2. In the Zenica – Doboj Canton, also using a treasury system, criteria for determining the amount of public funding do not exist, but the funding is done by the Canton on a lump sum basis depending on the availability of cantonal funds, mainly on the basis of costs from the previous year, despite the expressed needs of the University of Zenica.

3. Both universities in the Herzegovina – Neretva Canton are funded on a grant basis and they are not kept as budgetary beneficiaries.

4. In the Sarajevo Canton, the University of Sarajevo is funded through a transfer for non-profit organizations (i.e. grant) named a transfer for HE and transfer for science programs through the Ministry of Education and Science of the Sarajevo Canton.

When it comes to spending funds received by cantons, a detailed line item budget is in place at universities using treasury system and others are using a lump sum methodology. Own income of HEIs represents an average of 44% of the total income being increasingly used by universities to contribute to the difference in salaries, and thus the level of participation of students and their families in the total costs of HEIs is significant, since the largest part of income originates from tuition and other fees.

2.4. Financial support to students and their mobility from public sources

Table 5 below shows data collected on financial support to students and their mobility from public sources in the Federation of BiH:

Table 5 - Support to students and their mobility from public sources:

<table>
<thead>
<tr>
<th>Type of support</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grants and scholarships (cantalional ministries)</td>
<td>281 275</td>
<td>341 889</td>
<td>585 084</td>
<td>511 404</td>
<td>508 536</td>
<td>409 559</td>
<td>482 673</td>
</tr>
<tr>
<td>Grants and scholarships (other ministries)</td>
<td>350 000</td>
<td>400 000</td>
<td>510 000</td>
<td>630 000</td>
<td>659 000</td>
<td>681 000</td>
<td>781 564</td>
</tr>
<tr>
<td>Grants, scholarships for students with special needs, Roma students, talented students, support to student unions / associations / councils (FMES)</td>
<td>132 500</td>
<td>980 771</td>
<td>1 046 745</td>
<td>182 474</td>
<td>395 828</td>
<td>138 414</td>
<td>193 220</td>
</tr>
</tbody>
</table>

7 Data were taken from the Questionnaire for CEP and the ministries (Parts I and II) filled out by public universities in the Federation of BiH, as well as cantonal budgets and financial database of the Federal Ministry of Education and Science

8 FMES – Federal Ministry of Education and Science
Although this support is very small when compared with the numbers of enrolled students, it can be noticed from the above table that total allocations to students from public sources have almost doubled when comparing the baseline year 2006 and the year 2012, but there was very small allocation to student mobility in the reported period. Grants, scholarships for students with special needs, Roma students, talented students, support to student unions / associations / councils had the highest allocation in 2008 and 2009, and a sharp decline in the subsequent years due to budget cuts at the federal level, but an increase by 30% in subsidies for student accommodation and restaurants in 2012, compared with 2006.

2.5. Proposal for a future public financing model

The Strategic Directions of Development of Higher Education in the Federation of Bosnia and Herzegovina from 2012 to 2020 proposes three key measures to improve higher education financing in the Federation of BiH. Firstly, they imply a modification of the cantonal system of higher education financing in order to prevent misallocation of resources among cantons, whilst taking into consideration the complex institutional context. During the public hearings on the draft document, some universities have expressed a willingness to open up the process of transfer of jurisdiction over higher education institutions in the area of financing from the cantonal level to the Federation of BiH. In addition, it is necessary to create a combined financing system that will take into account financing per student formula, and thus financing would not be based on input costs, but on the number of students, as well as to establish a better planning and allocation of resources through development of the Medium Term Expenditure Framework (MTEF) for the higher education sector.

A recently-completed project funded by the EU "Reform of Higher Education Financing in Bosnia and Herzegovina" [3] proposed a student-based allocation
model or "a model of financing public higher education institutions / universities is to be defined as the principle of higher education financing according to which the basis for financing would be represented by costs per student of a certain study program, within a certain study cycle". A computer program was developed by experts enabling universities to calculate costs of operations, establish actual and optimum costs per student and study program, as well as to identify deficit or surplus study programs, examine how cross-subsidization works or needs to work between the public and university income sources and among study programs. However, this proposed model has not yet been implemented.

Federal Ministry of Education and Science is also advocating for financial autonomy of universities, which allows them to receive and manage funds from any legal source. This form of autonomy means and involves greater accountability of higher education institutions for quality management and transparent use of finances.

Autonomy of universities in the management of allocated budget, earned and / or otherwise obtained income is the official platform of the European University Association and also a criterion, benchmark and requirement in the European system of accreditation of higher education institutions. There is the low internal efficiency not taking into consideration the efficiency of higher education institutions, based on the fact that 43% of the budget is spent on students who drop out of the studies and never complete their education (approx. 50% of students). The annual drop-out rate of students and those who repeat the studies is significant (13% and 24%, respectively). In the previous period, it took seven years on average to complete the four-year program. Drop-out rate is very high because there are no financial incentives to universities to stimulate success of students and effectively manage the teaching process.

However, a change of the current higher education financing in the Federation of BiH will not solve the acute need for investments in higher education. The existing obsolete scientific and teaching equipment, small investments in the renewal and acquisition of new equipment on an annual basis, energy inefficiency, and other problems related to the low level of investment in higher education sector are dominant.

3. Herzegovina – Neretva Canton case

As already stated, the financing in the Federation of Bosnia and Herzegovina is at the cantonal level. One of the 10 cantons is also the Herzegovina-Neretva Canton. An important aspect of this Canton, when higher education is concerned, had an effect on two public universities as follows:
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• University of Mostar and
• University “Džemal Bijedić” of Mostar.

An important feature of this financing is that neither the University of Mostar nor the University “Džemal Bijedić” of Mostar are budget beneficiaries, but are classified in the cantonal budget as institutions generating their income through a “grant”. This clearly points to the approach to higher education and a wide range of problems associated therewith. First of all, it refers to the amount of funds that are not nearly sufficient for normal operation, and especially not for normal and quality operation. Other funds are not coming by appropriate pace and are often subject to reduction.

By analyzing the available references in the field of higher education financing [11][12][15][16], we have not encountered such a model. These models are based mostly on two components (two sources), both public and private. When it comes to public revenues, they are carried as budget items and usually aim to cover the whole or part of the costs of salaries of teaching and non-teaching staff, maintenance and periodic improvement of infrastructure in the function of the teaching process. The percentages of public funds in relation to the total funding generated by universities differ and generally range from 50% upwards. This is to a great extent in the spirit of European countries' experiences, where according to the source [17], it reads as follows: „Public authorities continue to be the primary funder of Europe’s universities. In the countries for which system averages are available, public funding represents between 50% and 90% of the universities' income structures“.

As it will be seen later from the overview of the University of Mostar financing, public funds in the revenue structure of the University during the reporting period ranged from 42% in 2006 to 19.1% in 2012, with a trend of further reductions, which was at the level of 17% in 2014.

Having in mind that universities also have a scientific research component in their operation, it is logical that a portion of these funds should be directed to this operation component, which makes the problem of financing even more complex. Here, we should add another fact: BiH has no Law on Scientific and Research Activity, nor the Ministry/ies under whose jurisdiction the aforementioned issue would be.

3.1. Legislative guidelines

As of 1992, the University of Mostar has performed its activity in accordance with the Law on University9 and the Statute adopted in conformity with it. A total of five cantons are financing the University according to this Law [4]:

• Herzegovina -Neretva,
• West Herzegovina,

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• Central Bosnia,
• Herzeg-Bosnia Canton\(^{10}\) and
• Posavina.

In 2007, the Framework Law on Higher Education in Bosnia and Herzegovina was adopted, with the obligation of cantons to adopt cantonal laws on higher education on the basis of that Law [5]. Of course, this has not been done within a defined term (period). The University of Mostar has continued its activities in accordance with the aforementioned Law on University.

At the beginning of 2012, the long-awaited Law on Higher Education of the Herzegovina - Neretva Canton was adopted and followed by the new Statute of the University of Mostar a year later. By analyzing the mentioned laws and the part related to University financing, it can be concluded that there are only about two articles defining it, and they read as follows:

1. The higher education institution acquires funds for performing its activities: from the funds of the founders; resources of Funds; donations, wills and gifts; tuition fees; sale of intellectual, cultural, material and commercial goods and services; revenues based on copyrights and patents and from other sources in accordance with the Law.

2. The method of financing higher education institution shall be regulated by the Articles of Incorporation and Statute.

3. The higher education institution organizes internal audit of operations in accordance with applicable regulations.

In one Article regarding financing, a by-law – Statute reads as follows [6]: Founders shall provide financial base in the budget for the University's operation.

The funds referred to in paragraph 1 of this Article shall be used for:
• salaries and benefits of staff, and material costs;
• the most essential level of scientific, artistic and professional activities at the University;
• operation of the service, whose activity ensures the integrity and necessary standard of the University;
• working and living standards of staff, development and investment.

This clearly indicates that the reality looks very different. The mentioned budget has turned into a grant and that further leads to various disorders in terms of delay, reduction and general uncertainty and constant “struggle” for what was clearly defined by the Law and Statute.

What to do in such a situation? The question is simple, but the answer is really complicated. University management is facing a delicate task. The only real possible solution could be to conduct continuous and persistent dialogue with the

\(^{10}\) Currently Canton 10
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authorities, pointing to the consequences of the current approach and relationship, with the presentation of comprehensive analyses, including all aspects and different models of the future relationship. The aim is clear and reduced primarily on survival, and then a possible further development of the institution. Of course, the trends and experiences of others should be simultaneously followed, and, in that sense, perform intense work on finding alternative sources of financing.

3.2. Financing in the period of 2006-2012

3.2.1. Income

This period of financing is based on the abovementioned Law on University and the University Statute. For the purposes of Tempus project, a detailed data on financing are collected within the specified period [7]. The results of these analyses are presented in the appropriate tables. Table 6 shows inflows of income of the University of Mostar from public funds, or funds from mentioned founders of the University.

Table 6 - Income of the University of Mostar from public sources

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cantonal level</td>
<td>7 308 834</td>
<td>7 371 792</td>
<td>7 848 783</td>
<td>6 372 500</td>
<td>5 511 711</td>
<td>5 001 862</td>
<td>4 428 159</td>
</tr>
<tr>
<td>Total income</td>
<td>7 308 834</td>
<td>7 371 792</td>
<td>7 848 783</td>
<td>6 372 500</td>
<td>5 511 711</td>
<td>5 001 862</td>
<td>4 428 159</td>
</tr>
</tbody>
</table>

Currency used: KM

Furthermore, the University of Mostar generated annual income from other sources, in compliance with the Law, as follows:
- Tuition fees
- Administrative fees
- Donations, as well as
- Funds generated from possible contracted projects.

Having examined the annual accounts of the University members delivered to the Rectorate of University, tuition fees and administrative fees are kept together as the payment of students, or tuition fees. Data on this income are shown in Table 7.

Table 7 - Own income of the University of Mostar

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition fees</td>
<td>6 275 779</td>
<td>9 018 015</td>
<td>10 738 036</td>
<td>11 829 862</td>
<td>13 497 638</td>
<td>14 792 539</td>
<td>17 175 644</td>
</tr>
<tr>
<td>Income from projects</td>
<td>1 065 249</td>
<td>1 287 765</td>
<td>1 174 191</td>
<td>1 290 192</td>
<td>1 213 230</td>
<td>1 062 205</td>
<td>890 888</td>
</tr>
</tbody>
</table>
Higher education financing in the Federation of Bosnia and Herzegovina

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donations and other income</td>
<td>2 762 789</td>
<td>1 227 280</td>
<td>414 463</td>
<td>1 045 899</td>
<td>1 059 775</td>
<td>931 215</td>
<td>497 081</td>
</tr>
<tr>
<td>Total income</td>
<td>10 103 817</td>
<td>11 533 060</td>
<td>12 326 690</td>
<td>14 165 953</td>
<td>15 770 643</td>
<td>16 785 959</td>
<td>18 536 613</td>
</tr>
</tbody>
</table>

Currency used: KM

The item "Income from projects" includes:
- Income from research projects received by the University or its members through the University on the basis of a public call of the Federal Ministry,
- Income from projects the Government of the Republic of Croatia provides for the institutions of the Croatian people in BiH, and
- TEMPUS projects.

Donations and other income include:
- Funds from the Republic of Croatia. According to the agreement between the University of Mostar and the Ministry of Education and Science of the Republic of Croatia, universities of the Republic of Croatia are supporting activities of the University of Mostar by participating in the realization of the teaching process, and the funds for their staying (travel costs and per diems) are partly borne by the aforementioned Ministry, which is remitting funds to the University of Mostar according to the plan and possibilities. According to the actual situation of the teaching process, the University is transferring funds to universities in Croatia whose teachers are delivering a lecture.
- Business and Economy.

As can be seen from the data listed in Table 6, there is a constant decrease in the income from founders (public income from cantonal level). The reasons are primarily due to the fact that our financial support is classified in the funding as a "grant", and it is always uncertain. Namely, each disorder in the income of cantons is reflected in the payments to the University. On the other hand, the past period has clearly shown that there is neither interest nor good will of government in cantons for systematic solution of higher education financing.

Here, we deem interesting to present assessment of the situation and a possible way of an attempt of the solution [12]:

"The University of Mostar and the University 'Džemal Bijedic' are probably in the most unfavorable situation in the Federation of BiH, as well as in the whole of Bosnia and Herzegovina (which is evident from the amount of public funding sources) and almost completely dependent on private sources of financing, or tuition fees of students. They have to thank this situation to the category of grant within the budget of their founders, and this category is the most sensitive for
situations of budget cuts that are a common occurrence, rather than a rarity in these areas. Very often, a grant is precisely the category that is completely skipped in a fiscal year. Thus, for instance, the annual budget costs of the University of Mostar, with its 11 members, are at the level of 26 million KM, of which some 7 million are approved through grant, and actually barely 4 million are allocated, and often less. This could be solved by introducing the full cost of tuition fees for students from the cantons of founders not fulfilling their obligations, as well as the full prices of the student dormitories and other services that accompany the student life for those students, that would make voters in those counties seek accountability of the authorities, but this again delves into the category of social sensitivity and political and interest-based relationships, and the fact that precisely the representatives of these founders who are not fulfilling their obligations and still have the right to decide are sitting in the management boards of these universities is a paradox in itself”.

The data in Table 7 indicate that own income is having an upward trend, or the trend towards growth. We can try to explain it, first of all, by significant contribution of tuition fees in that income. Such trend directly affects the decrease of income from those responsible (legal) financial supporters (see Table 6). In addition, a periodical increase of “tuition fees” that the members of the University sometimes voluntarily do, based on their decisions, also has an impact on its growth.

Furthermore, a continuing increase in the number of new students, caused by the expansion of the offer of new study courses and study programs in each new academic year has a direct impact on the aforementioned growth trend. In this respect, in the period since 2006, new faculties or new members, have been established at the University as follows: Faculty of Philosophy; Faculty of Natural Sciences, Mathematics and Education; Faculty of Health Studies; study program of food technology at the Faculty of Agriculture and Food Technology and Faculty of Pharmacy.

Another specificity leads to increase in own income. It is reflected in the fact that, in the period since 2004, the so-called dislocated centers of the University have been opened in the cantonal centers where lectures are delivered. Their establishment has taken place, on one hand, due to the interest of students from these cantons, and then because of the requirements of the founders themselves. These centers are: Vitez (Central Bosnia Canton), Livno (Canton 10, or formerly Herzeg-Bosnia Canton) and Orašje (Posavina Canton). That, unfortunately, has not resulted in the increase of public revenues, but only had a direct impact on the increase of own income of members delivering lectures in these centers. There are about four faculties, namely: Faculty of Natural Sciences, Mathematics and Education, Faculty of Philosophy, Faculties of Economics and Law.

During that period, the Faculty of Engineering and Computing was delivering lectures in Žepče for several years, because, in that part of Bosnia and Herzegovina,
high school students were interested to study computer science. Lectures had been delivered in collaboration with the University of Osijek, and according to an agreement between the University of Mostar, the University "Josip Juraj Strossmayer" Osijek and the Ministry of Education and Science of the Republic of Croatia.

Seen from the point of view of the already mentioned University financing models treating the public and private (other) sources of financing on the example of the University of Mostar, it is easy to notice the orientation to the other type of financing, in whose structure the most important place is occupied by revenues from tuition fees.

Apart from the above explanation for this situation, we deem it necessary to emphasize the fact, based on many years of following [18] the enrollment policy at the University, of a drastic reduction in the number of full-time students who are studying, as stated later, with the support of the Ministry. This could be characterized as a normal reaction of the University, if nothing else, from the point of mere survival, but the fact that is especially worrying is that the enrollment policy is implemented in tandem with competent ministries. Namely, the approval for enrollment quotas for each academic year is given by all competent cantonal ministries as founders of the University.

In addition to the above, and also based on analysis, a whole set of charges for various services to students was found. These, for instance, include charging enrollment fees for all categories of students, issuance of certificates, the defense of the final and graduation papers, issuance of diplomas and the Diploma Supplement, application for repeated examinations, payment of ECTS credits and the like.

It is possible to assume what consequences this will have on the University and the wider community in the near and distant future, but obviously the alarming negative state that accumulates in both the University staff and service users and their parents has not yet reached the authorities. The conclusion poses itself that all of these stakeholders should act together and be involved in solving the problem of financing.

3.2.2. Expenses

When it comes to expenses for the past period, there are two different types, namely:
- Distribution (expenses) of public funds allocated to the University as a legal entity to members and
- Expenses incurred by members of the University, which include public funds and own income, which they can dispose of independently.

Table 8 shows internal allocation (distribution) of public funds to members. This distribution is made on the basis of the adopted "key" or Decision made by the Administrative Board. The decision basically speaks about percentages belonging
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to each member, and is applied on the basis of the public funds that are transferred to the University after covering the material and other costs of the Rectorate, and according to the adopted financial plan.

It is clear from the above data that there is a chronic shortage of public funds at the University, so that these funds remitted to members cannot cover even the basic costs of the education process.

Table 8 - Internal allocation of public funds

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total expenses (funds remitted to members according to adopted key)</td>
<td>5,395,530</td>
<td>5,003,200</td>
<td>5,522,400</td>
<td>4,672,800</td>
<td>3,964,800</td>
<td>3,540,000</td>
<td>3,351,200</td>
</tr>
</tbody>
</table>

Currency used: KM

Table 9 shows the expenses that members of the University have as independent legal entities. These are expenses containing both public and private funds.

The accounting data of the members and the University are included in the Table below:

• Gross salaries of employees - It is about all the employees, without classification into academic research and administrative tasks [9],

Table 9 - Expenditure of higher education institutions

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross salaries of employees</td>
<td>5,652,455</td>
<td>6,129,166</td>
<td>6,810,185</td>
<td>8,550,183</td>
<td>8,751,862</td>
<td>9,062,050</td>
<td>10,453,796</td>
</tr>
<tr>
<td>Compensation of employees</td>
<td>2,003,524</td>
<td>2,172,495</td>
<td>2,413,884</td>
<td>1,804,519</td>
<td>1,819,584</td>
<td>1,866,982</td>
<td>2,009,915</td>
</tr>
<tr>
<td>Expenditure for material services</td>
<td>3,111,312</td>
<td>3,373,712</td>
<td>3,748,569</td>
<td>3,428,033</td>
<td>4,625,003</td>
<td>3,315,730</td>
<td>3,397,982</td>
</tr>
<tr>
<td>Contractual obligations</td>
<td>5,070,970</td>
<td>5,498,644</td>
<td>6,109,604</td>
<td>5,677,861</td>
<td>5,702,135</td>
<td>6,205,466</td>
<td>6,205,466</td>
</tr>
<tr>
<td>Total expenses</td>
<td>15,838,261</td>
<td>17,174,017</td>
<td>19,082,242</td>
<td>20,681,840</td>
<td>20,898,584</td>
<td>20,450,220</td>
<td>21,890,662</td>
</tr>
</tbody>
</table>

Currency used: KM

• Compensation of employees - Funds paid on the basis of food allowance, transportation, holiday allowance, etc.11,

• Expenditure for material services - Material costs, consumables, oil for heating, PTT, water, electricity, office supplies,

• Contractual obligations - External cooperation (delivery of lectures), authorial fees, regular maintenance and the like.

11 In the observed period, the number of participants in the education process ranged between 816 and 1069, and the administrative and technical jobs involved between 123 and 168 employees.
It can be noted that the University has full autonomy when it comes to the allocation of public funds from the cantons. It is also obvious that the percentage of public funds allocated to each member individually represents a “drop” of the needed. Depending on the specifics of a member, the percentage of public funds in relation to the total funds obtained by a member on other grounds ranges from a minimum of 10% to a maximum of 35%.

Data from Table 9 further suggest that there are simply no funds for scientific research. This fact is a serious setback for any higher education institution, and taken comprehensively and very widely. What consequences it already has, and what it is yet to have in the future, if something does not change, we can only assume. The answer to this question again has to be looked for by stakeholders together, conditionally speaking from both sides.

Another component, among many, of modern universities is the equipment at their disposal, both for educational purposes and for scientific research. A part of the equipment is provided within the implementation of the TEMPUS projects and a small part from the funds obtained by applying for the research projects announced by the Federal Ministry of Education and Science. However, strategically speaking, universities should, in addition to teaching, fulfill the second part of the mission - research. For this second part, there are no minimum requirements for the simple reason that the University itself is unable to provide additional funds to meet the material and technical conditions for dealing with serious scientific research. It has been pointed to this fact, as well as to the others, through regular information on the implementation of the Bologna process [13][14]. Other universities in BiH have used the so-called Austrian loan with the assistance of their authorities and purchased the necessary equipment. The University of Mostar and the University "Džemal Bijedić" have not managed to do that, because the cantonal authorities were insensitive to that, in our view, very important activity, despite numerous meetings and discussions.

In this chapter, many facts were stated, many problems and challenges pointed to, and possible ways to respond to them were given. One thing is inevitable, that this situation does not suit anyone, and that a reaction is urgently needed, as well as dialogue, respect, tolerance on both sides, if one wants to have higher education (University) as outlined in all the relevant documents of cantons in this case. As one of the authors of this paper, I would not want to be a prophet, but the current situation is not inspiring much hope and its further deterioration could lead to a collapse.

4. Students

It is well known that a student is in the center in the system of higher education and that all universities are trying in different ways to attract as many students as possible for their members. In this sense, the University of Mostar
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is carrying out a series of activities in that direction, primarily by organizing a presentation of the University in the cantonal centers.

The number of students of the first and second cycle enrolled at the University in an academic year is determined based on an analysis of market needs, as well as spatial and staffing potential of members and, as such, is consolidated at the University level and a joint call is published. A student may be enrolled at our University in the status of:

- Full-time student who is studying with the support of the ministry and as such does not pay tuition. This category includes students who achieved the best results during the placement procedure. Their number is determined by each faculty separately. It should be noted, in the spirit of the indicators on the income from public sources that have been shown, that their number is decreasing from year to year.
- Self-financing full-time student (participating in the study costs).
- Part-time student, for whom funds are made available by companies or institutions in which they are employed or he/she has to pay study costs. This type of study is not provided by all members of the University.

4.1. Tuition fees

The method of determining the amount of tuition fees is such that a proposal on the amount of tuition fee for the above mentioned categories is given by a faculty (Scientific and Education Councils) and, as such, becomes an integral part of the call. The call is adopted by the University Senate that announces it. Adoption and announcement of the call are preceded by the Decision of the Senate on the enrollment of students in the new academic year to which the consent is granted by the competent cantonal ministries of education, science, culture and sports.

Table 10 presents data on the amount of tuition fees in the period from 2006 to 2012, and is based on the insight into the calls for enrollment in the appropriate academic year published up to now.

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of tuition fee for undergraduate studies (I cycle)</td>
<td>1000</td>
<td>1000</td>
<td>1300</td>
<td>1300</td>
<td>1400</td>
<td>1400</td>
<td>1400</td>
</tr>
<tr>
<td>Amount of tuition fee for students of master studies (II cycle)</td>
<td></td>
<td>1300</td>
<td>1400</td>
<td>1400</td>
<td>1400</td>
<td>1400</td>
<td>1400</td>
</tr>
<tr>
<td>Amount of tuition fee for doctoral students (III cycle)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3000</td>
<td>3000</td>
</tr>
</tbody>
</table>

Currency used: KM

12 Enrollment of students in postgraduate doctoral studies is done on the basis of a specific call published by members organizing those studies.
Those are the average annual tuition fees, because their amounts differ for each member. They are lower at the social sciences faculties while the Faculty of Medicine and Faculty of Health Studies have the highest ones. The figures in the table are expressed in KM and refer to the academic year. Given that we, as the University, have started with the application of “Bologna” in 2005/2006, the amounts of costs for the second cycle have only appeared in the call for the year 2008/2009\textsuperscript{13}.

It can be noticed that there was a slight increase in tuition fees in the past, and following trends of general living costs may be specified as the main reason, but also the lack of funds, or instability and reduction in the funding from public sources for the University.

Table 10 shows only part of the students' costs which students and their parents must take into account. However, students' costs are much higher and include\textsuperscript{[11]}:

- Education costs (tuition fees, as well as additional costs for books, supplies, equipment, etc.)
- Administrative costs (various costs to be paid to the institution\textsuperscript{14})
- Living costs during studies (accommodation, food, transportation, health care, leisure time, etc.).

As it can be seen from the above tables, as well as numerous publications and papers dealing with this problem, the focus of financing in particular and in the case of the University is transferred to the student (beneficiary) and his or her parents. To what extent it can continue and what the consequences will be is difficult to assume, but the fact is that this is not a solution to the problem and it should be dealt with at a global level. This further opens a series of problems and one of them is a basic "equal access to education for all". Is it feasible in that way? The conditions in which we live open a new dimension in the issue of higher education financing known as the social component. Extensive discussions and analyses are carried on that issue in the surroundings and in Europe in general and the fact is that this is a new challenge to which an adequate response should be given. It should be noted that all the documents and all sorts of declarations and recommendations recognize this issue already being present in the adequate legal solutions. As an example, the definition in Article 7 of the Framework Law on Higher Education in BiH is stated below:

"Access to higher education within the scope of which the licensed higher education institutions operate in Bosnia and Herzegovina shall not be restricted, either directly or indirectly, based on any realistic or assumed basis such as: sex, race, sexual orientation, physical or other disability, marital status, color of skin, language, religion,

\textsuperscript{13} When it comes to doctoral studies, the amount is approximate since each member, as specified, determines it independently.

\textsuperscript{14} Already mentioned in the previous chapter.
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political or other opinion, national, ethnic or social origin, affiliation with an ethnic community, property, birth, age or any other status."

It points to the necessity of taking into account this component in an approach to draft a suitable financing model. The University is intensively discussing this issue and trying to equalize tuition fees, enrolment fees, and others. One of the proposals in circulation is the tuition fees formation by studies, classified according to scientific fields. When it comes to enrolment fees, a proposal is that the amount of enrolment fees would be the same for students studying with the support of Ministry (public funds), and, on the other hand, included in the cost of tuition fees for other students according to the said status.

4.2. Support to students

Types of support to students can be generally viewed from two following aspects:

- Support to students with scholarships whose sources are not from the University and
- Support to students in the form of awards at the University and its members' level.

Students may, in principle, get a scholarship from various sources (Federation, canton, city, municipality, company and the like). It should be noted that their number is small and their amount is insufficient for meeting the students' needs as such. When it comes to the Herzegovina-Neretva Canton, it invites applications, in conformity with its financial possibilities, each year for awarding scholarships to students from its area who are studying at different universities.

In this paper, more attention was paid to the other form of support for which there are appropriate indicators. Of course, it is worth noting here that those are small, one-off and insufficient resources.

In connection to this, the Rector's Award has been established at the level of the University and the Dean's Award at the level of its members.

The criteria for obtaining these awards are the study results achieved in the previous academic year. Award procedures for (obtaining) the Rector's Award are established by the Decision on granting Rector's Award; it may be obtained by two best students from an individual member.

The conditions are that the GPA is above 4, that all exams have been passed and enrollment completed with no backlog in the next year and that data on these students are submitted to the Rector by an official letter signed by the Dean of the member of the University. The award is given at a ceremonial session of the University Senate on the Day of the University.

When it comes to the Dean's Award, the procedures and method of presentation are defined by deans of members. They are awarded to students as part of celebrations marking the anniversary of the faculty.
As already mentioned, a student can be, among others, in the status of a full-time student paying for his/her education. In order to also encourage such students to have better results, members are exempting such students from paying tuition on the basis of special decisions.

Table 11 gives the total number of students as winners of the Dean’s Award and its amount for a given period\textsuperscript{15}, and in Table 12 the total number of students exempt from paying tuition fees for the same period.

Table 11 - Total number of students as Dean's Award winners

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of students</td>
<td>16</td>
<td>18</td>
<td>18</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Total amount of support</td>
<td>400</td>
<td>400</td>
<td>400</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Currency used: KM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 12 - Total number of students exempt from paying tuition fees

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of students</td>
<td>10</td>
<td>13</td>
<td>15</td>
<td>15</td>
<td>19</td>
<td>25</td>
<td>31</td>
</tr>
</tbody>
</table>

The numbers in Table 12 relate to students who are exempt from paying tuition fees if they were enrolled as students who pay for their education (self-financing students) in the previous year. Exemption is only valid for the current academic year.

When it comes to student support in general, and especially taking into account what is indicated in terms of the social dimension of studying, it is worth mentioning one activity the University has been working intensively on in collaboration with the Student Council in the previous period. In other words, it is about the establishment of the Fund for assistance for students with low-income status. The idea formally received support by the University and the Decision on the establishment of the Fund was adopted, according to which the staff agreed to pay one percent from their regular income to the Fund. Activities related to the establishment of the Fund are in the final stage and it is expected that it can contribute at least to improve the situation through its existence and activity when it comes to the aforementioned social dimension of studying.

\textsuperscript{15} Amounts of the Dean’s Award range between KM 100 and 300 KM, depending on the member and its financial possibilities.
5. Conclusion

Based on what was presented in the paper, it can be concluded that there is no unique model of financing at the level of Bosnia and Herzegovina. One model is applied in the Republic of Srpska, and several other "models" are applied, or are in practice, in the Federation of Bosnia and Herzegovina.

We have noticed that the main problems of higher education financing in the Federation of Bosnia and Herzegovina are as follows:

1. Cantonal funding not taking into consideration the origin of students, with only limited contributions from cantons without universities,
2. Budget allocation on the basis of input costs that do not take into consideration any principle of optimal budget allocation,
3. Traditional staffing-based allocation, i.e. budget is mainly planned on the basis of the cost of salaries and contributions of staff/employees,
4. Access based on input costs is a huge obstacle to improving the quality of higher education since it is not based on indicators of success or achievement of pre-agreed objectives,
5. Treasury system, currently applied by three public universities, without effective management of expenses also does not contribute to the measurement of results, cost-effective achievement of the objectives, or any other indicators of quality in higher education and research at university institutions,
6. Grant scheme proved to be an inadequate and unstable funding, being sensitive to budget cuts for the remaining three public universities and they are dependent on private sources of financing (mostly tuition fees),
7. Very small allocation of public funding for supporting students and mobility of students,
8. Student-based allocation model, in which students are at the center of the funding formula, has not yet been implemented, although it has been developed in detail and made available to all stakeholders.

The characteristic of the financing "model" applied, in this case in the Herzegovina - Neretva Canton, is that the universities are not budget beneficiaries, but are classified as GRANT beneficiaries [8]. The above "model" characteristic is total uncertainty for any quality work of the University. Everything during planning of the cantonal budgets envisaged as grant to universities is so insecure and uncertain and generally not realized. In addition, by following the amounts which are obtained within such a financing model, it can be seen that they are getting smaller and smaller each year, and not to speak about what the University can achieve with such funds from its plans and programs determined by the strategy.

The general fact is that this model does not have anything that can be called a good side. As such, it does not meet even the minimum needs of the University in
Higher education financing in the Federation of Bosnia and Herzegovina

terms of covering the operating expenses for the functioning of the institution, and not to mention the costs of research, professional staff training, etc. A particularly bad side is that those insufficient and uncertain funds are not regular and prevent serious systematic planning. Students, as the most important participants in this model, have not found their place.

The University of Mostar has analyzed in detail the current situation in the previous period and the challenges set by it have two main objectives [8]:

- Implementation of activities that will result in the integration of the University on the grounds of the new Law on Higher Education of the Herzegovina-Neretva Canton and the Statute of the University of Mostar,
- Improve financing model in the sense that the item "Grant" will be transferred to the item of the budgetary beneficiary by its founders.

In order to carry out these two challenges in reality, the University Administrative Board has appointed an expert committee with clearly defined tasks and time limits.

We see a special challenge in finding possibilities for solving the acute need for investments in higher education, which are necessary for several reasons:

- Procurement of new and modern educational and scientific research equipment necessary to achieve high levels of quality assurance at the institutional level.
- Human Resources strengthening (enabling training at prestigious universities, participation at scientific conferences, seminars and the like), which is the basis for establishment and operation of the center of excellence.
- Improving infrastructure, among other things, by increasing energy efficiency.

Finally, what do we expect from Tempus - FINHED project?

Taking into account the activities in which we have been involved so far according to the project plan, we believe that the project would implement activities envisaged by the plan and give a contribution from several aspects that we, as an institution, expect as follows:

- Collection and quality analysis of the existing financing models,
- Getting acquainted with the current financing models at the universities of EU partners (University of Gent, University of Bath, University of Jyväskylä, University of Ljubljana),
- Framework and guidelines for an efficient and equitable system of higher education financing, as well as the availability and equality of higher education in Montenegro, Bosnia and Herzegovina and Serbia, with the support of the EU partners from Belgium, England, Finland and Slovenia
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- Added value of the FINHED project is that Bosnia and Herzegovina, as well as partners of Serbia and Montenegro, will take part for the first time in an international comparative study on the social dimension in higher education - EUROSTUDENT. Our expectations in this segment of the FINHED project are to enable comparisons with other European countries. This also creates the basis and possibility of getting a much clearer picture of the aspects of the social structure of the student population, which might certainly have an impact on the elements to be taken into account in drawing up the higher education financing model.

On the basis of what we stated in this paper, we deem that, in this situation, one of the possible solutions of a better financing model at the Federation level would be the student-based allocation model, as proposed by the EU project Reform of Higher Education Financing in Bosnia and Herzegovina.

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PART VI

HIGHER EDUCATION FINANCING
IN MONTENEGRO
Abstract: The University of Montenegro is the only public and comprehensive university in Montenegro. It was founded in 1974, and over the succeeding 30 years was organized as an association of faculties and institutes with a limited number of integrated functions at the University level. After adopting the Law on Higher Education in 2003 and harmonizing higher education with the Bologna Declaration, the University of Montenegro was reorganized and integrated as a single legal entity: having unique academic, business and developmental goals. A distinctive organizational, legal and educational personality was developed, placing decision-making at the University level and retaining a certain degree of autonomy, i.e. independence of units concerning activities within their competence.

At present, the University is comprised of 23 organizational units: 20 faculties and 3 institutes. The organization and management are implemented so as to make the University functional in particularly important areas of integration:
– governance – Governing Board being a competent body,
– management – Rector being a competent body,
– academic functions – Senate and professional councils being competent bodies,
– student affairs – Student Parliament and student trustee being competent bodies.

Decisions made by these bodies and authorities relate to study programs, rules of studying, enrolment policy, academic calendar, conferment of academic titles and employment, financing activities, tuition fees, use of assets. Organizational units are in charge of the implementation of study programs, scientific research and artistic work, use of allocated resources and membership in professional associations. This chapter will present the relevant schemes, competences of bodies and main developmental functions performed after the University of Montenegro was organized as an integrated university.
1. Legal status

University of Montenegro is an integrated university organized on the model of most European universities. The competent bodies make decisions and prepare proposals (for the line Ministries and the Government) on study programs, rules of studying, admission policy, academic calendar, appointment to academic positions and employment, funding, tuition fees, property use.

University can sign agreements on cooperation with other institutions and organizations in the country and abroad, to promote and carry out activities aimed at generating revenue.

Organizational units are competent for provision of study programs, scientific research and artistic work, use of allocated funds and membership in professional associations.

The Government of Montenegro approves (makes decisions on) the proposals of the competent bodies of the University and/or line ministries regarding the amount of funds allocated annually to the University from the state budget, introduction of new or closing of the existing study programs funded from the budget, the number of admitted students, the amount of tuition fees paid by the students, issues pertaining to University property owned by the state.

1.1 Organisational Units, Staff and Students

The seat of the University is in Podgorica, the capital city. The units and study programs are located in ten Montenegrin towns: Podgorica, Nikšić, Cetinje, Kotor, Herceg Novi, Bar, Bijelo Polje, Berane and Pljevlja. Besides its units, the University also includes the Rectorate, Information System Centre, University Library and the Facilities Maintenance Service.

The University support services and centers (advisory services, accounting department, international cooperation, etc.) are located in the Rectorate.

In 2012/13 there were a total of 1 279 employees at the University, 850 of which were engaged in teaching. In the same year, there were 21 595 students registered at all three cycles of studies.

1.2 Brief Analysis of the Current Regional and National Situation at the Labor Market

Economic trends: Montenegrin labor market exhibits considerable structural imbalances. Structural reforms are socially sensitive, and the results can be visible in the long run. Positive effects of economic growth in the period from 2006 to 2008 reflected on the labor market (growth of activity rate from 48.9% to 51.9%, and of
Higher education financing in Montenegro

the employment rate from 34.5% to 43.2%). What followed was a period of crisis with deterioration of the situation at the labor market. In 2012, the unemployment rate was still high, amounting to 19.7%. By 2016, the unemployment rate is forecast to fall to 16.7%.

There is a problem of unequal regional employment (reflected in the total number and structure of the unemployed, the scope of employment and the scope of demand in the northern, middle and southern region).

In accordance with the provisions of the Law on Professional Development of Persons with Acquired Higher Education (Official Gazette of Montenegro 38/12) and Rulebook on Manner of Publishing of Public Call, Procedure and Criteria for Professional Development (Official Gazette of Montenegro 46/12), the program of professional development of persons with acquired higher education was carried out in 2013 and 2014. The Program for 2015 has just started. The Program enables the persons with acquired higher education, without working experience, to acquire knowledge, skills and competences during these nine months, which will help them in the future to independently perform their activities.

The program beneficiaries are enabled to acquire appropriate working experience, while the employers in both public and private sector are able to recognize high quality staff that would, once the professional development program is finished, be engaged at work. Nine-month professional development, during which beneficiaries get monthly net salaries in the amount of 50% of the average net salary in Montenegro, is support to the education of the young and an incentive for them to get employment. Thanks to this program, after the implementation of the matching phase, the chance to get professional development at the employer they opted for, 4 211 persons with acquired higher education got opportunity for professional development in 2013 and 3 744 in 2014. This Program is a very good indicator and a good source of information, together with other important information, and contributes to the improvement of the decision-making process on creating the enrolment policy at higher education institutions in Montenegro from the aspect of producing qualifications in accordance with the real labor market needs. Implementation of the Program indicates the willingness of employers to be more actively engaged in the process of training of the future workforce. Financial resources for the realization of this Program are provided by the Government. The third implementation cycle of the Program started on January 15, 2015.

1.3 Autonomy, Management and Centralization

The University is autonomous in performance of its activity and creation of an organization qualified for that. The University has continuously been conducting reforms in the area of education and research, and, since 2003, in line with the trends in EHEA. Unique organisational, legal and educational subjectivity in decision
making at the level of the University was set up, while retaining a certain degree of autonomy i.e. independence of units in the activities under their competence. Thus, it is integrated and organized as most of the European universities. It has unique academic, business and development objectives.

**Bodies, services and offices:** The governing body is the Governing Board, and the managing body is the Rector. The supreme academic body is the Senate.

The academic network and information services are integrated and under the competence of the Information System Centre (CIS). Library services are provided by the University Library and the units' libraries. Professional and administrative services for the needs of the bodies and the functioning of the University are performed by professional services, advisory services and/or offices. Quality Assurance system at the level of the University is implemented by the QA Board and the Centre for Studies and Quality Assurance (QA Centre).

R&D Service Centre is the main office for support of research and communication among the units, and the University and external partners in research. International Relations Office coordinates international cooperation and mobility. Career Development Centre was established in the Rectorate in cooperation with the Employment Agency in order to provide support and professional guidance to students.

The highest student representative body is the Student Parliament. Student representatives are elected into all the bodies of the University and the faculties. Student services (records keeping service, libraries, reading rooms, information services, etc.) are organized at the University and/or at all units. Student Standard (accommodation in students' dormitories, meals, transport, health care, students' scholarships, loans, etc.) is organized as a special unit of the Ministry of Education.

1.3.1 Study Programs, Study Cycles and Teaching Organization

The University of Montenegro is a comprehensive one, organizing studies in all areas of sciences and arts. Study programs are organized so as to ensure higher education for all important segments of economic and social development in Montenegro and they are grouped according to faculties, with the respect for basic scientific area and rational organization of teaching. The structure of study programs (subjects and number of hours) is dominantly harmonized with the structure of comparative programs at universities and faculties in EHEA (one of the prerequisites for their accreditation). Groups of subjects in the area of fundamental sciences, general academic skills and theoretical and professional areas common for several study programs are joined and their organization is under the competence of basic scientific area faculties for the entire University.

Study programs' structure has been aligned with the Bologna Declaration principles since 2004/05. In that year, the ECTS system was implemented at the first year of all study programs of undergraduate studies. Full implementation of
Higher education financing in Montenegro

this system at the undergraduate level of studies was completed by 2008, at postgraduate studies by 2009 and at doctoral studies by 2012. Study programs are divided into study years and semesters. The study year has winter (from September to February) and summer (from February to July) semester. The study program scope for one semester is 30 ECTS credits, for a study year 60 ECTS credits (1 ECTS credit equals 30 hours of student engagement for mastering the subject matter through contact hours and individual work: homework, seminar works, colloquia, exams).

2. Management and activities

**Management Process:** There are important issues to be addressed here. The first one is the short tradition of the University functioning as an integrated university. The existing solutions have retained a certain degree of units' autonomy. Notwithstanding the relatively balanced representation of units in the University bodies, problems arise if the procedure for preparation and adoption of decisions is not precisely regulated. The second issue is the ratio of the number of students financed from the budget and those paying tuition fees.

All issues are sufficiently complex to require a further detailed study of other universities' practice, in order to prepare an adequate solution for the University. Practice of a rational and transparent change and amendment of documents (especially standards, guidelines and indicators) would make decision making, solving the current issues and advancement of the University significantly easier and in accordance with its mission and objectives.

**Governing Board:** According to the governing competencies defined in the Statute in the previous three-year period, the Governing Board has continuously been working on the accomplishment of its tasks, along with good cooperation with the Senate and the Rector. Activities for preparation and adoption of strategic documents have been synchronized, with the objective of improving the position of the University at the national and regional level. Operation of the University was disturbed due to financial difficulties, caused by reduced financial allocations from the State facing financial crisis and searching for an adequate model of internal re-distribution of funds.

When appointing organizational units' management (Deans and Directors), the Governing Board makes decisions following the proposal of the Faculties' and Institutes' Councils. In the event when there are problems in the management and functioning of organizational units, the Governing Board makes adequate decisions (dismissals and appointments of acting management bodies for the shortest period of time defined by the law), with the priority obligation of quickly restoring the regular situation. Even though this has not been specified in the documents, in practice the acting management body is normally a member of the unit council.
One of the key challenges for the Governing Board in the period to come will be to ensure stable financing (inflow of needed funds and their internal redistribution), necessary for normal functioning of the University. This is the key prerequisite for achieving numerous strategic objectives.

**Senate:** The Senate is the supreme academic body of the University, with a very wide spectrum of competencies stipulated by the Statute. It is precisely such scope of activities that affected the current model of Senate functioning, which, due to the importance and complexity of resolving academic issues, has three permanent councils: Council for Social Sciences, Council for Natural and Technical Sciences, and Council for Arts. If the need arises, the Senate can establish numerous other expert bodies and commissions. The Councils are chaired by Vice-Rectors, and their role is to prepare for Senate issues and proposals pertaining to advancement and appointment to academic and expert staff, issues in the area of postgraduate and doctoral studies and the like.

Particular challenges the University Senate is to face are: additional harmonization of educational profiles with the NFQ, and the needs of the labor market, further strengthening of autonomy with responsibility, and strengthening the leading position in higher education in Montenegro and the region.

Figure 1: Organizational chart of the University of Montenegro
2.1 Financing

The base for the University financing is the Law on Higher Education, the Collective Agreement for University, Regulation on Norms and Standards for Financing Public Higher Education Institutions and Financing of Students at the Higher Education Institutions and the Law on Scientific Research Activity. The University acquires revenues from the budget, from tuition fees, national and international projects and from the market (expert projects, consulting services and other). Funds from the State Budget are disbursed according to the Collective Agreement, while resources from own revenues are disbursed according to the Statute.

In the previous period, revenues from the budget decreased. Own revenues also varied (both for particular revenue items and for the units, which can be clearly seen from the overview of a three-year period available from the internal sources, given in tables 1-4.

Table 1. Revenue of higher education institutions from national public sources (in local currency)

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government funding for HE</td>
<td>1290000</td>
<td>1484000</td>
<td>1630000</td>
<td>1740000</td>
<td>1480000</td>
<td>1350000</td>
<td>1320000</td>
</tr>
<tr>
<td>Government funding for research only (as part of total government funding)</td>
<td>85000</td>
<td>156000</td>
<td>110000</td>
<td>100000</td>
<td>130000</td>
<td>90000</td>
<td>1000000</td>
</tr>
<tr>
<td>Entity level (only for BiH)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canton level (only for BiH)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>City/municipality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other national public sources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total revenue (should match the sum of all of the above)</td>
<td>12985000</td>
<td>14996000</td>
<td>1740000</td>
<td>1840000</td>
<td>1610000</td>
<td>1440000</td>
<td>1420000</td>
</tr>
</tbody>
</table>

Currency used: euro
### Table 2. Own revenue of higher education institutions (in local currency)

<table>
<thead>
<tr>
<th>Category of expenditure</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition fees</td>
<td>5389000</td>
<td>7497000</td>
<td>8113000</td>
<td>9097000</td>
<td>9541000</td>
<td>9520000</td>
<td>9292000</td>
</tr>
<tr>
<td>Administrative fees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consultancy</td>
<td>7090000</td>
<td>6620000</td>
<td>3616000</td>
<td>3290000</td>
<td>4530000</td>
<td>2530000</td>
<td>2780000</td>
</tr>
<tr>
<td>Leasing facilities/space</td>
<td>23000</td>
<td>24000</td>
<td>24000</td>
<td>25000</td>
<td>48000</td>
<td>54000</td>
<td>53000</td>
</tr>
<tr>
<td>EU non-research projects</td>
<td>298000</td>
<td>278000</td>
<td>518000</td>
<td>521000</td>
<td>602000</td>
<td>695000</td>
<td>1100000</td>
</tr>
<tr>
<td>EU research projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commissioned non-research projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commissioned research projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University’s spin-offs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Donations from individuals</td>
<td>72000</td>
<td>45000</td>
<td>125000</td>
<td>89000</td>
<td>78000</td>
<td>85000</td>
<td>68000</td>
</tr>
<tr>
<td>Donations from foundations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Publishing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (please specify)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total revenue (should match the sum of all of the above)</td>
<td>12872000</td>
<td>14464000</td>
<td>12636000</td>
<td>13262000</td>
<td>15099000</td>
<td>13184000</td>
<td>13893000</td>
</tr>
</tbody>
</table>

Currency used: euro

### Table 3. Internal allocation of core government funds for higher education

<table>
<thead>
<tr>
<th>Category of expenditure</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries of academic staff</td>
<td>760000</td>
<td>8610000</td>
<td>10820000</td>
<td>11200000</td>
<td>11050000</td>
<td>10900000</td>
<td>11950000</td>
</tr>
<tr>
<td>Salaries for research activity only</td>
<td>10000</td>
<td>20000</td>
<td>15000</td>
<td>10000</td>
<td>15000</td>
<td>90000</td>
<td>120000</td>
</tr>
<tr>
<td>Salaries of administrative and support staff</td>
<td>1810000</td>
<td>2230000</td>
<td>2955000</td>
<td>3250000</td>
<td>2722000</td>
<td>2380000</td>
<td>2650000</td>
</tr>
<tr>
<td>Equipment</td>
<td>50000</td>
<td>90000</td>
<td>60000</td>
<td>60000</td>
<td>70000</td>
<td>60000</td>
<td>45000</td>
</tr>
<tr>
<td>Maintenance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scholarship fund for students</td>
<td>93000</td>
<td>98000</td>
<td>95000</td>
<td>100000</td>
<td>95000</td>
<td>90000</td>
<td>90000</td>
</tr>
<tr>
<td>Printing and publishing</td>
<td>56000</td>
<td>64000</td>
<td>68000</td>
<td>72000</td>
<td>65000</td>
<td>60000</td>
<td>55000</td>
</tr>
<tr>
<td>Salaries of academic staff</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (please specify) utilities, part-time and guest professors, travel expenses, internet, material expenses</td>
<td>3422000</td>
<td>3884000</td>
<td>2732000</td>
<td>3078000</td>
<td>1317800</td>
<td>1720000</td>
<td>*</td>
</tr>
<tr>
<td>Total expenditure (should match the sum of all of the above)</td>
<td>12985000</td>
<td>14966000</td>
<td>17400000</td>
<td>18400000</td>
<td>16100000</td>
<td>14400000</td>
<td>14200000</td>
</tr>
</tbody>
</table>

Currency used: euro
In accordance with the Law on Budget 2015, the total amount of money allocated to the University is 14.12 m €. There is just a slight increase with respect to the budgets from the previous period.

All the data point to the need for redesign of financing model of the University, because the existing one does not guarantee sustainability and competitiveness of the University.

2.1.1. Challenges in the future financing model

Concerning the previous expenditure scheme at the U of M, given in Table 4, it is obvious that one of the most difficult challenges is to establish a solid system of financing which also comprises the strategic approach towards prioritization of the educational offer in the context of national interest. That means that the University should make a reformed, new, consistent and coherent educational offer that could be supported with all the revenues. The key issue is to design the educational offer of the University in a way that could enable financing of the educational process, as well as the necessary infrastructural upgrade. Some cuts in the offer are inevitable. The University has already started its strategic support in terms of saving the most prominent and productive core of study programs. This approach always goes along with a renewed enrolment policy and revised standards for accreditation and licensing of study programs in accordance with European standards and guidelines.
Also, the growing trend of internationalization of the University, as well as growing income from different sources, with the focus on European research funds, imposes the question of internal reallocation of the income, taking into consideration the growing need for centralization of the University. The already existing semi-centralized model has been put aside as a non-functional one. Now, the main challenge is to achieve balance between internal revenues of the faculties coming from the external sources (not Governmental ones) and the spending for the function of a completely centralized University. This problem could be overcome by transparent combining of funds and a clear distribution pattern.

3. Quality assurance practice

**Organisation and functioning:** The adopted documents (in the period between 2009–2011) regulate the organization (bodies and rules for their operation), rules and procedures for functioning of an internal QA system at the University. Along with the existence of documents for the procedure and procedures under the competence of the Council for Higher Education, it can be concluded that there is special „infrastructure“ for functioning of QA in compliance with documents for EHEA.

For full implementation of the QA system, it is also necessary to develop an adequate procedure of comparative progress monitoring and analysis (according to standards and indicators for the achieved results). Such an approach requires coordination at the national and institutional level.

**Monitoring and reporting:** The University has developed a SNIKE portal (System of Teaching and Staff Evidence) for all important information related to teaching, exams and QA procedures. All University members have access to the portal, based on an order. SNIKE represents a modern tool with complete and timely reporting for the employees, units and the University.

**Internal QA procedures:** The University has defined 9 procedures for internal QA with elements needed for their implementation (objective, plan, description, etc.). The most demanding of them is the Student Assessment of Teaching and Exams (student survey), which has been implemented continuously since 2004. The WUS supported a project for QA system implementation at the University (for the period between 2009–2011) and fully innovated the procedure (content and procedure). Now, it is being implemented at the end of each semester for all subjects for which teaching is organized. The survey is filled in electronically, and data processing and reporting is automatic. The SNIKE portal presents the processed results. All teachers and collaborators have insight into their assessments and comments of students; the faculty management has insight into all the marks.
at the faculty, and the University management into all the marks. The observed weaknesses are removed after every completed cycle (QA Centre and CIS are in charge of this, based on the Decision of QA Board). Analysis of survey results has already become practice at almost all units.

The procedure of Study programs assessment by graduates began by an experimental phase in 2012. The procedure and experience from WUS supported project served for preparation of the study for TRACER research at the state level for all HEIs in Montenegro.

Procedures related to monitoring of admission, success and advancement of students have been prepared and are being implemented. Selection of students during admission and recording of progress is based on these results. Thus, data are regularly entered and stored in the Central University Data Base. Organisational units analyse these results at their council sessions.

The University has created a digital repository, and storing of doctoral dissertations is mandatory. The University Senate has also adopted the Action Plan for Prevention of Plagiarism and other forms of academic ethics violation. Preparation of the rules for use and citation of references during development of authorized papers is under way. Also, there are plans to change the existing Code of Academic Ethics and the Rulebook on the Work of Court of Justice and to prepare adequate promotional materials. All this should contribute to building an adequate climate for prevention of plagiarism and other forms of academic ethics violation.

3.1 Competent bodies

QAS implementers at the level of the University are:
1. Board for Quality Assurance System (Board, BOARD QAS–University),
2. Centre for studies and quality assurance (Centre, CENTRAL OFFICE QAS–University),
And at the level of the University unit

Students must be included in all bodies at the level of the University, as well as in all projects in the area of quality implemented by the University and its units.

3.1.1 Areas of work

Implementation of the QAS at the level of the University comprises:
1. Objectives and strategy for development and functioning of the QAS;
2. Implementation and dissemination of the quality culture;
3. Documents preparation;
4. Internal and external evaluation of the quality system;
5. Implementation and improvement of academic standards;
Finding the right path

6. Administrative-technical resources;
7. Informing the academic and wider community about the quality system;
8. Transparency.

Figure 2: QAS organization at the University of Montenegro

4. Conclusion

The University is the leading higher education and research institution in Montenegro. The academic community of the University is aware of the importance of its functioning for further development of the state and the wider region. The
mission and the set goals are harmonized with such position. The achieved results and their assessment assure there is readiness to improve the activities and achieve better results.

Implementing the reform since 2004, the University has adopted documents aligned with the Bologna Process and EHEA documents. The University organization has been changed; rules for its functioning and performance of activity have been adopted, in line with the values of achieving good results and high quality. Numerous newly-opened issues are quite successfully resolved, while some other require ongoing work and improvement. Pointing out the key aspects of the University functioning, we will summarize the areas in which the University made greatest progress in the reforms, and evident weaknesses it should work on:

- Organisation of three cycle studies has a clearly developed and logical concept with defined differences in functioning of academic and applied studies. The remaining open issues are those of designing curricula with clearly defined learning outcomes, connecting with the labor market needs and development of new qualifications through joint actions for the development of Qualifications Framework. Special challenges are organization of doctoral studies, assessment of research work and real presence of scientific-research work at doctoral studies.
- One of particularly emphasized problems is also expansion of study programs that affect the teaching staff load, and, eventually, also the quality of teaching and research work. This has been recognized as an acute problem, so the University adopted an Action Plan with clear measures for resolving this issue.

References

Internal financing documents of University of Montenegro
Law on Higher Education1 (Official Gazette of the Republic of Montenegro, 60/03, Official Gazette of Montenegro 45/10, 47/11 and 48/13)
Statute of the University of Montenegro. 2004. changes and amendments were made in 2006 and 2009.
Self-evaluation report of the University of Montenegro 2014.

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1 Law on Higher Education (Official Gazette of the Republic of Montenegro, 60/30 and Official Gazette of Montenegro, 47/40, 47/11 and 48/13) was replaced on October 20, 2014, when new Law on Higher Education entered into force (Official Gazette of Montenegro, 44/2014)

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