

**IMPROVEMENT OF HIGHER EDUCATION AS A FACTOR OF COMPETITIVENESS
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Abstract: Knowledge and innovation are a key resource of modern economies in the era of the knowledge economy. A system that generates a high level of knowledge and the possibility of transforming it into innovation is the higher education system. Higher education has been recognized as the generator of growth and development of countries in contemporary conditions. Numerous researches have confirmed that if the country is more developed, higher education is becoming a growing important factor. However, its importance as the driving force of the development of less developed and developing countries should not be ignored. These countries, in the potential lack of other resources, can base their more dynamic development on the quality of education. Educated and professional staff is an important competitive advantage of countries in modern conditions. Higher education produces educated labour, characterized by higher productivity and innovative ideas. Such workforce contributes more to local economic development and the development of the country as a whole. Therefore, high-quality higher education can be a key factor for the economic development of developing countries and improving living standards. Bearing in mind the above, it is not surprising that higher education is recognized as a significant factor of the competitiveness of countries. Taking into account global trends, Serbia as a developing country should not ignore the importance of higher education. The aim of the paper is to examine the place and role of higher education as a factor of competitiveness in Serbia. The paper, based on the data of the World Economic Forum, analyzes key indicators of the quality of higher education in Serbia and examines their contribution to the competitiveness of the country. Five indicators were analyzed: Secondary education enrollment rate, Tertiary education enrollment rate, Quality of the education system, Quality of math and science education and Quality of management schools. The basic research methods applied in the paper are the method of analysis in the dynamics of time and regression analysis. The movement of the values of these indicators in a ten-year period are analysed by the first method. On this basis, a conclusion on a more or less successful policy of improving the quality of higher education in Serbia is drawn. The influence of the mentioned indicators of the quality of higher education on the competitiveness of Serbia is considered by the second method. It points to higher education segments that can be the key weapon in the competitive struggle of Serbia in the global market, as well as those in which Serbia does not record satisfactory results and which require improvement.

Keywords: knowledge, education, competitiveness

The paper is part of research within the Project No. 179066 - Improving the competitiveness of the public and private sector by networking competences in the process of the European integrations of Serbia, financed by the Ministry of Education, Science and Technological Development of the Republic of Serbia

1. INTRODUCTION

Continuous and dynamic changes in modern economies and societies impose a major and important role of the education system, especially the higher education system. Developed countries have long recognized the importance of higher education as a generator of economic growth and development. Also, for these countries the higher education system is an important factor of competitiveness. Numerous research has confirmed the link between higher education and economic development and competitiveness in developed countries. However, there is still a lack of research on this subject which would have less developed countries and developing countries for the subject of analysis.

The aim of the paper is to examine the place and role of higher education as a factor of competitiveness in Serbia. In accordance with the defined aim, the authors analyse at first the achievements of Serbia in key areas of higher

education. The selected indicators are analysed in the dynamics of time, in order to make a conclusion on whether Serbia is improving the higher education system. The second and central part of the research refers to the examination of the influence of higher education on the competitiveness of Serbia. The authors start from the basic research assumptions that Serbia has recognized the opportunities and importance of higher education, continuously improving it and that higher education is a significant factor of Serbia's global competitiveness.

2. LITERATURE REVIEW

The most important factor of the globalization process is expressed as knowledge. Knowledge becomes a propulsive force in the process of creating technology and providing sustainable development and affect the competitiveness of countries directly.¹ An economy becomes a knowledge economy by putting knowledge at the centre of the process of economic development. The use of new, more efficient methods of production is increasing and productivity is rising along with increasing speed of the creation and dissemination of knowledge.² The economic competitiveness of nations and regions is increasingly linked to national and regional knowledge production, including knowledge production in universities.³ Modern economic growth theory confirms that human capital/skills and technology absorptive capacity/innovation are among critical determinants of productivity and self sustaining growth.⁴ Globalization has not only increased competition in world economies, but also within and between the education systems. Policies and strategies that drive educational reforms have been adjusted to the new realities by creating structures in education systems that allow assessing, comparing and rank-ordering national and regional education performances.⁵ There are different opinions about what kind of education plays a key role in improving national competitiveness and development of countries. Author Steen said that since mathematics is the foundation discipline for science, the state of mathematics education is a crucial predictor of future national strength in science and technology.⁶ In addition, the role of other areas of education is often considered in the literature.

Nowadays, more than ever, education makes a difference; the general policy is increasingly focused on the power of education, in general, and on the higher education, in particular, in what concerns the improving of the welfare and hence the competitiveness of nations.⁷ This fact is important for developed countries and more for developing countries. In developing countries the key engine for economic growth has been the group of people with the generally high level of education, motivation and dedication. These people are grouped into four categories: workers who carry out basic economic activities, politicians and bureaucrats who formulate and implement economic plans, entrepreneurs who make bold investments, and professional management and engineers who constantly challenge new technologies. The third are external factors. Chance events strengthen a nation's competitiveness only when the human factors are ready to take advantage of such chances.⁸

Education is not only a factor in the successful economic development of countries. In the scientific literature, there are a number of different concepts and attitudes about the role and impact of higher education on social

¹ Keser, H. Y. Effects of higher education on global competitiveness: reviews in relation with European countries and the middle east countries, *Annals of Constantin Brancusi University of Targu-Jiu. Economy Series*, vol. 1(1), pp. 58-68, 2015, p. 59.

² Krstić, B., Stanišić, T. The influence of knowledge economy development on competitiveness of southeastern Europe countries, *Industrija*, vol. 41(2), 151-167, 2013, p. 153.

³ Kwiek, M. Universities, regional development and economic competitiveness: The Polish case. In *Universities and Regional Development* (pp. 89-105). London: Routledge, 2012, p. 71.

⁴ Marope, M. *The education system in Swaziland: Training and skills development for shared growth and competitiveness*, World Bank Publications, 2010.

⁵ Sahlberg, P. Education reform for raising economic competitiveness, *Journal of Educational Change*, vol. 7(4), pp. 259-287, 2006, p. 260.

⁶ Steen, L. A. Mathematics education: A predictor of scientific competitiveness, *Science*, pp. 237(4812), p. 251-302, 1987.

⁷ Badea, L., Rogojanu, A. Controversies concerning the connection higher education–human capital–competitiveness, *Theoretical and Applied Economics*, vol. 12(12), pp. 125-142, 2012, p. 126.

⁸ Balkyte, A., Tvaronavičiene, M. Perception of competitiveness in the context of sustainable development: facets of “sustainable competitiveness”, *Journal of business economics and management*, vol. 11(2), pp. 341-365, 2010, p. 349.

development, which points out the fact that there are a large number of parties interested in the optimal functioning of higher education.⁹ Education has been seen by the state as the route towards the development of a vibrant economy, as well as delivering social justice. Through developing the skills of all members of society, success in a highly competitive global economic system is enhanced.¹⁰

Higher education is no longer the preserve of a community of scholars and students. The production of knowledge and its transfer is now closely engaged with governments and business/industry in producing industrial and service outputs to narrow the 'competitiveness gap'.¹¹ Beyond the engagement in educating students, much of the economic development contributions derived from higher education come through partnerships with the government as well as the local community and industry. The reality is that while nations posture over competitive advantages, the economic contributions of colleges and universities occur in their local communities.¹²

3. METHODOLOGICAL FRAMEWORK AND INFORMATION BASIS OF RESEARCH

The basic methods applied in the paper are the method of analysis in the dynamics of time and regression analysis. The first method has examined whether Serbia is improving its performance when it comes to quality of education. The second method examines the impact of the quality of education on the competitiveness of the Serbian economy measured by the Global Competitiveness Index (GCI). The quality of education in Serbia is measured by the indicators of the World Economic Forum. Namely, the World Economic Forum (WEF) within the fifth pillar of the GCI, *Higher education and training*, measures five indicators of higher education for each country. These are the following indicators: *Secondary education enrollment rate*, *Tertiary education enrollment rate*, *Quality of the education system*, *Quality of math and science education* and *Quality of management schools*. This pillar, in addition to the above mentioned, includes three more indicators: *Internet access in schools*, *Local availability of specialized training services* and *Extent of staff training*. Given the defined subject and aim, the research does not include the analysis of these three indicators. *Secondary education enrollment rate* indicator presents the ratio of total secondary enrollment, regardless of age, to the population of the age group that officially corresponds to the secondary education level. The reported value of the *Tertiary education enrollment rate indicator* corresponds to the ratio of total tertiary enrollment, regardless of age, to the population of the age group that officially corresponds to the tertiary education level. The remaining three indicators represent the weighted average responses to relevant questions. *Quality of the education system indicator* presents the answer to the question: In your country, how well does the education system meet the needs of a competitive economy? (1 = not well at all; 7 = extremely well). *Quality of math and science education indicator* represents the answer to the question: In your country, how do you assess the quality of math and science education? (1 = extremely poor - among the worst in the world; 7 = excellent - among the best in the world). *Quality of management schools indicator* presents the answer to the question: In your country, how do you assess the quality of business schools? (1 = extremely poor - among the worst in the world; 7 = excellent - among the best in the world).¹³ The research covered the period from 2007 to 2017.

4. RESEARCH RESULTS AND DISCUSSION

The results of the research are divided into two segments:

- a) Analysis of the achieved results of Serbia in the field of quality of the higher education system and
- b) Examination of the impact of the education system on the competitiveness of Serbia.
- a) Analysis of the achieved results of Serbia in the field of quality of the higher education system

⁹ Kabók, J., Kis, T., Csüllög, M., Lendák, I. Data envelopment analysis of higher education competitiveness indices in Europe, *Acta Polytechnica Hungarica*, vol. 10(3), pp. 185-201, 2013, p. 187.

¹⁰ Avis, J. Further education: policy hysteria, competitiveness and performativity, *British Journal of Sociology of Education*, vol. 30(5), pp. 653-662, 2009, p. 654.

¹¹ Sum, N. L., Jessop, B. Competitiveness, the knowledge-based economy and higher education, *Journal of the Knowledge Economy*, vol. 4(1), pp. 24-44, 2013.

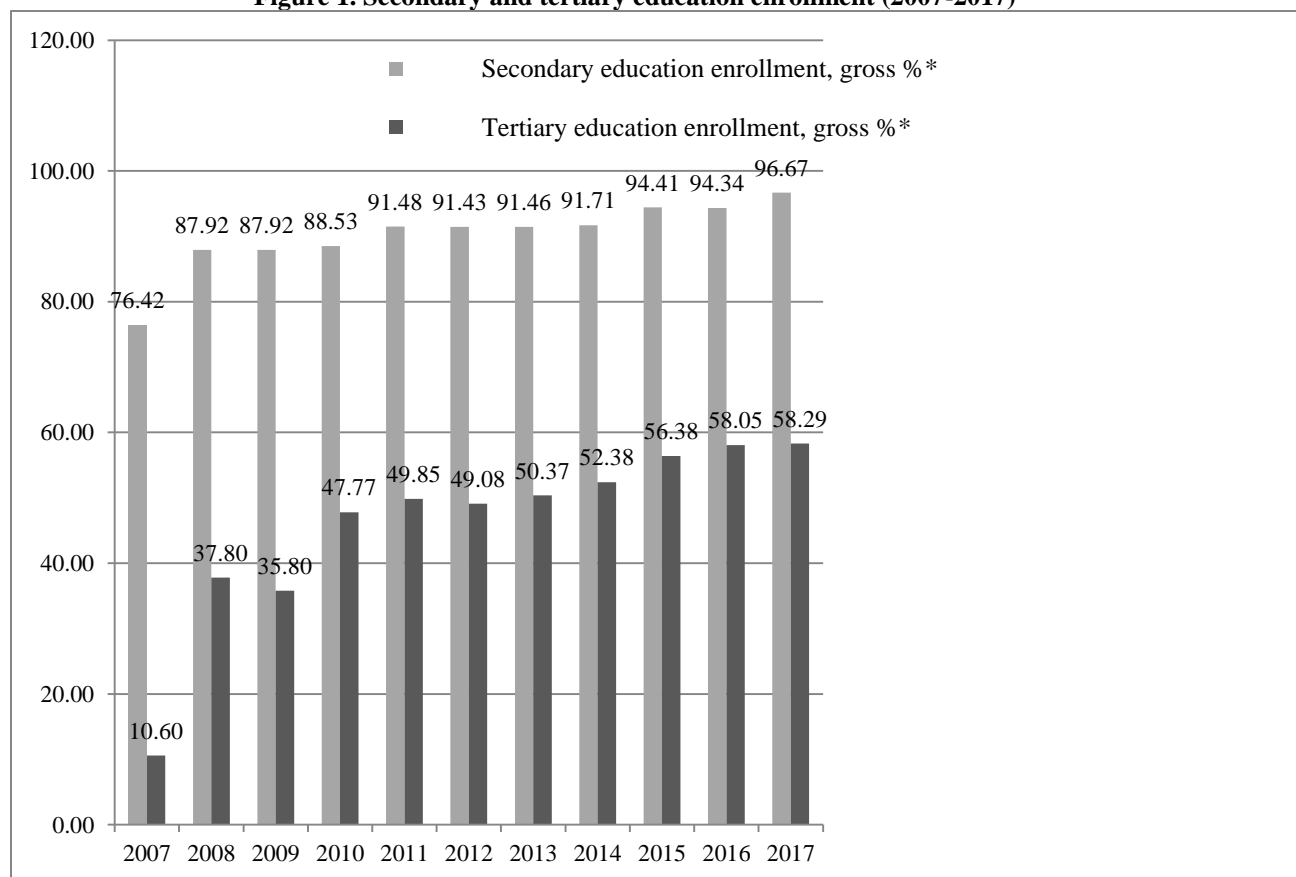
¹² Lane, J. E.. *Higher education and economic competitiveness*. Universities and colleges as economic drivers: Measuring higher education's role in economic development, pp. 1-30, Albany: State University of New York Press 2012.

¹³ WEF. *The Global Competitiveness Report 2017–2018*. Geneva: World Economic Forum, 2017.

Considering the different indicator measurement system, analysis of the movement of selected indicators of higher education in Serbia in the period from 2007 to 2017 is divided into two parts. The trend of the *Secondary education enrollment rate* indicator and *Tertiary education enrollment rate* indicator is analysed at first (Figure 1).

Based on the data presented on Figure 1, it can be concluded that the *Secondary education enrollment rate* is at a much higher level compared to the *Tertiary education enrollment rate* in Serbia. The second conclusion is that Serbia has significantly improved these segments of higher education in the observed period. Namely, in contrast to the very low values of *Secondary education enrollment rate* and *Tertiary education enrollment rate* in 2007, which amounted to 76.42% and 10.6% respectively, the situation is significantly improved in 2017. According to the latest available data, the value of *Secondary education enrollment rate* is 96.67% and *Tertiary education enrollment rate* is 58.29%. These values have been continuously growing since 2012.

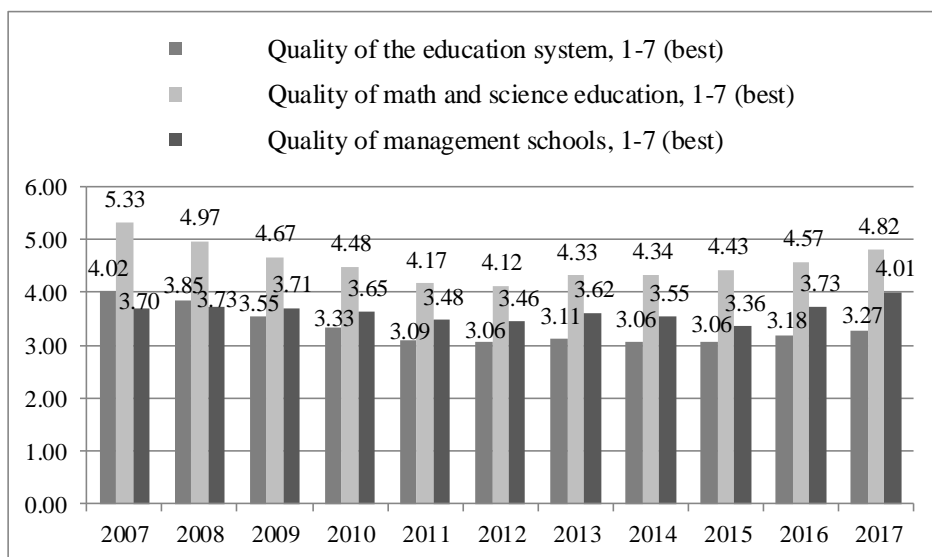
Figure 1. Secondary and tertiary education enrollment (2007-2017)



Source: WEF (2017)

Figure 2 shows the values of the following indicators: *Quality of the education system*, *Quality of math and science education* and *Quality of management schools*. The World Economic Forum measures these indicators with a rating system from 1 to 7. Unlike the positive conclusion made for the previous indicator group, Serbia records lower values of these three observed indicators in 2017 compared to 2007. Namely, the decline in the values of all three observed indicators lasted up to 2012. After that, their moderate, but still insufficient growth has begun.

Figure 2. Quality of the education system, math and science education and management schools (2007-2017)



Source: WEF (2017)

Of the observed three indicators, the best rated is the *Quality of math and science education* indicator. The results of Serbia in this field are relatively satisfactory. The lowest results Serbia records when it comes to *Quality of management schools* indicator. This part of the analysis has already pointed to the possible comparative advantages of Serbia in the domain of higher education, as well as to the weak points that require serious reform and improvement in the coming period.

b) Examination of the impact of the education system on the competitiveness of Serbia

In order to examine the impact of higher education on the level of competitiveness of Serbia, the results of the regression analysis are presented in Table 1. The GCI value in the period from 2007 to 2017 is observed as the dependent variable. Independent variables are analysed indicators of the quality of the higher education system.

Table 1. Regression coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.583	1.505		1.052	0.341
	Secondary education enrollment rate	0.012	0.022	0.601	0.530	0.619
	Tertiary education enrollment rate	0.002	0.010	0.257	0.195	0.853
	Quality of the education system	-0.111	0.262	-0.355	-0.424	0.689
	Quality of math and science education	0.232	0.188	0.792	1.233	0.272
	Quality of management schools	0.123	0.214	0.203	0.574	0.591
	Dependent Variable: GCI					

Source: Authors (SPSS Statistics)

The highest positive impact on the GCI value has the *Quality of math and science education* indicator ($B = 0.232$). Then *Quality of management schools* follows ($B = 0.123$). Negligible positive impacts are recorded in *Secondary education enrollment rate* ($B = 0.012$) and *Tertiary education enrollment rate* ($B = 0.002$). The negative impact on

the GCI in the observed period has the *Quality of the education system* indicator ($B = -0.111$). The results obtained are not statistically significant. This limitation can be removed by including for consideration a longer time series.

5. CONCLUSION

The importance of higher education as a factor of competitiveness and development in contemporary conditions must not be ignored. While the developed countries are making great efforts to improve the higher education system, competence and qualification of the workforce, and consequently their productivity, in developing countries, much attention to the links between the higher education system and better economic results are not given. The results of the research confirmed this fact on the example of Serbia. Namely, in the observed period, Serbia recorded a significant improvement in two of the five observed segments, namely, the indicators of quality of higher education, *Secondary education enrollment rate* and *Tertiary education enrollment rate*. On the other hand, the results of the regression analysis showed that the greatest influence on the global competitiveness of Serbia has the quality of math and science education, and after that the quality of management schools. In this way, we come to the conclusion that there is a discrepancy between what has been done in the field of improvement of higher education and what have been done. While, despite the weaker results in 2017 compared to 2007, quality of math and science education at a relatively satisfactory level, quality of management schools is the weakest rated. These two segments of higher education require special attention of the education and development policy makers of Serbia. However, it is not enough just to improve the quality of higher education in the mentioned domains. Much more important is finding the way to use the achieved results in the field of higher education in the function of improving competitiveness and successful economic development of the country.

LITERATURE

- [1] Avis, J. Further education: policy hysteria, competitiveness and performativity, *British Journal of Sociology of Education*, vol. 30(5), pp. 653-662, 2009.
- [2] Badea, L., Rogojanu, A. Controversies concerning the connection higher education–human capital–competitiveness, *Theoretical and Applied Economics*, vol. 12(12), pp. 125-142, 2012.
- [3] Balkyte, A., Tvaronavičienė, M. Perception of competitiveness in the context of sustainable development: facets of “sustainable competitiveness”, *Journal of business economics and management*, vol. 11(2), pp. 341-365, 2010.
- [4] Kabók, J., Kis, T., Csüllög, M., Lendák, I. Data envelopment analysis of higher education competitiveness indices in Europe, *Acta Polytechnica Hungarica*, vol. 10(3), pp. 185-201, 2013.
- [5] Keser, H. Y. Effects of higher education on global competitiveness: reviews in relation with European countries and the middle east countries, *Annals of Constantin Brancusi University of Targu-Jiu. Economy Series*, vol. 1(1), pp. 58-68, 2015.
- [6] Krstić, B., Stanišić, T. The influence of knowledge economy development on competitiveness of southeastern Europe countries, *Industrija*, vol. 41(2), pp. 151-167, 2013.
- [7] Kwiek, M. Universities, regional development and economic competitiveness: The Polish case. In *Universities and Regional Development* (pp. 89-105). London: Routledge, p. 71, 2012.
- [8] Lane, J. E.. *Higher education and economic competitiveness*. Universities and colleges as economic drivers: Measuring higher education’s role in economic development, pp. 1-30, Albany: State University of New York Press 2012.
- [9] Marope, M. *The education system in Swaziland: Training and skills development for shared growth and competitiveness*, World Bank Publications, 2010.
- [10] Sahlberg, P. Education reform for raising economic competitiveness, *Journal of Educational Change*, vol. 7(4), pp. 259-287, 2006.
- [11] Steen, L. A. Mathematics education: A predictor of scientific competitiveness, *Science*, pp. 237(4812), pp. 251-302, 1987.
- [12] Sum, N. L., Jessop, B. Competitiveness, the knowledge-based economy and higher education, *Journal of the Knowledge Economy*, vol. 4(1), pp. 24-44, 2013.
- [13] WEF. *The Global Competitiveness Report 2017–2018*. Geneva: World Economic Forum, 2017.