

EDUCATION AND ECONOMIC GROWTH OF THE WESTERN BALKANS COUNTRIES

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JEL: F00, O52, I25, O40

date of paper receipt:
06.11.2018.

date of sending to review:
07.11.2018.

date of review receipt:
13.11.2018.

Original article

doi: **10.2478/eoik-2018-0021** UDK: **339.5.012.42:005.412(497-15)**

SUMMARY

Numerous theoretical and empiric studies investigate the correlation between education and human capital and economic development. Full affirmation of knowledge and the role of education in stimulating economic growth were provided by endogenous theory. The subject of this paper is to analyse the correlation between education and educational system and the economic growth of the Western Balkans countries (WB). The hypothesis of this work says that: education and educational system in the WB affect the growth of GDP per capita. A better education system stimulates and accelerates the economic growth and development. The aim of this research is to prove that an optimal education system stimulates the growth and development in each observed national economy. In this paper, the results of the correlation analysis indicate high compliance of higher education with GDP per capita i.e. higher education population is particularly important for the level of development whereas there is a highly compliant but inverse relation of the population with informal level of education and economic development in the WB countries.

Keywords: Education, educational structure, economic growth, development, the Western Balkans

INTRODUCTION

Significance of education and human capital for economic growth is being addressed by relevant researchers throughout the world. That is why the level of education can be considered as an important factor of development in each economy. The full significance of knowledge and the role of education in stimulating economic growth have been explained by endogenous theory. Although the very idea of endogenous growth existed before, endogenous growth as a widely accepted theoretical concept dates back from the middle of 80s of the last century. Foundations of a modern endogenous theory of growth can be found in papers of many relevant researchers. This year Nobel Prize winner in economy (2018), Paul Romer, is just another confirmation of the significance of education, knowledge and technological development in the economic growth, for Romer is considered to be one of the founders of endogenous theory. Except Romer (1986, 1990), an important contribution to development of this theory was provided by his mentor Robert Lucas (1988), as well as by Grossman and Helpman (1991), Aghion and Howitt (1992) and many other researchers. The new theory or the theory of endogenous growth has offered somewhat different explanations for economic growth than those offered by the neo-classical theory. Technological development in Solow-Swan model (Solow, 1956; Swan, 1956), is exogenously given (neo-classical model), therefore this key factor that determines the growth rate by the model has not been explained at all.

Such a situation has initiated many researchers to try “to make endogenous” and/or to explicitly model the technological development as a result of economic and other processes. When it comes to empiric investigations, there are many papers explaining the impact of education and knowledge on economic growth. So, Abhijeet and Islamia (2010) seek to explain the correlation between the level of education and economic growth by using data for India for the period 1951-2009. Results of their investigation indicate a strong two-way correlation between these two variables.

Acosta-Ormachea and Morozumi (2013) have tested the impact of change in the structure of public expenditures on economic growth. Their results indicate how difficult it is in general to find statistically significant correlation between a change of public expenditure structure and economic growth. They have even reached a conclusion which says that when the structure is changed in favour of allocation for education, the impact on economic growth is more significant. Trpeski and Cvetanoska (2016) analyzed recent trends of labour productivity and economic growth in post-crisis period in comparison with the trends in precrisis and crisis periods in Macedonia, Serbia, Montenegro and Albania. The results of their research show that the relation between the labour productivity and economic growth over the three periods is not a constant or stable. Since the global financial crisis broke, labour productivity across the region growth has fallen, often subtracting from growth. Deniz et al. (2011), seek to explain the correlation between education and economic growth on the basis of data for Turkey in the period 1973-2009. While they tend to measure indirect effect (i.e. impact of salary on social status), direct effects of investment in education were easily identified – better educated employees were more efficient and productive. Barro (2001) conducted a research on a sample of 100 countries in the period of 1965-1995. He came to the conclusion that economic growth is in positive correlation with initial levels of average education of adult males. In contrast, economic growth is not significantly correlated with education of females at middle and higher levels of education. Also, he concluded that higher educated women were not well distributed in the labour market in many countries hence they do not contribute to economic growth. This paper shall analyse the level of education as well as the correlation between education and the level and dynamic of economic development in the Western Balkans countries. The concept of the Western Balkans emerged in the new phase of accession of the Balkans countries that are not EU members. As generally accepted geographical framework, it is ever more present in economic investigations. One of the authors investigating various economies and social aspects of the development of the Balkans is Bartlet (2008). According to him, the Western Balkans comprises former Yugoslav countries without Slovenia, but including Albania. Western Balkans Countries (WWC) have implemented deep economic reforms and went through the most difficult transition phases. Before the economic crisis (2008/2009), they achieved significantly higher rates of growth than nowadays.

However, post-crisis period is followed by low growth rates, in certain years even negative. Generally, the transition process was not followed by higher economic development rates. With a low starting point, most of these countries lagging behind of Europe by GDP per capita. Therefore the issues related to development have become crucial for economic and overall wellbeing in those countries. GDP growth rates are still the main drag preventing these countries from entering the “developed circle“. Hence the great interest of researchers for quantification of developmental factors in order to recognise their roles and significance for growth and development, employment, living standard and wellbeing is not surprising. The basic hypothesis in this paper is that education and educational system affect GDP growth. A better educational system stimulates and accelerates the economic growth and development. This hypothesis is closely related to the research problem, which goes to evaluation of its quantity, quality and structure. The aim of the research (primary aim) is to prove that an optimal educational system stimulates the growth and development in each national economy. This work were used descriptive and correlation analysis which results were automatic calculated in Excel graphs (square root of R^2 -determination coefficient in the graph).

ANALYSIS OF EDUCATION STRUCTURE

According to many economists, education has a great role at the level of social-economic development. The level of education is observed through education structure and/or the number of people with higher education, secondary education and the number of people with no formal education, i.e. with completed primary school. Trends and changes in the education structure are both in direct and indirect relation with other social-economic movements of each national economy.

The following text shall provide an analysis of trends of education structure of the working age population in the Western Balkans countries over the period 2005-2014, which shall be the basis for evaluation of the correlation with the economic growth and development in the following chapters. The next table presents an overview of educational structure of the working-age population in all the six Western Balkans countries, as the level of education in percentage participation of the working-age population of each level of education in the total number of working-age population in the Western Balkans. It can be easily noticed in the analysis of the table that the middle level education is most represented in all countries, with slight growth, observed absolutely and relatively throughout the observed period. It is also seen in the table that participation of the working-age population with primary education decreases while the population with higher education is increasing. Without analysing detailed social-demographic characteristics of the region, the above stated indicators of education structure show an increase in the level of human capital through the increase of higher level educated population in the total number of working-age population and decrease of population with primary education.

Table 1 Educational structure of the working age population in the Western Balkans

School year	Albania			BiH			Croatia			Macedonia		
	primary	secondary	higher	primary	secondary	higher	primary	secondary	higher	primary	secondary	higher
2005.	58%	36%	6%	50%	44%	6%	22%	61%	17%	45%	44%	20%
2006.	57%	35%	8%	49%	45%	6%	22%	61%	17%	45%	44%	20%
2007.	56%	35%	9%	48%	46%	6%	21%	61%	17%	45%	44%	20%
2008.	56%	34%	9%	47%	46%	7%	23%	60%	17%	45%	44%	20%
2009.	55%	35%	10%	45%	48%	7%	21%	61%	18%	43%	45%	22%
2010.	56%	35%	10%	43%	49%	8%	20%	62%	18%	42%	45%	23%
2011.	55%	35%	11%	43%	48%	9%	21%	62%	17%	40%	45%	25%
2012.	56%	34%	10%	43%	49%	9%	19%	62%	19%	39%	45%	26%
2013.	55%	34%	11%	42%	49%	10%	17%	61%	22%	38%	47%	24%
2014.	54%	35%	12%	41%	49%	10%	14%	65%	21%	38%	47%	25%
School year	Montenegro			Serbia			The Western Balkans average			Variation coefficient		
2005.	33%	54%	13%	37%	50%	13%	39%	49%	17%	26%	14%	38%
2006.	33%	54%	13%	37%	50%	12%	39%	49%	17%	26%	14%	35%
2007.	30%	56%	13%	36%	50%	14%	38%	50%	17%	26%	15%	31%
2008.	31%	57%	13%	36%	50%	14%	38%	50%	17%	25%	15%	31%
2009.	30%	57%	13%	36%	50%	14%	37%	50%	18%	26%	15%	33%
2010.	28%	59%	14%	35%	50%	15%	36%	51%	18%	28%	15%	31%
2011.	28%	57%	15%	35%	50%	15%	36%	51%	17%	27%	15%	32%
2012.	27%	57%	16%	34%	50%	16%	35%	51%	19%	29%	15%	32%
2013.	26%	56%	18%	33%	50%	17%	34%	50%	22%	30%	14%	28%
2014.	26%	55%	19%	30%	52%	18%	32%	52%	21%	34%	15%	27%

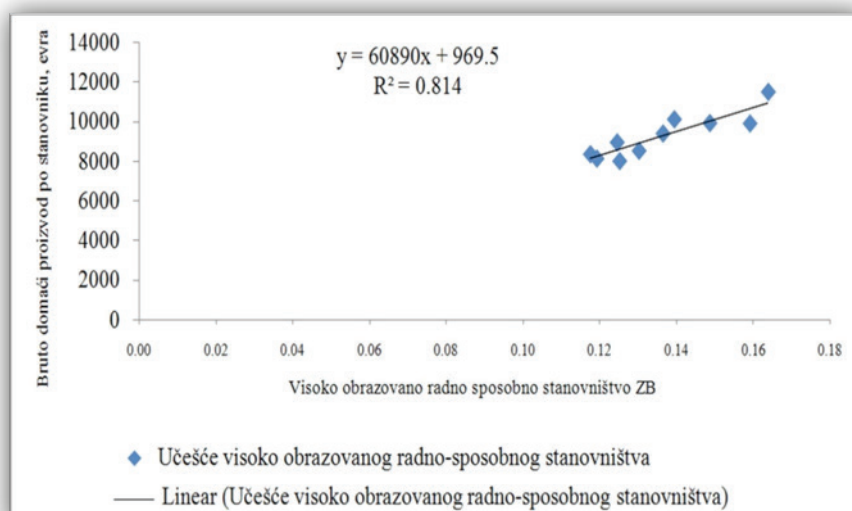
Source: National institutes of statistics in the Western Balkans countries, 2005-2014.

At the level of the WB Region, the university educated people made one sixth (16%) of the working-age workforce in 2014. Working-age population with completed secondary vocational education had more than one half of the share (52%) in education structure of the Western Balkans countries. Population above 15 years of age and without completed formal and vocational education made 32% in education structure of the Western Balkans countries. According to data from the national institutes of statistics, Serbia had the most favourable educational structure, with highest share of university educated population in absolute values (1.054.800 working-age population in 2014). If relative participation in education structure is observed, Macedonia had most people with university education with 25% in 2014. Then follow Croatia with 21%, Montenegro 19%, Serbia 18%. Albania is at the penultimate place in this group of countries with 12% of university educated population. Bosnia and Herzegovina has the least number of university educated people in the total number of working-age population, with 10% in 2014. The order of countries by the number of working-age population with completed primary education is very similar to the above stated, but with inversely proportional values of shares. Thus the least share of people without any formal education in 2014 was recorded in Croatia (14%), Montenegro (26%), Serbia (30%), Macedonia (38%). The highest share of working-age people without formal vocational education in 2014 was recorded in Albania (54%) and in Bosnia and Herzegovina (41%).

ANALYSIS OF IMPACT OF EDUCATION ON ECONOMIC GROWTH AND DEVELOPMENT IN THE WESTERN BALKANS COUNTRIES

The level of regional variations (variation coefficient) according to the level of education is significantly different for individual levels of education in the Western Balkans countries. As expected, the differences are more significant with participation of people with completed primary education (34%), then with people with university education (variation coefficient 27%). These two groups in the education structure have lower individual participation in the total number of the working-age population. On the other hand, the lowest variability was recorded with people who completed secondary school (15%). In graphs 1, 2 and 3, the correlation between the level of GDP per capita and the level of education is evaluated. Thereby, each graph evaluates the correlation with one of the three education categories: share of working-age people with completed primary and secondary school and the share of university educated people in the total number of working-age population.

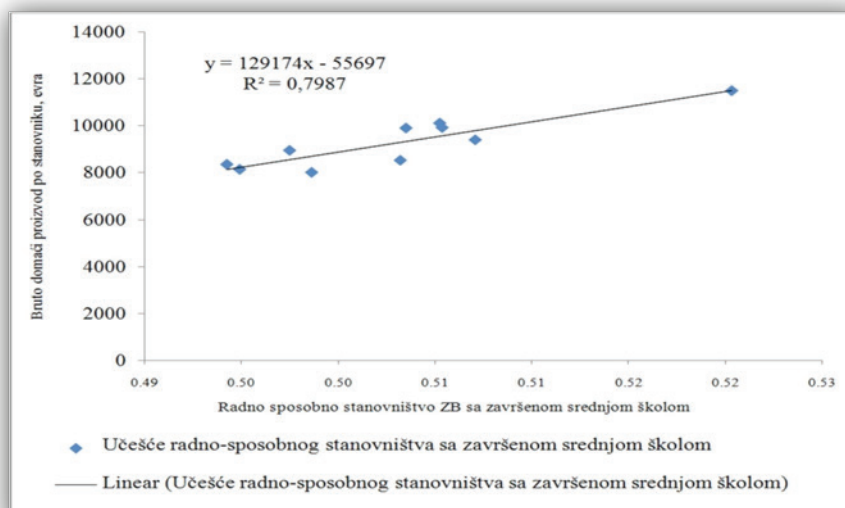
Graph 1 GDP per capita (EUR) and educational level of working-age population



Source: National institutes of statistics in the Western Balkans countries, 2005-2014.

Results of the correlation analysis indicate that the correlation coefficient between Gross domestic product per capita in 2005-2014 and share of university educated population amounts to 0,90 (square root of R^2 -determination coefficient in the graph no. 1), and secondary educated 0,89369 (square root of R^2 -determination coefficient in the graph no. 2). Therefore, when it comes to secondary and university educated people, the results confirmed strong positive compliance between levels of education and level of development over the ten-year period. Results have shown that in the case of GDP per capita, the correlation between the shares of university educated people is slightly higher than the one between the participation of secondary educated people and GDP, but particular importance of higher education for the level of development is emphasised.

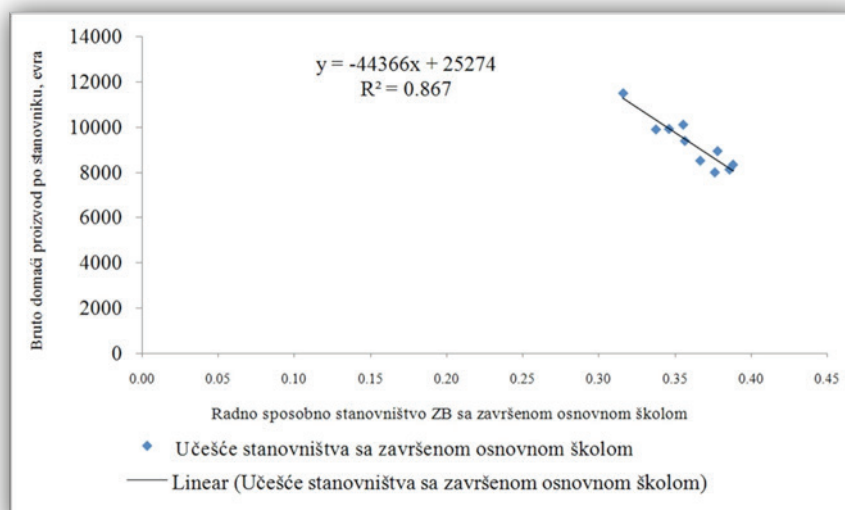
Graph 2 GDP per capita (EUR) and educational level of the working-age population



Source: National institutes of statistics in the Western Balkans countries, 2005-2014.

Correlation analysis of participation of working-age population with no formal vocational education and Gross national product per capita of -0,9315 (square root of R^2 -determination coefficient in graph no. 3) shows a strong correlation between these two variables, but preceded by a minus sign. This means that the decrease in the share of working-age participation without formal vocational education (with completed primary school or less than that) has positive effect to the level of development (GDP per capita).

Graph 3 GDP per capita (EUR) and educational level of the working-age population

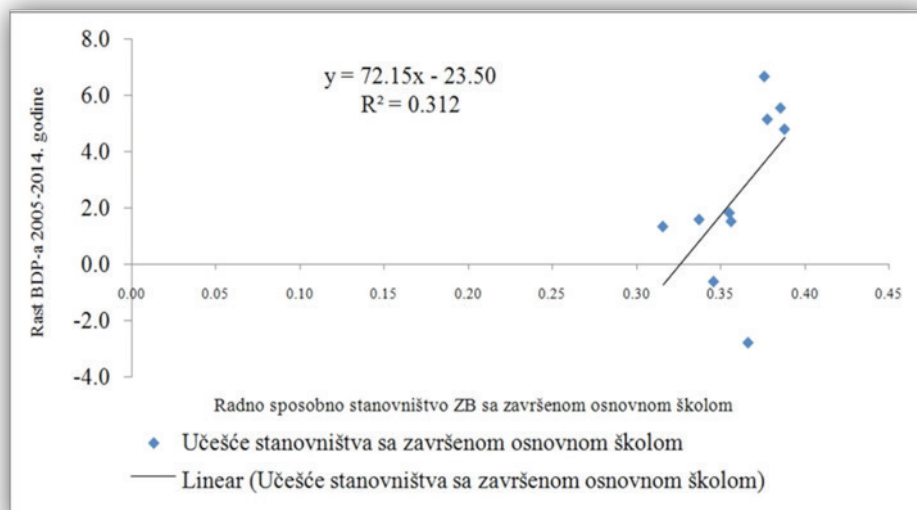


Source: National institutes of statistics in the Western Balkans countries, 2005-2014.

Previous results referred to the correlation of the level of education and economic development level in the Western Balkans. However, another important issue this paper attempts to answer pertains to the correlation of education and the economic growth rate. In other words, the question is whether the Western Balkans countries with a relative increase of human capital achieved a faster economic growth or not. In graphs 4, 5 and 6, correlation of the working-age education level and GDP growth is analyzed for the period 2005-2014.

In the case of correlation between the economic growth and level of education (Graph no. 4), participation of working-age population without formal education shows moderate positive correlation to Gross National Product, where the correlation coefficient is 0,56. This speaks in favour of moderate positive correlation of the Gross national product and participation of working-age population without formal education in the observed period.

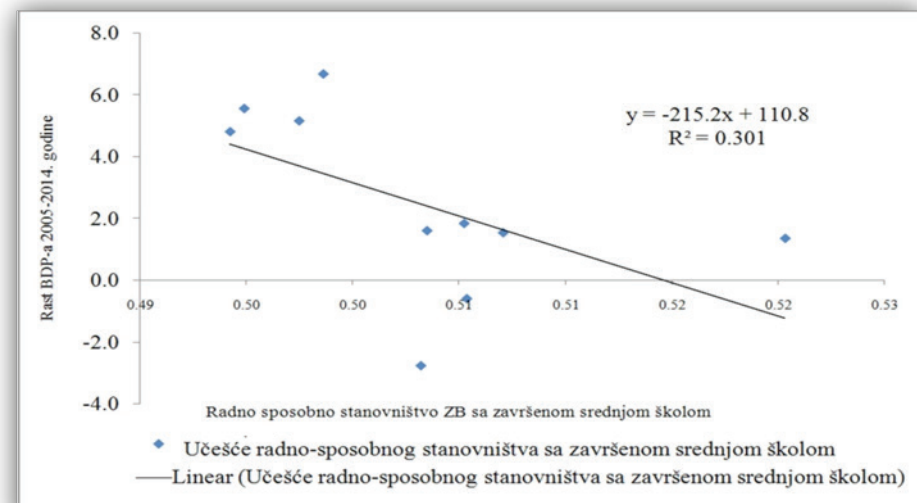
Graph 4 GDP Growth and educational level of the working-age population



Source: National institutes of statistics in the Western Balkans countries, 2005-2014.

However, analysis of the correlation of GDP dynamics and working-age population with secondary and higher education (Graph no. 5 and Graph no. 6), reveals a negative correlation (correlation coefficient of secondary educated population and GDP growth - 0,55, and higher educated and GDP growth - 054).

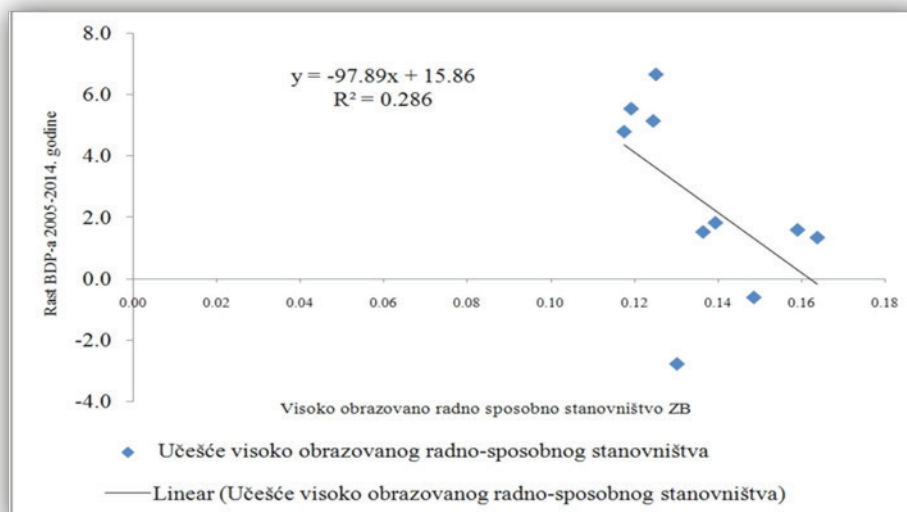
Graph 5 GDP Growth and educational level of the working-age population



Source: National institutes of statistics in the Western Balkans countries, 2005-2014.

It is obvious that a stronger correlation towards higher productivity was not achieved in the WB countries with higher participation of secondary and university educated employees. It can be assumed from the above stated that negative correlation is the consequence of relatively higher participation of secondary and university educated workforce in sectors with lower productivity, such as the sector of other services. Also, it can be presumed that a great number of secondary and university educated population was educated in the fields in which the demand for workforce is lower and unemployment is high.

Graph 6 GDP Growth and educational level of the working-age population



Source: National institutes of statistics in the Western Balkans countries, 2005-2014.

Negative correlation between the dynamic of participation of secondary and university educated population and the economic growth confirms a weak significance of secondary and university education for the economic growth during the analysed period. Possible explanation for such a result may be that the trend of increase in the number of students hence university educated workforce had negative impact on the rate of participation, which reduces the potential growth. It is also possible that the period for higher employment of university people for achieving full effects on productivity and also on the overall economic growth is too short. But, it seems more likely that the increase of university educated workforce is achieved to a great extent in low and slow-growing productivity sectors, such as the public sector so that stronger effect of education on the growth of productivity and the overall economic growth was not achieved. However, any conclusion without obtaining additional data and analysis would be questionable.

CONCLUSION

Results of this research have shown that Macedonia has the most favourable education structure in WB countries, with the highest participation of university educated population. Then follow Croatia, Montenegro and Serbia. Albania is at the penultimate position among the group of countries with 12% of university educated population. The least number of university educated population and total number of working-age population is found in Bosnia and Herzegovina. The order of countries according to participation of working-age population with completed primary education is very similar to the previous case, but with reversed proportional value in participation. Thus the smallest number of population without formal vocational education is recorded in Croatia, then in Montenegro (26%), Serbia (30%) and in Macedonia (38%). The highest number of working-age persons without formal vocational education in 2014 was recorded in Albania (54%) and in Bosnia and Herzegovina (58%).

Results of the correlation analysis indicate that there is a high correlation of higher education with GDP level per capita, i.e. university educated population is particularly important for the level of development, while there is a high correlation, but inverse relationship between the people with non-formal education and economic development in the Western Balkans countries.

In the case of economic growth and the level of education, the results have shown a moderate positive correlation of GDP growth and the number of working-age population without formal education in the WB. However, the analysis of the correlation of GDP growth with secondary and university educated working-age population shows negative correlation. It is obvious that stronger correlation between educational level and work productivity has not been achieved in some WB countries with higher proportion of people with secondary and university education. This can lead to a general conclusion that negative correlation is the result of the fact that relatively higher employment of secondary and university educated workforce is found in low-productivity sectors, such as the sector of other services. It can also be concluded that a great number of people with secondary and university education got educated in the fields in which the demand for the workforce is lower and unemployment higher. Negative correlation between the number of people with secondary, as well as university education and the economic growth confirms a weak impact of secondary and higher education on the economic growth during the observed period. Explanation for such a result is found in the trend of growth in the number of students therefore university educated workforce as well, which had negative effect on the rate of participation, thus minimising the potential growth. Also, it should be emphasised that it is not a long period to ensure full effect of employment of university educated people on productivity and growth. However, what stated results implicate is that the growth of university educated workforce was partially achieved in low and slow growing sectors so that stronger effect on the growth of productivity and the overall economic growth did not occur. But, it would be very difficult to reach any explicit conclusions without obtaining additional data and analyses.

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