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THE CONTRIBUTION OF HIGHER EDUCATION TO ECONOMIC GROWTH OF WESTERN BALKANS: EVIDENCE FROM KOSOVO, ALBANIA, NORTH MACEDONIA, AND MONTENEGRO

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ABSTRACT

This paper aims to explore the contribution and impact of higher education on the economic growth of the Western Balkan countries, with special emphasis on Kosovo, Albania, Montenegro, and North Macedonia. Hausman – Taylor IV model was used to derive statistical results, while the data used are panel data for the period 2000-2020. Bosnia and Herzegovina as well as Serbia were not included in the research because it was not possible to obtain the necessary data for these countries for the given period. The results obtained from this research provide evidence that higher education in these countries has a positive impact on economic growth, namely on the GDP growth of these countries. Some variables are significant and are positively related to the dependent variable, while others are negatively related to the dependent variable. This research is among the few research, or among the first researches that have elaborated on this problem for these countries which are still in political and economic transition. Therefore, it is of special importance for researchers in the field of European and regional integration, education, economics, justice, etc.

KEYWORDS: *Higher education; economic growth; Western Balkan; contribution; Hausman - Taylor IV model.*

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1. INTRODUCTION

In the age of technology, where human society is influenced in every sphere by technology, education is more related to the economy than in earlier decades. In the twentieth century higher education had a period of more rapid development everywhere in the world, and as a result, there was also higher economic growth. The number of higher education institutions around the world has increased, as has the number of students in higher education. Several higher education institutions have been established to meet the needs of industry and the economy in general. Thus, in step with the development of industry, higher education institutions have been set up to meet the needs of industrial sectors.[1]

Therefore, higher education, specifically higher education institutions have been the engine of economic and social development around the world. Historical evidence shows that the promoters of industrial and trade development were higher education institutions.[2] Historically, the development of higher education has led to increased labor productivity. European countries such as England, Germany, and France are the best indicators of overall productivity growth because of investing in higher education. Even in the USA, thanks to the development of higher education, great scientific discoveries have been made which have been crucial for human society. Investing in higher education or human capital is a key factor in the future because the economy is being driven by knowledge after the post-industrial economy.[3]

The role of the university is not only related to research and development activities, but the university must create new and innovative industries, thus becoming a primary player in the country's economy. Comprehensive growth can only be achieved if there are developed and quality institutions in the field of higher education[4]. Various theories have been used to investigate the relationship between higher education and economic growth.[5] The predom-

[1] Schofer, E.; Meyer, W.J.: *The Worldwide Expansion of Higher Education in the Twentieth Century*, American Sociological Review, 70 (6) 2005, [https://doi.org/10.1177/000312240507000602], p. 898-920.

[2] Kule, D.: Impact of Higher Education on Economic Growth – The case of Albania, (2015), University of Tirana.

[3] Dickens, T. W. *et al*.: *The Effects of Investing in Early Education on Economic Growth*, THE BROOKINGS INSTITUTION, (2006), Washington, DC.

[4] Kochetkov, D. M. *et al*.: *Entrepreneurial capacity of universities and its impact on regional economic growth*, Economy of Region/Ekonomika Regiona, 13(2) 2017, [https://10.17059/2017-2-13], p.477-488.

[5] Nistor, S. *et al*.: *Is education important in assessing the impact of institutions on economic growth in emerging economies?*. Applied Economics, 50 (34-35) 2017, [https://doi.org/10.1080/00036846.2018.1436149], p.3840-3854.

inant part of them focused on human capital as an accelerator of economic growth.

So, one of the main sources of economic growth is human capital. The rapid development of technology has oriented the countries of the globe to greater investment in the development of higher education. Despite this, the countries are distinguished by the quality of higher education. The development of higher education during the transition period in the Western Balkan countries has marked significant changes. Higher education in these countries has been reformed both structurally and organizationally.[6]

Compared to universities in Western European countries, universities in the Western Balkans are quite young. Higher education in this region developed essentially after World War II. The Western Balkan countries are primarily similar in terms of the embeddedness of higher education policy development in European processes, such as the Bologna Process and the EU's Lisbon Agenda. Other similarities have to do with the connection to the communist legacy, with a clear distinction between Albania and the countries that were part of the former Yugoslavia. These countries are also somewhat different concerning the size of their higher education systems example number of students and institutions, participation rate as well as investment into higher education and research capacity.[7]

It should be noted that Kosovo, compared to other countries in the Western Balkans, experienced apartheid in higher education from the period 1990-1999 because Kosovo Albanian students were barred from higher education in university facilities and the Albanian language. Therefore, even though these countries have had the development of higher education at a similar level, Kosovo differs in this respect due to ethnic divisions and the very low quality of higher education during the nineties.[8] According to Bartlett and Uvalić (2019),[9] the higher education system in the Western Balkans does not adequately prepare graduates for the labor market. Therefore, until reforms are

[6] Chakraborty, B.: *Human Capital, Education Policy and Economic Growth and Productivity*, Productivity, 46 (1) 2005, p.13-20.

[7] Vukasović, M.: *European Integration in Higher Education in the Western Balkan Countries (WBC): a Review of Literature*, EIHER-WBC Working Paper Series 2012.

[8] Jusufi, G.; Ajdarpašić, S.: *The Impact of EU Programmes on Financing Higher Education Institutions in Western Balkans - Evidence from Kosovo*, LEXONOMICA: Journal of Law and Economics, 12 (1) 2020, [https://doi.org/10.18690/lexonomica.12.1.107-128.2020], p.110-112.

[9] Bartlett, W., Uvalić, M.: *Higher Education and the Graduate Labour Market in the Western Balkans*. Osbild, R., Bartlett, W. (eds) Western Balkan Economies in Transition. Societies and Political Orders in Transition, 2019, Springer, Cham. [https://doi.org/10.1007/978-3-319-93665-9_4]

undertaken to improve this difficult situation, no results can be expected in the development and economic growth of these countries. Deepening cooperation between employers and universities should be done in such a way as to meet the needs of the labor market with qualified graduates.

The aims of this research can be summarized as follows:

1. Determining the impact and contribution of higher education to the economic growth of the Western Balkan countries;
2. Determining the impact of government expenditures on higher education on the economic growth of Kosovo, Albania, Montenegro, and North Macedonia;

The research questions of this study can be defined as follows:

1. What is the impact and contribution of higher education to the economic growth of the Western Balkan countries?;
2. What impact do government expenditures on higher education in these countries have on the economic growth of these countries?;

Meanwhile, the hypotheses of this research can be summarized as follows:

1. Higher education has a positive impact on the economic growth of Kosovo, Albania, Montenegro, and North Macedonia;
2. Government spending or expenditures has a positive impact on the economic growth of Kosovo, Albania, Montenegro, and North Macedonia;

2. LITERATURE OVERVIEW

According to Stevens and Weale (2004),[10] education generates economic benefits for individuals in a society and these individuals will affect the economy of the given country. Mattoon (2006)[11] states that higher education is primary and quite important brings innovation and is considered the key to future economic growth in many countries. Nelson and Phelps (1966)[12] argued that increasing the level of education could affect the ability of employees to adapt, change, and introduce new technologies into the production process.

[10] Stevens, P.; M. Weale.: *Education and Economic Growth*, NIESR Discussion Papers, 2003, p.259.

[11] Mattoon, R.: *Can higher education foster economic growth*?, Essays on issues: The Federal Reserve Bank of Chicago, 2006, p.1-4.

[12] Nelson, R.R.; Phelps, S.E.: *Investment in Humans, Technological Diffusion, and Economic Growth*, The American Economic Review, 56 (1/2) 1966, 69-75.

Therefore, a higher level of human capital education will accelerate the process of technological development in a country's economy. A percentage increase in human capital is sufficient to ensure economic growth. According to McNeil and Silim (2012)[13] in recent years the contribution of higher education to the economic success of countries is in the greatest focus because higher education is expected to support countries with qualified units and improve conditions and bring innovation, bring significant economic and social benefits.

Graduates in higher education are likely to be better able to use new technologies. They are also more likely to develop new tools and skills. Their knowledge can improve skills, while greater confidence and know-how develop from higher education, which can generate entrepreneurship, having positive effects on job creation. By creating well-educated and well-trained people, the quality of education systems can be increased and the greatest opportunity for the economic development of a country can be created. According to UNESCO (2011),[14] each school year increases per capita income by 10% and increases the annual average gross domestic product (GDP) by 0.37%.

Hanushek and Wößmann (2007)[15] claim that from a microeconomic point of view, education increases the inherent human capital in the labor force, which increases labor productivity, and thus there will be permanent economic growth towards a higher level of production equilibrium. Education can increase the innovative ability of a country's economy, as well as new knowledge about new technologies, products, and processes that drive economic growth. Education can also facilitate the transmission of knowledge needed to understand and process new information and successfully implement new technology, which again promotes economic growth.

Gyimah-Brempong et al. (2006),[16] state that all levels of education for the development of human capital are statistically significant and have a positive effect on the growth rate of per capita income. His results show that population growth has a negative relationship with increasing educational levels. In higher

[13] McNeil, C.; Silim, A.: *Further Higher? Tertiary education and growth in the UK's new economy*, University and College Union/London, 2012.

[14] UNESCO.: *Education counts; Towards the millennium development goals*, 2011, http://unesdoc.unesco.org/images/0019/001902/190214e.pdf f.6

[15] Hanushek. A. E.; Wöbman, L.: *The role of education in economic growth*, 2007. Available at: https://openknowledge.worldbank.org/bitstream/handle/10986/7154/wps4122.pdf?sequence=1

[16] Gyimah-Brempong, K. *et al.*: *Higher education and economic growth in Africa*, Journal of Development Studies, 42 (3) 2006, [https://doi.org/10.1080/00220380600576490], p.509-529.

education, people are more controlling about family size. Stevens and Weale (2003)[17] state that people who do not have education and knowledge will find themselves in difficulties giving their contribution to advanced societies, as in such societies the contribution of persons with education and proper knowledge in that aspect of education that is profiled.

According to Easterlin (1981),[18] the spread of education has preceded modern economic growth in most countries. But the sudden expansion of education in some countries has not been followed by economic development. He argued that economic success in Western European countries at a time when some countries in the world have achieved economic development was due to their education on a Protestant basis.

Azariadis and Drazhen (1990)[19] have researched the effect of education on economic growth for four groups of countries with different levels of education development. They surveyed 71 countries in terms of annual GDP per capita growth, GDP, and literacy rate. The group that had higher literacy rates compared to GDP (Japan and South Korea) showed a higher growth rate than the other groups. In other words, countries with higher human capital compared to their level of GDP have demonstrated higher levels than other countries.

Psacharopoulos (1994)[20] in his study concluded that the social return of education may be related to the wealth of a given country. In low-income countries, the annual return rates were around 10% - 23%, for primary, secondary, and higher education. In middle-income countries, the social return rate was 14.3% per year in primary education, 10.6% per year in secondary education, and 9.5% per year in higher education. He attributes these low rates of social return because there is an increase in the educated workforce offered by higher education.

[17] Stevens, P.; Weale, M.: *Education and Economic Growth*, NIESR Discussion Papers 259, 2003.

[18] Easterlin, A. R.: *Why Isn't the Whole World Developed?*, The Journal of Economic History, 41(1) 1981, p.1-19.

[19] Azariadis, C.; Drazhen, A.: *Threshold Externalities in Economic Development*, The Quarterly Journal of Economics, 105 (2) 1990, [https://doi.org/10.2307/2937797], p. 501-526.

[20] Psacharopoulos, G.: *Returns to investment in education: A global update*, World Development, 22 (9) 1994, [https://doi.org/10.1016/0305-750X(94)90007-8], p.1325-1343.

Acemoglu and Angrist (1999)[21] showed that the level of education was related to the levels of state wages, although returns to the social level were less than 1%. They have assessed social return after checking for the direct benefit of tuition at individual wages. Krueger and Lindahl (2001)[22] claim that 7.5 years is seen as the point of the marginal effect of education. The effect of higher education on economic growth was positive only if the average years of education in the workforce were less than 7.5 years.

Wolff and Girrleman (1993)[23] concluded that the enrollment rate in primary, secondary, and university education and the labor force growth rate, the enrollment rate is a good indicator to explain a country's subsequent economic growth. In middle-income countries, higher education has explained economic growth more than primary and secondary education. Higher education alone has a statistically significant effect on economic growth. In low- and poor-income countries, primary and secondary education were statistically significant in explaining economic growth, while higher education provided little explanation. Petrakis and Stamatakis (2002)[24] asserted that each level of education has had different effects on economic growth. The effect of a certain level of education between countries with different levels is different on economic performance. In developed countries, higher education was more important than at other levels.

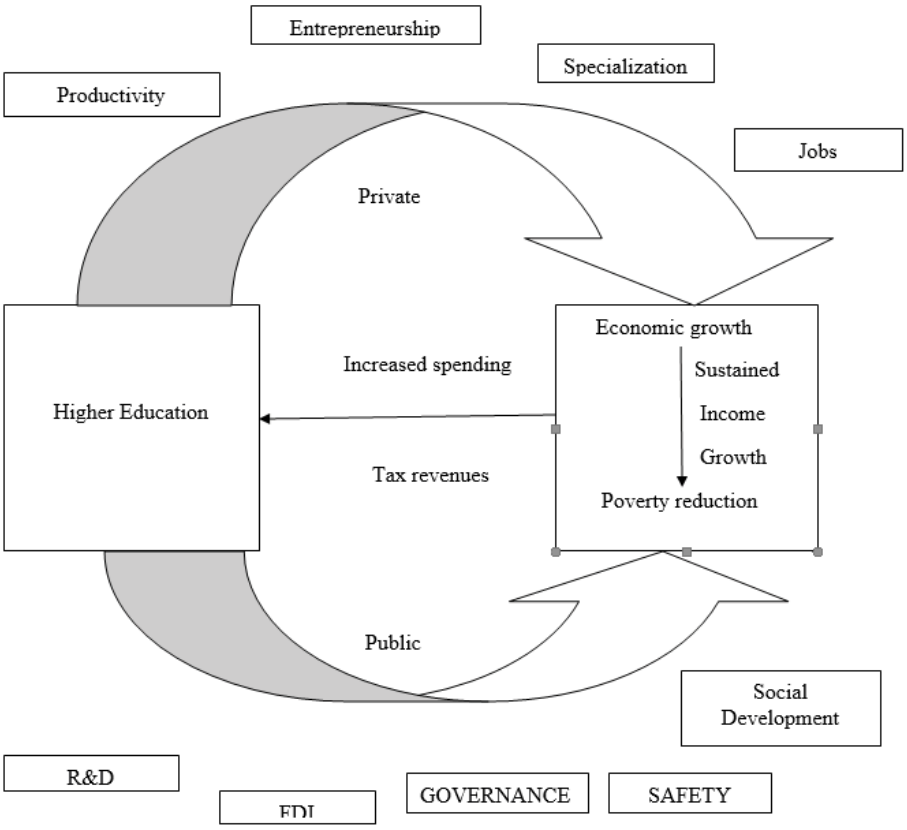
[21] Acemoglu, D.; Angrist, J.: *How large are the social returns to education? Evidence from compulsory schooling laws*, National Bureau of Economic Research, Workin paper, (7444) 1999, p. 2-45.

[22] Krueger, B.A.; Lindahl, M.: *Education for Growth: Why and for Whom?*, Journal of Economic Literature, 39 (4) 2001, [https://doi.org/10.1257/jel.39.4.1101], p.1101-1136.

[23] Wolff, E.; Gittleman, M.: *The role of education in Productivity convergence: Does Higher Education Matter?,* Explaining Economic Growth, Amsterdam: Elsevier Science Publisher, 1993, p. 15.

[24] Petrakis, P., Stamatakis, D.: *Growth and educational levels: A comparative analysis*, Economics and Education Review, 21 (5) 2002, [https://doi.org/10.1016/S0272-7757(01)00050-4], p.513- 521.

Figure 1: Higher education-economic growth link



Source: Bloom et al. (2013)[25], pp.18.

Gemmell (1996)[26] researched the role of higher education in economic development, taking as a variable the number of schools enrolled in 90 countries. He examined the importance of higher education for OECD countries. His findings affirmed that improving higher education has had a direct impact on economic growth, while secondary education is important for boosting invest-

[25] Bloom, D. *et al*.: *Higher Education and Economic Growth in Africa*, Harvard University, 2013, p.18.

[26] Gemmell, N.: *Evaluating the impacts of human capital stocks and accumulation on economic growth: Some new evidence*, Oxford Bulletin of Economics and Statistics, 58 (1) 1996, [https://doi.org/10.1111/j.1468-0084.1996.mp58001002.x], p.9–28.

ment. Jenkins (1995)[27] has researched the relationship between human capital and output. It used time-series data for the period 1971-1992 and tested the impact of labor qualification on economic performance. Highly skilled workers have twice as much productivity as unskilled workers. Therefore, investing in human capital, especially for higher education, increases productivity.

Baum and Payea (2004)[28] concluded that graduates of a given country contribute to the country by increasing public revenue, tax revenue, and other economic indicators. As a result of increasing the level of higher education, the need for social support programs decreases, isolation rates decrease, and levels of civic participation in many activities increase. The social benefits of higher education have attracted less attention than individual benefits, meaning higher levels of education are associated with higher incomes in a general sense.

Mincer (1962),[29] Blaug (1965)[30] in their research concluded that the level of education has a direct relationship with the level of investment in each country. Most organizations have increased their staff training budgets. Even though organizations know that there is a risk that trained employees will leave, they still invest in their training as there is an even greater risk, of retaining untrained employees. Also, the level of education has a direct connection with income as well as with the abilities of individuals to be more productive in their work. Teles and Andrade (2004)[31] investigated the relationship between government spending on education and economic growth. The results showed that the profits of an economic agent were influenced by his educational level.

Hanushek and Hobmann (2007)[32] examined the role of education in economic well-being by focusing on the role of quality in education. The results showed that the cognitive abilities of individuals have a strong relationship with their income, with the way they distribute this income as well as economic growth.

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[27] Jenkins, H.: *Education and Production in the United Kingdom*, Economics Papers 101, Economics Group, Nuffield College, 1995, University of Oxford.

[28] Baum, S.; Payea, K.: *Education pays: The benefits of higher education for individuals and society*, 2004, Washington, DC: The College Board.

[29] Mincer, J.: *On-the-Job Training: Costs, Returns, and Some Implications*, Journal of Political Economy, 70 (5) 1962, pp. 50-79.

[30] Blaug, M.: *The Economics of Education: A Selected Annotated Bibliography*, New York Pergamon Press, 200 International Series of Monographs in Library and Information Science, Vol. 3(a), 1965,

[31] Teles, V.K.,; de Andrade, J.P.: *Public Investment in Basic Education and Economic Growth*. Labor: Human Capital, 2004, p.1-16.

[32] Hanushek, A.E.; Hobmann, L.: *The role of education in economic growth*, 2007, p. 20. https://openknowledge.@orldbank.org/bitstream/handle/10986/7154/@ps4122.pdf?sequence=1

They also found that the quality of school education and its impact on economic growth varies between rich and poor countries. Investments in the education and health sectors are key factors for human capital development and the impact of education on economic growth and vice versa, economic growth is the main source for the development of human capital.

Holmes (2013),[33] using a sample with countries at different levels of development, concluded that there is a significant relationship between secondary education and GDP growth, but not between higher education and economic growth. Several studies (Bayo-Moriones and Lera-Lopez, 2007[34]; Barbosa and Faria, 2008[35]; Haller and Siedschlag, 2008[36]) have found that there is a positive relationship between higher education of the workforce with higher skills and the adoption of new technologies. According to them, skills affect the simplest use of ICT equipment over time. Human capital embodied in higher education strengthens countries' economic growth prospects. This role has been particularly prominent during the ICT revolution of recent decades.

Jusufi et al. (2020)[37] claim that recent innovations in manufactured products have been closely linked to research at the university level. Studies conducted at high-quality universities have brought innovation in products. The spread of innovation also depends on the highly skilled workforce.[38] Based on this theoretical evidence, it can be stated that there is theoretical and empirical evidence that shows that higher education has a positive effect on the economic growth of different countries. However, the realization of this growth is specific according to the characteristics of different countries. It should also be noted that no theoretical or even empirical evidence addresses this issue for the countries of the Western Balkans. This research aims to be a solid contribution to addressing this issue for this region.

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[33] Holmes, C.: *Has the expansion of higher education led to greater economic growth?,* National Institute Economic Review, 224, 2013, p.29-47.

[34] Bayo-Moriones, A.; Lera-Lopez, F.: *A firm-level analysis of determinants of ICT adoption in Spain*, Technovation, 27 (6-7) 2007, [https://doi:10.1016/j.technovation.2007.01.003], p.352-366;

[35] Barbosa, N., Faria, P. A.: *Technology adoption: Does labour skill matter ? Evidence from Portuguese firm-level data,* Empirica, 35, 2008, [https://doi:10.1007/s10663-007-9056-x p.179-194], p.179-197.

[36] Haller, S.; Siedschlag, I.: *Determinants of ICT Adoption: Evidence from Firm-Level Data*, DYNREG, Working Paper, 2008, p.28.

[37] Jusufi, G. *et al.*: *The Effect of Product Innovation on the Export Performance of Kosovo SMEs*, Management: Journal of Contemporary Management Issues, 25 (2) 2020, [https://doi:10.30924/mjcmi.25.2.12] p. 215-234.

[38] Ramaj, V. *et al.*: Innovation as a Success Key for Manufacturing SMEs: Empirical Insights from Kosovo. Economic Studies/Ikonomicheski Izsledvania, 31 (4) 2022, p.113-127.

3. RESEARCH DATA AND METHODOLOGY

There are different econometric models which are used by different researchers to measure the effect of education or investments in education on the economic growth of different countries. This research aims to analyze the relationship between education and economic growth of the Western Balkans region, with special emphasis on Kosovo, Albania, North Macedonia, and Montenegro. The Western Balkans region consists of 6 countries: Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, and Serbia (Qorraj and Jusufi, 2018[39]; Jusufi and Bellaqa, 2019[40]; Jusufi and Ukaj, 2020[41]; Jusufi and Gashi-Sadiku, 2020[42]; Qorraj and Jusufi, 2021[43]; Jusufi and Ukaj, 2021[44]). Serbia and Bosnia and Herzegovina were not included in this research because it was not possible to provide precise and sufficient data for these two countries.

For countries such as Kosovo, Albania, North Macedonia, and Montenegro, complete data are provided on investments in higher education during the period 2000-2020. This data for the variables used in this paper such as real GDP growth of these countries (Kosovo, Albania, North Macedonia, and Montenegro), government expenditure on education as a total % of country GDP for these countries, expenditure on high education as % of government expenditure on higher education, government expenditure per higher education student as % of GDP per capita, higher education enrollment as % gross, employment to population ratio as %, and unemployment, % of total labor workforce is

[39] Qorraj. G.; Jusufi, G.: *The EU Stabilization and Association Agreement for the Western Balkans: Between Challenges and Opportunities,* Croatian International Relations Review, 23 (81), 2018, [https://doi:10.2478/cirr-2018-0003], p. 51-68.

[40] Jusufi, G.; Bellaqa, B.: *Trade barriers and exports between Western Balkan countries*, Naše gospodarstvo/Our Economy - Journal of Contemporary Issues in Economics and Business, 65 (4) 2019, [https://doi:10.2478/ngoe-2019-0021], p.72-80.

[41] Jusufi, G.; Ukaj, M.: *Migration and Economic Development in Western Balkan Countries: Evidence from Kosovo*, Business Excellence/Poslovna izvrsnost, 14 (1) 2020, [https://doi:10.22598/pi-be/2020.14.1.135], p.135- 158.

[42] Jusufi, G.; Gashi-Sadiku, F.: *Impact of Fiscal Policies in Western Balkans SMEs Growth: Evidence from Kosovo*, Central European Public Administration Review (CEPAR), Vol. 18 (2) 2020, [https://doi: https://doi.org/10.17573/cepar.2020.2.07], p.135- 164.

[43] Qorraj, G., Jusufi, G.: *Does EU Trade Integration Support Export Promotion: Probit Analysis, Evidence from Kosovo*, InterEULawEast: Journal for the International and European Law, Economics and Market Integrations, 8 (1) 2021, [https://doi.org/10.22598/iele.2021.8.1.5], p. 75-90.

[44] Jusufi, G.; Ukaj, F.: *Turkey's Trade with Western Balkans: Looking beyond the Turkish Foreign Policy*, InterEULawEast: Journal for the International and European Law, Economics and Market Integrations, 8 (2) 2021, [https://doi.org/10.22598/iele.2021.8.2.7], p. 133-160.

provided by the World Bank[45]. Data will be provided by fixed and random effects and estimates from Hausman-Taylor instrumental variables- IV. We will compare the data obtained from each of these 3 econometric models, and the most proper model is that of Hausman-Taylor instrumental variables- IV. Because our data are panel data, then these models will be used as the most proper for drawing the right conclusions and data. Initially, we will specify the econometric model according to fixed and random effects:

$$Yit=\beta 0+ \beta 1tGovEit + \beta 2ETEit + \beta 3GESit + \beta 4HEEit + \beta 5ERit + \beta 6URit +\varepsilon ti$$

Yit is dependent on present real GDP growth, (i present each country, meanwhile, t presents years);

Independent variables are:

GovE presents government expenditure on education as a total % of the country's GDP;

EHEit expenditure on high education as % of government expenditure on higher education;

GESit government expenditure per higher education student as % of GDP per capita;

HEEit higher education enrollment as % gross;

ERit employment to population ratio as %;

URit unemployment, % of total labor workforce.

It is important to note that these models help us account for unobservable country heterogeneity. The fixed-effects model produces consistent estimates even when the random-effects model is valid, therefore it is proper to prefer the fixed-effects model over the random-effects model. Also, the assumption that individual-specific effects are uncorrelated with the relevant covariates is too strong.

The model of Hausman & Taylor combines the aspects of both the random-effects and fixed-effects estimators. As an instrumental-variable technique, uses information contained in the model to eliminate the correlation between error terms and country-specific effects. This model is a proper method because it

[45] The World Bank. Data on GDP growth, higher education, employment and unemployment for the Western Balkan countries, specifically for Albania, Kosovo, Montenegro and North Macedonia, 2022. Available at: https://data.worldbank.org/indicator/SE.XPD.TERT.PC.ZS?locations=AL&view=chart

is always consistent and efficient. The endogeneity of variables is the main reason for applying the Hausman – Taylor IV model. Determinates of GDP growth could be determined by growth itself. Some of the variables can be presumed to be endogenous variables. So, government spending on higher education and education in general in these countries has a big impact on the GDP growth of these countries.

Table 1. Characteristics of the research model

Number of observations	80
Number of groups	4
Observations per group	20
Wald chi2	6311.23
Prob > chi2	0.000

Source: Authors' own calculation

Table 2. Model estimations

Variables	Fixed effects GDP	Random effect GDP	Hausman – Taylor IV GDP
GovE	0.51*** (0.03)	0.47*** (0.05)	0.59*** (0.07)
EHE	-0.59 (0.56)	0.63 (0.39)	0.64*** (0.05)
GES	0.76*** (0.004)	0.19** (0.010)	-0.213** (0.09)
HEE	-0.710*** (0.007)	-0.371*** (0.002)	-0.121*** (0.008)
ER	0.040 (0.549)	0.026 (0.537)	0.034 (0.533)
UR	-0.203 (0.407)	-0.117 (0.359)	-0.109 (0.367)
Number of observa.	80	80	80
R-squared	0.185	-	-
F	5.97	-	-
Chi^2	-	74.11	69.25

Notes: *Statistically significant at 10% level; ** statistically significant at 5% level; ***statistically significant at 1% level.

Robust are reported in parentheses.

Source: Authors' own calculation

The fixed-effects model is more precise than the Random effect model because as can be understood from the above statistics Fixed effects model has given results closer to the Hausman – Taylor IV model. The value of 0.59 indicates that a 1% increase in the government spending or expenditures of these countries on education will increase GDP by 0.59%. This variable is also significant in the third model. Benos and Zotou (2014)[46] in their research on the impact of education on economic growth concluded that the education system has a positive impact on economic growth, but the level of impact depends on several factors. Improving these factors increases the impact of education on economic growth indicators. So, his results are similar to the empirical results of this paper. Barro (2002)[47] has also achieved similar statistical results as the results achieved in this paper, even according to him with the increase of years in schooling and education, the impact of education on economic growth increases.

The variable related to the expenditures of the governments of these countries on higher education is significant and has the value of 0.64 and a 1% increase in the government spending of these countries on higher education will increase their GDP by 0.64%. Similar results have been achieved by Tang (2022),[48] who according to him government spending on higher education has a very significant impact on the quality of university studies and with it the economic growth of a country. Also, similar results have been achieved by Marmullaku et al. (2020)[49] whose in their study explored the impact of education on the economic growth of lower-middle-income countries. They use similar variables, and their results are similar to the results achieved by our variables. According to them, investments in education have a significant impact on the GDP growth of these countries. It can be said that their results are in line with the results achieved by our research.

Also, Boutayeba and Ramli (2019)[50] reached the same conclusions as most researchers on this issue, which according that quality education and proper

[46] Benos, N., Zotou, S.: *Education and Economic Growth: A Meta-Regression Analysis,* World Development, 64 (2014), p.669-989

[47] Barro, R. J.: *Education as a determinant of economic growth*, (2002), p.9-24.

[48] Tang, Y.: *Government spending on local higher education institutions (LHEIs) in China: Analysing the determinants of general appropriations and their contributions*, Studies in Higher Education, 47(2) 2022, p.423-436.

[49] Marmullaku, B. *et al*.: *Education and Its Impact in Economic Growth in Lower Middle-Income Countries*, Journal Global Policy and Governance, 9 (1) 2020, [https://doi.org/10.14666/2194-7759-9-1-006], p.79-91. www.researchgate.net

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spending on this education promote sustainable economic growth. But Hanushek (2016)[51] has achieved the opposite results. An educational system that does not increase cognitive skills has no impact on economic growth, so any government spending on this system will have no impact on economic growth. The empirical results of this author give importance to the quality of the educational system. As long as the education system is not proper, any government spending made on this university system will not produce economic growth.

Regarding government expenditure per higher education student as % of GDP per capita, the value gained is -0.213 which is negative, i.e., in negative relation to the dependent variable. According to these results, with a 1% increase in government expenditures in these countries per higher education student as % of GDP per capita, the GDP of these countries will decrease by 21.3%. Interesting research in this regard has been done by Lin (2004),[52] where according to empirical results, students who graduate in the field of engineering and natural sciences are more likely to contribute to the economic growth of a country. So, the government should spend more on students studying natural sciences and engineering because the chances of economic growth are higher.

Also, higher education enrollment as % gross variable is in negative relation to the dependent variable and is significant. The value gained is -0.121 which shows that a 1% increase in higher education enrollment as % gross, will decrease the GDP of these countries by 12.1%. Different results from these results have been achieved by Yusoff (2011).[53] According to him, student enrollment at all levels of education has a positive impact on the economic growth of a country. Agiomirgianakis et al. (2002)[54] concluded that the quality of higher education in universities is more important than government spending on students and student enrollment. Also, in the long run, is noticed the impact of university studies on economic growth. While this impact varies from country to country. Despite the high student enrollment, it will not have a positive effect on economic growth as long as the university education system suffers from many shortcomings in both the curriculum and the accredited programs.

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As for the variable employment to population ratio as %, the value gained is 0.034 this value which is in positive relation to the dependent variable. This shows that with the increase in employment in these countries their GDP will increase by 3.4%. Similar results have been achieved by Akkemik (2007)[55]. So, increasing the level of employment has a positive effect on the growth of a country's GDP. Vijayakumar (2013)[56] has also provided conclusions where it is claimed that the level of employment affects GDP growth and economic stability.

As can be expected, the unemployment variable is in negative correlation with GDP growth. The value of the unemployment variable is -0.109 which shows that for a 1% increase in unemployment, the GDP of these countries will decrease by 10.9%. Interesting results have been achieved in his research by Kreishan (2011)[57] where according to him there is no significant link between GDP growth and unemployment in a country. So unemployment is not an important factor in reducing or increasing a country's GDP. So the lack of economic growth does not explain a country's unemployment.

4. CONCLUSIONS

The countries of the Western Balkans in recent years have experienced GDP growth, which is a reflection of rising levels of well-being and living standards. Despite this, the production base in these countries, especially in Kosovo, Albania, and North Macedonia remains low. Foreign investment is still at a moderate level and many macroeconomic indicators show a deterioration of the economic situation, especially after the COVID-19 pandemic period. In addition to economic indicators, the indicators of the education system are also unsatisfactory because the higher education system in these countries continues to be not much in line with that of the EU.

The first hypothesis of this research is Higher education has a positive impact on the economic growth of Kosovo, Albania, Montenegro, and North Macedonia. According to the results of our econometric model, the GDP of these countries is positively affected by investments in higher education in these

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countries. Simply any improvement of the education system, especially in higher education will have a positive impact on increasing the level of GDP in these countries. So the first hypothesis is supported. Recently, the governments of these countries have realized and are aware that higher education should be independent and not be influenced by political entities. Therefore, some reforms have been undertaken that aim at the meritorious advancement of the academic staff, the meritorious selection of the new academic staff, the establishment of various research institutes, etc.

All these reforms will enable the increase of quality in the universities of this region. With the increase in quality, more professionally prepared staff will emerge. The prepared staff will contribute to economic growth and development. The second hypothesis of this research is Government spending or expenditures have a positive impact on the economic growth of Kosovo, Albania, Montenegro, and North Macedonia. This hypothesis is also supported because based on empirical evidence, government spending on higher education has a positive impact on the GDP growth of these Western Balkan countries. Statistics from relevant institutions show that the governments of these countries do not allocate sufficient budgets for higher education. Empirical results reflect that any government spending on higher education will have a positive impact on GDP growth.

Regarding the research contribution, this research is among the few types of research that have studied the impact of higher education on the economic growth of the Western Balkan countries, with special emphasis on Albania, Kosovo, Montenegro, and North Macedonia. Various researches in the field of education have been conducted to elaborate on various problems faced by the education system and higher education in these countries. However, very few researchers have had the object of research the problem of the contribution of higher education to the economic growth of these countries. It can be said that only when higher education is cured of many shortcomings and "viruses", then the economy of these countries will also advance and experience an economic boom.

So it can be stated that what is new in the findings of this paper is the statistically obtained evidence that a high-quality education affects the economic growth of the analyzed countries. Preliminary studies have little elaborated on the impact of higher education on the economic growth of the Western Balkan countries, but only the contribution of the education system to the social development of these countries has been discussed. Therefore the correlation between higher education and economic growth has not been elaborated. Therefore, it can be stated that the findings of this paper do not differ much from the findings of other research on this issue.

The main limitation of this paper is that it does not include Serbia and Bosnia & Herzegovina due to the lack of proper data for these countries. Meanwhile, in terms of further research, this research can be expanded to include other important variables to explain the nature of this important issue.

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