ROLE OF HUMAN CAPITAL AS A DRIVER FOR SUSTAINABLE ECONOMIC GROWTH IN WESTERN BALKAN COUNTRIES

Binu Peediyeckal Devassia ¹
Emiljan Karma ²
Klodian Muço ³

ABSTRACT

Objective: The objective of this study is to investigate the impact of years of education and life expectancy on the economic development of the Western Balkan Countries (Southeast Europe).

Theoretical Framework: This study considers the impact of exogenous and endogenous theories of economic growth, with a particular focus on the role of human capital (human resources) in driving economic development.

Method: We have proposed a panel data regression methodology in which the dependent variable is the GDP per capita. The countries analyzed are covered from 2012 to 2021 and the total number of observations in the panel is 50. This study used secondary data from the WorldBank databases.

Findings: The results reveal a positive correlation between the Education Index and Labor Force Participation, while the Gross Enrollment Rate in Tertiary School and Life Expectancy show a negative correlation.

Research Implications: The demographic, economic, and educational conditions in the Western Balkan countries required immediate action by policymakers to avoid a situation that cannot be sustained over the medium or long term. The governments of these nations must take action to shift the focus of higher education to a more qualitative approach.

Keywords: Human Capital, Life Expectancy, Education, Western Balkans, Economic Growth.

1 Department of Management studies, Periyar Maniammai Institute of Science &Technology, Periyar Nagar Vallam 613 403 Tamil Nadu India. E-mail: b.peediyecka@fzkm.org
2 Research Centre on Economics of Transition Countries, Catholic University Our Lady of Good Counsel, 1000 Tirane, Albania. E-mail: e.karma@unizkm.al Orcid: https://orcid.org/0000-0003-2259-1481
3 Research Centre on Economics of Transition Countries, Catholic University Our Lady of Good Counsel, 1000 Tirane, Albania. E-mail: k.muco@unizkm.al Orcid: https://orcid.org/0000-0003-1025-789X

O PAPEL DO CAPITAL HUMANO COMO IMPULSIONADOR DO CRESCIMENTO ECONÔMICO SUSTENTÁVEL NOS PAÍSES DOS BALCÃS OCIDENTAIS

RESUMO

Objetivo: O objetivo deste estudo é investigar o impacto dos anos de educação e da expectativa de vida no desenvolvimento econômico dos países dos Bálcãs Ocidentais (Sudeste da Europa).

Referencial Teórico: Este estudo considera o impacto das teorias exógenas e endógenas do crescimento econômico, com foco especial na função do capital humano (recursos humanos) na condução do desenvolvimento econômico.

Método: Propusemos uma metodologia de regressão de dados em painel em que a variável dependente é o PIB per capita. Os países analisados estão cobertos de 2012 a 2021 e o número total de observações no painel é 50. Este estudo usou dados secundários dos bancos de dados do WorldBank.
1 INTRODUCTION

The relationship between human resources and economic growth has been a subject of interest for many years among researchers and policymakers. Human resources, also known as human capital, refers to the knowledge, skills, abilities, and experiences that individuals bring to the workforce. As economies transition from traditional industries to knowledge-based economies, the role of human capital in driving economic growth has become increasingly important (Barro, 1991; Mankiw, Romer, and Weil, 1992; Barro and Sala-i-Martin, 1995;

Various theoretical and empirical studies have attempted to explain the disparities in economic growth rates among countries influenced by human capital (Schultz, 1961; Becker, 1964; Mincer 1974; Barro, 1991; Barro and Lee, 1993; Barrett and O'Connell, 2001; Hanushek and Woessmann, 2015; Zhang et al., 2024; Vithana et al., 2023). The attention given to human capital and its impact on a country’s economic growth is justified by multiple connections that, although not always direct, are now linked in new growth models to the competitiveness of an economy in generating innovations and improving productivity through human capital.

Based on these facts, in this study, we will seek to understand how human capital influences economic growth, specifically how factors such as education index, educational attainment, life expectancy, and labor force participation can influence the GDP per capita growth rate. To achieve this goal, we will examine the Western Balkan countries, which historically consider education a crucial factor for economic growth, but at the same time, the quality of education falls short when compared to the advanced economies of the European Union they aspire to join.

We will focus on the Balkan region, which includes Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, and Serbia. These countries have different institutional characteristics but are very similar in terms of education and their aspiration to join the European Union.

In this study, we propose an OLS regression model to identify the correlations between GDP per capita growth and the independent variables mentioned earlier. As we will argue, our empirical results demonstrate that the Education Index and Labor Force Participation have a positive effect, while the Gross Enrollment Rate in Tertiary School and Life Expectancy have a negative effect. These results are consistent with the studies of Nagarajan, Teixeira, and Silva (2016) and Thiébaut, Barnay, and Ventelou (2013), which suggest that an increase in life expectancy can have a detrimental effect on a nation's economic growth if not accompanied by adequate social measures.

Indeed, the countries under consideration are facing significant challenges due to the rapid aging of the population, which is also exacerbated by the mass emigration of young people. This study is organized as follows: after this brief introduction, Section 2 provides a detailed review of the literature on the impact of human capital on economic growth. Section 3 describes the methodology supporting the empirical analysis. The empirical analysis is presented and discussed in Section 4 before the conclusions in Section 5.
2 THEORETICAL FRAMEWORK

There is a strong consensus in the economic literature on the impact of human capital on the economic growth of a country. The foundations of modern human capital theory were laid by economists Schultz (1961), Becker (1964) and Mincer (1974), who argued that investments in education and training are crucial for economic development. These investments increase individuals' productive capacity, which in turn boosts the overall production of the economy.

Solow (1956), in his work on growth models, acknowledged that technological progress and human capital are essential for long-term economic growth. Subsequently, Mankiw, Romer, and Weil (1992) expanded Solow's model by explicitly incorporating human capital, demonstrating that it is a key factor in economic growth. Studies by Nonaka and Takeuchi (1995) and Davenport and Prusak (1998) highlight the importance of human capital in knowledge creation and transfer within organizations.

Various other studies empirically show a positive correlation between the level of education and long-term economic growth (Barro, 1991; Barro and Lee, 1993; Barrett and O'Connell, 2001; Hanushek and Woessmann, 2015; Zhang et al., 2024; Vithana et al., 2023).

Although theoretical models emphasize the importance of education for economic growth (Bassanini and Scarpetta, 2001; Fuente and Ciccone, 2003; Bassanini and Duval, 2007), empirical models often assign a low level of importance to education. This difference may be due to the traditional practice of measuring education by years spent in school rather than the actual knowledge and skills acquired.

Moretti (2004) in his empirical research also highlights the role of human capital in economic productivity, concluding that investing in human capital creates advantages both at the individual and community levels in general. It also reduces the cost of investments (Vithana et al., 2023). Similarly, Psacharopoulos and Patrinos (2018) in their study on education returns found a positive and consistent relationship between education levels and productivity in different countries and sectors.

Lucas (1988) shifts the focus to the interaction between human capital and technological change. He hypothesizes that human capital enhances individuals' ability to generate and adopt new technologies, which is crucial for sustainable economic development. Other studies demonstrate that human resources are the ones that add value to the economy through the use of technologies and the creation of new innovative businesses.
In the context of developing countries, Seran (2018) suggests that human capital formation also has a positive impact on job creation and poverty reduction. Similarly, Anaduaka (2014) and Ogunleye (2017) in their research on African countries like Nigeria highlighted a positive correlation between human resource development and economic performance, showing that human resources drive growth in developing countries.

The studies by Huselid and Becker (2000) and Barro and Sala-i-Martin (1995) have shown that investments in human capital at both the firm and national levels can lead to higher levels of productivity and economic growth. The studies by Acemoglu and Zilibotti (2001) and Romer (1990) highlight the role of human capital in promoting innovation-led growth. Research by O'Reilly and Tushman (2008), and Teece (2007) goes further by stating that human capital also promotes organizational adaptability. It is also crucial to align skills with market demands (Heckman and Kautz, 2012). This alignment can be facilitated by the mobility of human capital, which in turn has a positive impact on economic growth and development (Kerr and Kerr, 2020; Docquier and Rapoport, 2012).

Other studies, however, show that economic growth influences the increase in human capital (Mehrara and Musai, 2013). Referring to the study by Collin, and Weil, (2020), it emerges that investing in human capital is much more effective than investing in physical capital. That said, a country must still experience growth and capital accumulation to invest in both human and physical capital. Several other studies demonstrate that not only does human capital aid economic growth, but this growth can be more sustainable through the use of green energy (Pegkas, 2024; Han and Cai, 2024; Liu et al., 2023; Zhang and Li, 2023; Dai et al., 2024).

3 METHODOLOGY

Life expectancy is one of the main indicators that is used by both national and international health systems to measure the state of health of a country (OECD, 2022). In general, population longevity is an indicator of the human well-being of a country: the most developed countries have a higher LE than other countries. In any case, LE depends on various factors such as genetics, economic, social, cultural, health, and environmental factors (IFTF, 2003). The state of health of the people would be conditioned 50% by socioeconomic and cultural factors; the other factors are much less important: environmental factors, genetic factors, and healthcare (Figure 1).
Figure 1

Key Factors influencing health state.

Source: Institute for the Future, 2003

The data used in this analysis allows us to analyze the factors influencing the economic growth in Western Balkan Countries. The countries analyzed are covered from 2012 to 2021 and the total number of observations in the panel is 50 (Table 1). To complete the dataset, this study used the databases from WORLD BANK.

Table 1

Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs.</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDPcap (PPP, $)</td>
<td>50</td>
<td>12608</td>
<td>4456</td>
<td>4912</td>
<td>24511</td>
</tr>
<tr>
<td>Education Index (0 – 1)</td>
<td>50</td>
<td>0,71</td>
<td>0,06</td>
<td>0,58</td>
<td>0,83</td>
</tr>
<tr>
<td>Life Expectancy (at birth)</td>
<td>50</td>
<td>75,79</td>
<td>1,57</td>
<td>72,44</td>
<td>79,28</td>
</tr>
<tr>
<td>Tertiary School Enrollment Ratio (%)</td>
<td>50</td>
<td>44,65</td>
<td>13,54</td>
<td>16,21</td>
<td>68,74</td>
</tr>
<tr>
<td>Labour Force Participation (%)</td>
<td>50</td>
<td>52,24</td>
<td>4,33</td>
<td>42,96</td>
<td>60,31</td>
</tr>
</tbody>
</table>

Source: WorldBank database, 2024

A balanced set of panel data from five countries in Western Balkan countries was utilized to conduct this analysis (Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, and Serbia). This study has not included Kosovo, because the available data is limited (particularly about explanatory variables).

Considering literature and empirical research, the analysis will be conducted through a panel data regression in which the dependent variable is the GDP per capita.

After transforming the data into a natural logarithm function to make them stationary, the econometric model is as follows:
$LogGDPC_{it} = \beta_0 + \beta_1 Ed_{it} + \beta_2 logLe_{it} + \beta_3 logTer_{it} + \beta_4 logLab_{it} + u_{it}$  \hspace{1cm} (1)

Where:

GDPc - GDP per capita (PPP, $); Ed – Education Index as defined by Human Development Index formula; Le – Life Expectancy at birth; Ter – Gross Enrollment Ratio for tertiary school; Lab—Labor Force Participation; $\beta_1$ to $\beta_4$ indicates the elasticity of GDPc concerning the explanatory variables; $u_{it}$ is the error term with classical assumptions; country and time are shown by $i$ and $t$, respectively.

The analysis of the panel requires a choice between three models that have different effects on the regression results: the fixed effect model, the random effect model, and finally OLS regression model. This choice is crucial because it determines whether individual characteristics, such as country in this case, can significantly affect the regression result. If so, the fixed effect model should be chosen; otherwise, the random model should be selected. To make this choice, the Hausmann test is useful, whose result suggested the use of the random effect model (appendix A). Finally, to define the empirical model, if there is no evidence of significant differences across countries, it can be used a simple OLS regression. To choose between a random effects regression and the OLS regression, the LM test (Breusch – Pagan Lagrange multiplier) can be used (Appendix B), whose results suggested the use of the OLS regression model.

4 RESULTS AND DISCUSSIONS

Table 2 displays the empirical findings of the relationships between the GDPs per capita in Western Balkan countries and the variables Education Index, Life Expectancy, Gross Enrollment Rate Tertiary School, and Labour Force Participation.

The panel analysis indicates that all explanatory variables have a significant regression coefficient with the GDP per capita in Western Balkan Countries. Education Index and Labour Force Participation have a positive effect, instead, Gross Enrollment Rate in Tertiary School, and Life Expectancy have a negative effect.

From the table of the panel analysis results it can be shown that Education Index and Life Expectancy have the greatest effect, in comparison with other variables examined in this study.
Table 2

Empirical Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ed</td>
<td>5.668***</td>
<td>0.675</td>
<td>8.40</td>
<td>0.000</td>
</tr>
<tr>
<td>LnLe</td>
<td>-4.165***</td>
<td>0.968</td>
<td>-4.31</td>
<td>0.000</td>
</tr>
<tr>
<td>LnTer</td>
<td>-0.895***</td>
<td>0.156</td>
<td>-5.74</td>
<td>0.000</td>
</tr>
<tr>
<td>LnLab</td>
<td>0.585***</td>
<td>0.228</td>
<td>2.57</td>
<td>0.014</td>
</tr>
<tr>
<td>Constant</td>
<td>24.690***</td>
<td>4.133</td>
<td>5.97</td>
<td>0.000</td>
</tr>
</tbody>
</table>

R-squared 0.7608
Adjusted R-squared 0.7396
F-statistic 35.79
Prob (F-statistic) 0.0000

Source: Own processing

The findings indicate that a 1% increase in general education among Western Balkan populations has a positive impact on the region's economic growth, with an estimated increase of approximately 6%. Such an outcome is predicted based on the established impact of population education on the overall development of human capital, which is beneficial to a nation's economic growth. A substantial body of research and literature supports this conclusion. A 1% increase in the average population life expectancy of the Western Balkan nations has a negative effect of approximately 4% on economic development. This finding is somewhat more unexpected when considered alongside numerous empirical studies which, though not exhaustive, do indicate a positive correlation between longevity and a nation’s capacity to grow economically, particularly in developed countries (Nagarajan, Teixeira and Silva, 2016; Thiébaut, Barnay and Ventelou, 2013). To explain this outcome, it is necessary to consider the background, demographic shifts, poor productivity, government expenditure, savings, and consumption of the Western Balkan countries. As evidenced by empirical studies cited by Nagarajan, Teixeira, and Silva (2016) and Thiébaut, Barnay, and Ventelou (2013), an increase in life expectancy may have a detrimental effect on a nation's economic growth if it is not accompanied by suitable social and economic policies to compensate the negative impact on the average life expectancy of the population: in fact, the demographic trends in the Western Balkans show that the young population will decrease, the population of working age (15-65 years) will reduce increasing the average age of the population.

It has been demonstrated that higher education hurts economic growth. Although this may be unexpected, the available literature and empirical research do in fact support this outcome. For higher education to have a positive and substantial influence on economic growth, it is necessary to focus on student quality rather than quantity. The findings indicate that the addition of more students to Western Balkan universities results in higher expenditure than...
The data on labour force participation indicates that employment has a positive, albeit limited, influence on economic growth.

5 CONCLUSIONS

By analyzing the role of human capital in economic growth in Western Balkan Countries we have examined the factors that influence this role through three different factors. In all Western Balkan Countries, the combination of declining fertility rates and mortality rates and increasing life expectancy in recent years has led to a rapidly aging population, and the situation is forecast to worsen over the next few decades.

*Life Expectancy* is an important indicator to determine the general health condition of the population, highlighting the fact that a population with a high life expectancy positively affects the amount of human capital in the country.

The second factor examines the impact of the educational development of a country by considering the average education of a country through the *Education Index* and university education in that country such as the *Gross Enrollment Rate in Tertiary School*.

The third factor analyses an economic factor such as *Labor Force Participation*. This indicator shows the state of employment of human capital in a certain country.

The study's findings indicate that the demographic, economic, and educational conditions in the Western Balkan countries are so dire that immediate action by policymakers is required to avoid a situation that, if the status quo is maintained, cannot be sustained over the medium or long term, and could potentially become untenable, particularly concerning social security. The aging of the population, coupled with a lack of new talent entering the workforce, represents a significant economic burden for the Western Balkan states. This is due to several factors, including emigration, and youth unemployment.

The governments of these nations must take action to shift the focus of higher education from a quantitative to a more qualitative approach. The advancement of technology and the increase in production can be attributed to the development of universities and scientific research.
AUTHOR CONTRIBUTIONS

Conceptualization, B.P.D.; methodology, E.K., B.P.D. and K.M.; software, E.K.; validation, K.M. and E.K.; investigation, B.P.D., K.M. and E.K.; resources, B.P.D. and K.M.; data curation, E.K. and K.M.; writing—original draft preparation, B.P.D. and K.M.; writing—review and editing, B.P.D. and E.K.; visualization, K.M.; supervision, B.P.D. All authors have read and agreed to the published version of the manuscript.

REFERENCES


