Investigating the real convergence of Western Balkan countries

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Abstract

Purpose: *The aim of this article is to analyse the real convergence of the Western Balkan economies to the European Union. Real convergence is the process of reducing inequality in income levels between countries at different levels of development, where the economic growth of underdeveloped countries catches up to the growth of developed countries.*

Methodology: *Convergence is assessed through unconditional and conditional beta-coefficient, and sigma-coefficient. The study covers the period 2010-2023.*

Findings: *The analysis results confirm the hypothesis of convergence for all the Western Balkan countries included in the study, however, the speed of adjustment is not high enough to ensure the closing of the income gap in a relatively short period. The countries need to undertake deep reforms, to bring their economies closer to those of the European Union.*

Keywords: *real convergence, beta-coefficient, sigma-coefficient, speed of adjustment, Western Balkans*

Introduction

Accession to the European Union continues to remain the main objective of the Western Balkan countries, which have undertaken significant transformations of their economies to achieve this objective. Beyond fulfilling the formal criteria, accession to the EU implies above all the real convergence of the economies, which is defined as a long-term process that brings about a lasting increase in real GDP per capita in lower-income countries towards the levels shown by higher-income countries (del Hoyo et al, 2017). It is a phenomenon that happens when countries that are relatively underdeveloped and have lower productivity levels expand more quickly than more developed economies, eventually bridging the gap in living standards between the two groups.

The aim of this article is to conduct an analysis of the convergence of the Western Balkan countries, specifically Albania (ALB), Montenegro (MNE), North Macedonia (MKD), Bosnia and Herzegovina (BIH) and Serbia (SRB). Using data for the period 2010-2023, various convergence indicators are analysed to assess the current situation and the chances that these economies must soon become part of the EU.

This article is organized as follows: after the introduction, the current literature on this topic is discussed. Then the methodology is described, which is followed by the data analysis. The article concludes with conclusions, recommendations, and limitations.

Literature Review

The real convergence of European economies has been studied both for countries aspiring to join the EU and for those already part of the EU. This is because even within the EU, countries have different levels of economic development.

El Ouardighi, J., & Somun-Kapetanovic, R. (2009) studied income and inequality convergence across different time periods. Specifically, they find that during the 2000s, there was notable convergence in both income and inequality among the EU-27 countries, whereas the Balkan countries experienced most of their convergence in the latter half of the 1990s. Despite these improvements, a significant development gap between the Balkans and the EU persists. Their study reveals that income and inequality in the Balkan countries are converging at rates of 2.6% and 2.4%, respectively, indicating a substantial progress in real convergence. In contrast, the process is weaker across the EU-27, with distinct patterns of convergence observed across sub-periods.

Moron and Holobiuc (2019) created clusters of European countries and assessed their convergence or divergence over the period 2000-2017. The authors suggested that New Member states in Central and Eastern Europe had faster per capita income growth than Northwestern countries, while Southern European countries had a modest performance. Gros (2018) found contradictory results: while the countries of Central and Eastern Europe were in the process of catch-up, within the Eurozone there was a process of divergence between the northern and southern countries. Zuk and Savelin (2018) with data for the period 2000-2016 suggested that CESEE countries had GDP/c close to the EU average, indicating a very high degree of convergence. Meanwhile, in the candidate countries, specifically in the Western Balkans, the speed of convergence was relatively low. Krstevska (2017) also reaches the same conclusion in a study of the Western Balkans region. The author found that the region had low performance, suggesting a low level of convergence with the EU average. However, the author concludes that there was no income gap between this region and some of the less developed EU countries.

Following these studies, Stanišić, N. (2016), analyses income convergence among Western Balkan States (WBS) and new EU member states (NMS) related to economic crisis. The global economic crisis slowed down income growth, affecting the NMS for a short time and the WBS for much longer. As a result, the income gap between the NMS and WBS became larger after the crisis.

Gockov, G., & Antovska, A. (2019) find that Western Balkan countries are stagnating and have the slowest income growth. It also finds that the EU membership process has the strongest positive impact on real economic convergence in the analysed countries.

Researchers have suggested that not only do there exist different degrees of convergence between EU countries, but also between different regions inside the EU. Cartone et al (2020) in a study of 187 regions in 12 different European countries concluded that the degree of convergence was relatively different in different regions, but convergence was relatively higher in regions that had lower economic growth.

Methodology

Studies on convergence are widely based on the neo-classical theory of economic growth, which establishes a presumption that countries with access to identical technologies should converge to a common income level. Countries that are poorer and have higher marginal productivity of capital should, therefore, grow faster in the transition to the long-run steady state (Rodrik, 2011).

To assess convergence, absolute beta-convergence, relative beta-convergence, or sigma convergence coefficients can be used.

Absolute beta-convergence of an individual country or a group of countries, can be measured using the equation proposed by Barro and Sala-i-Martin (1992):

$$\frac{1}{T}\ln\left(\frac{Y_t}{Y_0}\right) = \alpha + \beta \ln(Y_0) + \varepsilon \qquad (1)$$

where Y_0 is the initial GDP per capita, Y_t is the final GDP per capita, β is the convergence coefficient, and the left-hand side shows the average growth rate of GDP per capita (in logarithm form) between t = 0 and t = T. The absolute convergence of an individual country occurs when β-coefficient is negative and statistically significant. The speed of convergence against the steady state is calculated as:

$$\beta_s = - \ln \frac{1-\beta}{T} \qquad (2)$$

Rodrik (2011) suggested that whatever convergence one can find it is conditional: it depends on policies, institutions, and other country-specific circumstances. So, the equation (1) can be extended with other explanatory variables to get the conditional beta-coefficient:

$$\frac{1}{T}\ln\left(\frac{Y_t}{Y_0}\right) = \alpha + \beta \ln(Y_0) + \gamma X_t + \varepsilon \qquad (3)$$

where X_t is the set of other explanatory variables influencing the growth of the GDP per capita. Extending the model with other variables suggests that the convergence of countries to their steady-state growth rates may differ depending on country characteristics. As explanatory variables in this paper will be included:

- Inflation (INFL), as the % annual change of the CPI
- Terms of Trade (TOT), as the share of total trade volume to GDP
- Unemployment (UNEMPL)
- Capital (K), as the share of gross capital formation to GDP.

All data is taken from the World Development Indicators database.

β-coefficient can be used to estimate the half-time t_(1/2) which shows how many years pass until the economy of a given country covers a half of the distance between the actual position and the steady state of the per capita income level (de la Fuente, 1997):

$$t_{\frac{1}{2}} = \frac{\ln(\frac{1}{2})}{\beta_s} \qquad (4)$$

Sigma-convergence measures the dispersion of income. If the income dispersion across a given group of countries declines over time, the sigma convergence is achieved.

$$\sigma = \sqrt{\left(\frac{1}{n}\sum_{i=1}^{n}(log\frac{y_i}{y^*}\right)^2} \qquad (5)$$

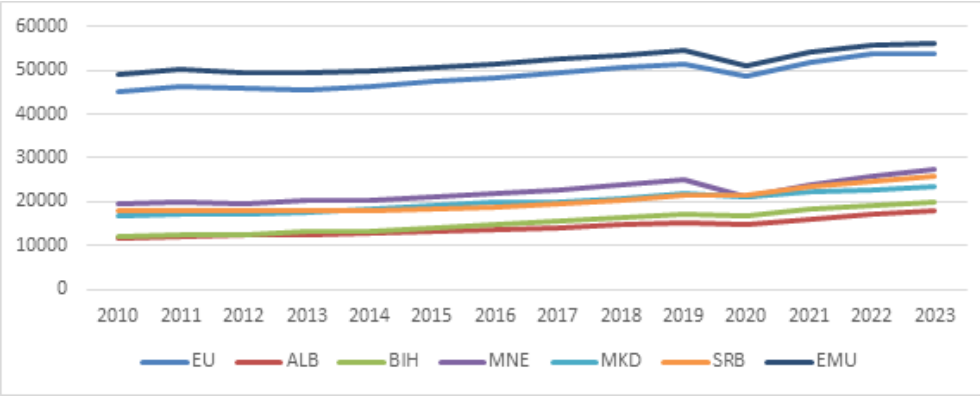
where $y^* = \frac{1}{n}\sum_{i=1}^{n}\log(y_i)$ (6)

Islam (2003) argues that sigma convergence is generally found, where beta convergence is present.

Results

Real convergence means convergence of income level. From the analysis of GDP/capita of the Western Balkan countries, a steady upward trend can be seen for all countries throughout the period under study. Figure 1 shows the GDP/c for all 5 countries included in analysis, as well as the EU and EMU average. From the graph it can be noticed that the growth rate is relatively higher than the average growth of EU countries or the Eurozone. Except for Montenegro, other countries have seen growth even during the pandemic. In the EU and in the EMU area, there has been growth at relatively lower rates. The average growth of the period in the EU is around 1.37%, while in the Euro zone it is even smaller, only 1.03%. From the Western Balkans the highest average growth of the period is for Bosnia and Herzegovina with 3.88%, followed by Albania with 3.29%, Serbia 2.9%, Montenegro with 2.85% and North Macedonia with 2.62%.

FIGURE 1. GDP/capita in WB-5, EU, EMU



Source: WDI

Although the growth is sustainable for all the Western Balkans, it is noted that at the end of the period under study, GDP/capita in Albania is only 33.4% of the EU average and 32.1% of the Eurozone average (Table 1). Meanwhile, Montenegro is in the best relative position, since in 2023, GDP/capita in this country was around 51% of the average EU level and around 83% of the average of the 4 worst performing EU member states (Bulgaria, Romania, Croatia, Latvia).

TABLE 1. Comparison of GDP/c in 2023 (PPP, constant 2021 international $) to average of EU, EMU, and some European Countries.

	Relation to the average EU (2023)	Relation to the average EMU (2023)	Relation to the average of 4 Western Balkan countries in EU (2023)	Relation to the average of 4 worst performing countries in EU (2023)
ALB	33.4%	32.1%	44.3%	54.2%
BIH	36.8%	35.4%	48.8%	59.8%
MNE	50.8%	48.8%	67.4%	82.5%
MKD	43.3%	41.6%	57.5%	70.4%
SRB	47.8%	45.9%	63.4%	77.7%

Source: WDI

From the analysis of the unconditional beta model (Table 2), we see that all beta-coefficients are negative, suggesting a narrowing of the income gap per capita between the economies of the Western Balkan countries and the EU average. However, the p-values are statistically significant only in the case of Albania and Serbia at 5%, and Montenegro at 10%. Similarly, the R-squared is relatively low for all countries, suggesting that the unconditional beta model is not a good model for analysing real convergence in the Western Balkan countries.

TABLE 2. Unconditional beta coefficients

	Beta Coefficients	R-squared	t-statistics	p-value
ALB	-0.01174	0.35	-2.5900	0.02365
BIH	-0.00570	0.18	-1.6667	0.12143
MNE	-0.02870	0.27	-2.1490	0.05272
MKD	-0.00443	0.04	-0.74524	0.47047
SRB	-0.01486	0.61	-4.41969	0.00083

Source: WDI

Extending the model with the set of explanatory variables, conditional beta-coefficients are estimated (Table 3). It is noted that all beta coefficients are negative,

confirming the convergence hypothesis. The p-values show that the coefficients are generally statistically significant, with North Macedonia and Bosnia and Herzegovina significant at 10%, and Serbia which is not statistically significant. However, a high p-value does not mean that convergence in these countries is not verified, but that the close in the income gap may occur due to other factors that are not included in the model. The estimated models have improved, as an increase in the adjusted R-square is observed. Similarly, the beta coefficients have also increased, suggesting a higher speed of convergence. In the case of Albania, the speed of adjustment is around 2.7%, suggesting that the per capita income gap between Albania and the EU average is reduced by 2.7% each year. In the case of Bosnia and Herzegovina, the speed is also around 2.7%. The best performance is achieved by Montenegro, where every year is closed around 9% of the income gap.

TABLE 3. Conditional convergence

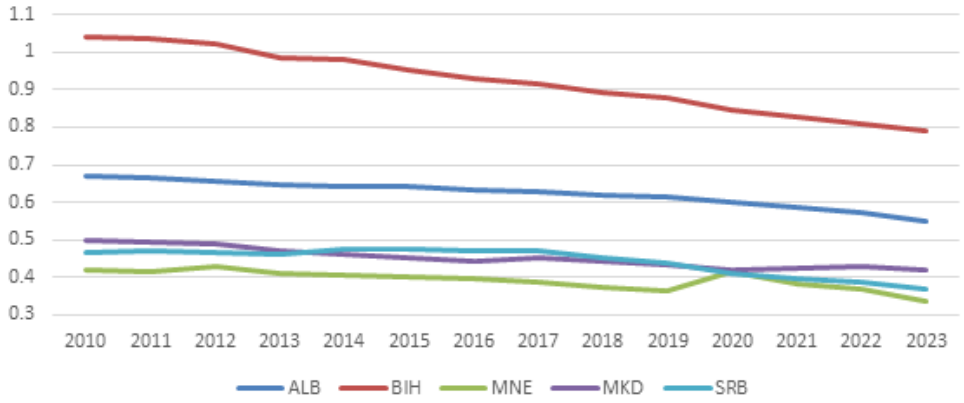
Coeff.	ALB (Adj. R^2=0.88)	BIH (Adj. R^2=0.76)	MNE (Adj. R^2=0.85)	MKD (Adj. R^2=0.20)	SRB (Adj. R^2=0.6)
Beta	-0.0270 (0.0007)	-0.0267 (0.0587)	-0.09 (0.0122)	-0.059 (0.0873)	-0.03 (0.1128)
INFL	0.0005 (0.0215)	0.0001 (0.3659)	0.0002 (0.5276)	-0.0001 (0.6722)	0.0001 (0.1885)
TOT	-0.0002 (0.0034)	-0.0001 (0.4845)	-0.0002 (0.1959)	-0.0000 (0.5251)	-0.0000 (0.3501)
UNEMPL	-0.0006 (0.01)	-0.0008 (0.0164)	-0.0012 (0.3535)	-0.0007 (0.0329)	-0.0004 (0.3501)
K	-0.0007 (0.0059)	-0.0011 (0.2406)	0.0009 (0.0072)	0.0002 (0.4331)	0.0000 (0.8220)
Half-time	26 years	26 years	8 years	12 years	23 years

Source: WDI. (p-values in parentheses)

With the estimated convergence rates for Albania and Bosnia and Herzegovina, it will take about 26 years to close about 50% of the income gap. Montenegro appears to be in a better position, needing only about 8 years. As for the other explanatory variables, in the case of Albania, all variables are statistically significant, suggesting their impact on reducing the income gap.

The sigma-convergence estimate further supports the verification of the convergence hypothesis, as a continuous decrease in the coefficient of variation is observed throughout the period under study (Figure 2).

FIGURE 2. Sigma-convergence



Source: WDI

Conclusion

The purpose of this article is to verify the hypothesis of real convergence for the Western Balkan countries. Different coefficients have been calculated for this purpose, with data for the period 2010-2023. The results of the analysis show that the Western Balkan economies are increasingly narrowing the income gap with the EU average, however, the speed of convergence is not sufficient to close all the gap in a short period. Even in the case of Montenegro, which has the highest convergence speed, under current conditions it will take about 76 years to close all the gap. This suggests deeper economic reforms in these countries, which will stimulate the economy at higher rates than the current ones.

This paper has several limitations. Convergence is analysed using linear models and the study period is relatively short. The same explanatory variables are used in the model, omitting country-specific factors that affect the economic development of the Western Balkan countries. Future research will focus on using country-specific models, allowing for non-linear relationships between variables.

References

Barro, R. J., & Sala-i-Martin, X. (1992). Convergence. Journal of political Economy, 100(2), 223-251. https://www.jstor.org/stable/2138606 Convergence

Cartone, A., Postiglione,P., Hewings, G.J.D. (2021). Does economic convergence hold? A spatial quantile analysis on European regions. Economic Modelling, Vol. 95, pp. 408-417. https://doi.org/10.1016/j.econmod.2020.03.008

De la Fuente, A. (1997). The empirics of growth and convergence: A selective review. Journal of Economic Dynamics and Control, 21(1), pp. 23-73. https://doi.org/10.1016/0165-1889(95)00925-6

El Ouardighi, J., & Somun-Kapetanovic, R. (2009). Convergence and Inequality of income: the case of Western Balkan countries1. The European Journal of Comparative Economics, 6(2), 207.

Gockov, G., & Antovska, A. (2019). Western Balkans countries income convergence in the context of EU membership–dynamics and determinants. Journal Transition Studies Review, 26(2), 69-84. DOI 10.14665/1614-4007-26-2-006

Gros, D. (2018). Convergence in the European Union: Inside and outside the Euro. Centre for European Policy Studies, Bruxelles. https://www.ceps.eu/download/publication/?id=10564&pdf=DG_ConvergenceEU.pdf

Del Hoyo, Dorrucci, E., Heinz, F.F., Muzikarova, S. (2017). Real convergence in the euro area: a long-term perspective. European Central Bank Occasional Paper Series, No.203. https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op203.en.pdf

Islam, N. (2003). What have we learnt from the convergence debate? Journal of Economic Surveys, 17 (3), pp. 309-362. https://doi.org/10.1111/1467-6419.00197

Krstevska, A (2018). Real Convergence of Western Balkan Countries to European Union in view of Macroeconomic Policy Mix. Journal of Central Banking Theory and Practice, De Gruyter Open, Vol. 7 (2), pp. 187-202, https://doi.org/10.2478/jcbtp-2018-0018

Miron, D., Holobiuc,A.M. (2019). Multi-speed Europe? An Analysis of the Real Convergence within the European Union. Economies of the Balkan and Eastern European Countries, KnE Social Sciences, pp. 96-106. DOI 10.18502/kss.v4i1.5980

Rodrik, D. (2011). Unconditional Convergence. NBER Working Paper 17546. http://www.nber.org/papers/w17546

Stanišić, N. (2016). Income convergence in the process of the Western Balkan states' accession to the European Union. Ekonomski horizonti, 18(1), 3-14.

Żuk, P., Savelin L. (2018). Real convergence in central, eastern and south-eastern Europe. ECB Occasional Paper Series No. 212. European Central Bank, Frankfurt. https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op212.en.pdf