INCOME CONVERGENCE BETWEEN WESTERN BALKAN COUNTRIES AND EUROPEAN UNION

Sonja Milutinović¹, Danijela Durkalić²

Abstract: This raise of the income level and the standard of living is one of the basic expectations of the European transition countries, which is why these countries have a strong interest in becoming full members of this intergovernmental and supranational union. European transition countries that have joined the European Union, have significantly increased their per capita income level. In the period from 1995 to 2016, New Member States increased per capita income from 20% to 36% of the EU15 average. In the same period Western Balkan transition countries increased per capita income from 4.3% to 12% of the EU15 average. A large number of previous studies tested and proved the existence of income convergence between the "old" and "new" European Union member states. However, there is still a small number of papers dealing with the income convergence hypothesis between the European Union member states and Western Balkan States. The paper tests the hypothesis whether the income level of Western Balkan States converges the income level of European Union member states. In order to test the hypothesis we will use two types of income convergence. The first is σ -convergence (sigma), which measures the dispersion of income between countries within the observed group. The second type is β convergence (beta) which, using the regression equation, measures whether countries with a lower income level achieve faster growth than those with higher income levels. The observed period is from 1995 to 2016. The results of sigma convergence testing show that there is a trend of reducing per capita income dispersion between European Union member states and the Western Balkans States. However, this downward trend does not exist when we compare the Western Balkan States and EU15. Results also show the effects of Global economic crisis on income convergence. Namely, the coefficient of variation has increased in the period from 2008-2011, indicating divergence. The results of the regression analysis of beta convergence show the existence of income convergence for the entire observed period. Income convergence exists when we compared Western Balkan States and the European Union member states, when only European Union member states are considered, as well as when the Western Balkan States and EU15 are compared.

Keywords: Income convergence, Economic development, Economic integration, European Union, Western Balkan States

JEL Classification: F15, F43, O47, P27

¹ Faculty of Hotel Management and Tourism in Vrnjačka Banja, sonja.milutinovic@kg.ac.rs

² Faculty of Hotel Management and Tourism in Vrnjačka Banja, danijela.durkalic@kg.ac.rs

INTRODUCTION

One of the key issues of research in the field of economic growth and development is the hypothesis of income convergence, or the debate about the catching up of countries of different development levels. The theoretical debate on the income convergence between countries began with the introduction of the neoclassical growth model by Robert Solow (1956). Namely, the concept of income convergence implies a reduction of income per capita gap of countries or regions. This refers to faster growth of poor countries in relation to rich countries, which is why income level in all countries is converging (Milutinović, 2015).

There are two concepts of income convergence: σ -convergence (*sigma*) and β -convergence (*beta*), where β -convergence can be absolute and conditional. Sigma convergence is defined as a decrease in income dispersion among countries over time and is calculated with the coefficient of variation. If the coefficient of variation decreases over time, sigma convergence exists (Barro & Sala-i-Martin, 2004). Conversely, if the coefficient of variation increases over time, there exists sigma income divergence.

Absolute beta convergence is a convergence towards similar income per capita in countries in the long run. Thus, absolute beta convergence implies a negative correlation between the income growth rate and the initial income per capita. On the other hand, relative beta convergence is convergence to the corresponding per capita income levels in countries. Relative beta convergence takes into account geographic, structural and socio-economic variables specific to the country, and therefore countries converge to their own, stady-state levels of income per capita (Barro & Sala-i-Martin, 2004).

The aim of this paper is testsing the hypothesis whether the income level of Western Balkan States (WBS) converges the income level of European Union (EU) member states. In order to test the hypothesis, two types of income convergence will be tested (sigma and beta). The paper consists six parts. Introduction is followed with a review of literature. The third part presents the economic growth of the WBS in relation to the EU. In the fourth part, a methodology that will be used to test the hypothesis is put in place, followed by research results. The sixth part concludes.

LITERATURE REVIEW

The issue of income convergence has attracted numerous economists, which later produced a vast number of research in the 1980s. Income convergence was a topic of both theoretical and empirical research in macroeconomics, international economy, and the development economy (Kang, 2011). More recently, there is a vast number of research on the issue of income convergence among EU countries, which mostly confirm the existence of income convergence. The number of papers that tests income convergence between "old" and "new" EU countries has grown by expanding the EU with the countries of Central and Eastern Europe in 2004. In the numerous papers that followed, the results showed that New Member States (NMS) developed in accordance with the income convergence (Matkowski & Próchniak, 2004; Varblane & Vahter, 2005; Vojinović & Oplotnik, 2008; Vojinović, et al., 2009; Cavenaille & Dubois, 2010; Stanišić, 2012; Próchinak & Witkowski, 2013; Gligorić 2014).

Matkowski & Próchniak (2004) proved the existence of income convergence among Central and Eastern European countries (CEE), as well as between CEE8 and EU15 groups. Later studies by the same authors (Matkowski & Próchniak, 2007) and many others (Vojinović & Oplotnik, 2008; Vojinović, et al., 2009; Próchinak & Witkowski, 2013) confirmed income convergence between CEE8 and EU15, with slight differences in estimated speed of convergence. Stanišić (2012) tested the hypothesis of income convergence on the example of 25 EU countries in the period

from 1993 to 2010. The results showed the existence of sigma and beta income convergence (absolute and conditional). Author included last few years in analysis, and showed the effects of Global Economic Crisis on income convergence. Namely, the Crisis produced inverse results on income convergence in the CEE10 group and the group of developed EU countries (EU15). Since 2007, there has been income divergence in the first group of countries, while the second group of countries converged. Reducing the income gap between the NMS and the EU15 has also been demonstrated in the study by Gligorić (2014). Author concluded that income convergence started significantly before the countries joined the EU.

Although there is a vast number of papers on the topic of income convergence among EU countries, there is still a small number of papers dealing with the existence and speed of income convergence between European Union and Western Balkan States. One such study was conducted by El ouardighi & Somun-Kapetanovic (2009) on the example of five Balkan countries (Albania, Bosnia and Herzegovina, Croatia, Macedonia, and Serbia and Montenegro) and the EU countries from 1989 to 2008. The results show a tendency towards income convergence, and inequalities of the Balkan countries throughout the analyzed period. Results of the study by Tsanana et al. (2012) for the period from 1989 to 2009 indicate that income convergence exists only in the case of Slovenia and Greece, but not in the case of the WBS.

Differences in the speed of income convergence between the WBS and NMS group, on the one hand, and the developed EU countries, on the other hand, were examined in the study of International Monetary Fund (Murgasova et al., 2015). Authors confirmed the existence of income convergence between NMS and EU15, but poor income convergence between the WBS group and EU15. These results refer to the period from 2000 to 2007, that is, before the outbreak of the Global Economic Crisis. Observing the period after the outbreak of the Global Economic Crisis, the authors have proven that income convergence exists for the WBS group, but it was slower than that achieved by the NMS. Stanišić (2016) came to similar results when he tested the existence and speed of income convergence of WBS and NMS, compared with EU15. The results showed the existance of income convergence is interrupted by the outbreak of the Global Economic Crisis, with raising income gap between the WBS and the NMS.

ECONOMIC GROWTH OF THE WESTERN BALKAN STATES TOWARDS INTEGRATION IN THE EUROPEAN UNION

Economic integration is a process of cooperation among the countries in order to achieve the economic benefits, especially effective international flow of people, capital and products. Expected benefits are connected with the increase of welfare of the integrated countries. (Zdravković & Durkalić, 2017). The numerous advantages that economic integration brings are the reason why, the transition countries of the Western Balkans, as a strategic goal, has gaining full membership in the European Union. One of the basic expectations of European transitional countries is an increase in living standards, with cathing up the per capita income level achieved in developed countries of the European Union. Since the beginning of the transition, it has been almost 30 years and many European transition countries have entered the European Union and significantly increased per capita income level. In the period from 1995 to 2016, NMS increased per capita income from 20% to 36% of the EU15 average. In contrast, the transition in the WBS did not produce such effects. In the same period, the per capita income of the Western Balkans relative to the EU15 average rose from 4.3% to 12%.

Figure 1 shows the average growth rates of GDP per capita in the period from 1995 to 2016 for the EU15, NMS and WBS divided into four subperiods: 1995-2000, 2001-2008, 2009-2016. In the first observed subperiod, the high average growth rate in the WBS group can be explained with very high growth rate of Bosnia and Herzegovina in the first years of recovery after the

fluctuations in the Western Balkans region, which disrupts the real, not so good, picture of WBS growth in this period. Namely, the beginning of the nineties was very turbulent for the Western Balkans. Many WBS have spent considerable part of the last decade of the twentieth century in war conflicts, that have led to the break-up of the state and the creation of new ones. These disruptions postponed the beginning of WBS transition reforms for the end of the XX and the beginning of XXI. The beginning of transition in CEE countries, although without war and conflict, was followed by a recession (Stanišić, 2016).



Figure 1: Average GDP per capita growth rates in EU15, NMS and WBS, in percentages Source: The World Bank, author's calculation

The first decade of the 21st century brought a new momentum of economic growth to the transition countries, so the average growth rate of the NMS in the period from 2001 to 2008 was 5.32%. Significant growth was also achieved by the WBS group, with an average growth rate in the second observed subperiod of 5.12%. Both the NMS group and the WBS group recorded significantly higher average growth rates in this subperiod than the EU15, with an average growth rate of 1.63%. This speaks in favor of the fact that the WBS reduce the development gap between them and the EU15. However, this convergence is still slower compared to the NMS, which in this sub-period have yielded slightly higher average growth rates. However, this growth in the Western Balkan region is a consequence of tendencies in the global economy, deeper financial and trade integration with the rest of Europe, high capital inflows, rapid credit expansion and productivity growth, rather than real progress in economic reforms (Murgasova et al., 2015).

The third observed subperiod (2009-2016) shows the effects of the Global Economic Crisis. The most affected group is the group of the most developed countries of the European Union (EU15), which in this subperiod achieved an average growth of only 0.11%. In the most difficult situation were Portugal, Ireland, Italy, Greece and Spain, which were affected by internal and external debt, and high and rising unemployment (Savić & Mićić, 2015). The NMS group racovered the fastest from the of Crisis, with an average per capita GDP growth rate in this subperiod of 3.5%. In the post-crisis period, the WBS group had an even higher average growth rate of 4.94%. The higher average growth rate of the WBS group relative to the NMS can be explained by the significantly lower average growth rate of the NMS group in 2009, which was -6.82%, and 1.45% in WBS. Since 2011, the average WBS growth rates have been significantly lower than the NMS recovered much faster and thus gained a new momentum in achieving the average income

level of EU15. For the region of the Western Balkans, the years after the Crisis have brought the effects of bad reform processes and stagnation.



Figure 2: Average level of GDP per capita in the EU15, NMS and WBS from 1995 to 2016, in USD

Source: The World Bank, author's calculation

The average per capita GDP growth rate during the entire observed period (1995-2016) in the EU15 group was 1.55%, in the NMS group 3.5% and in the WBS group 4.94%. These average growth rates allowed the average GDP per capita to increase from 26,258 to 43,994 USD for the EU15, 5,324 to 15,880 USD for NMS and 1,137 to 5,325 USD for WBS (Figure 2). On the basis of the data presented in Figures 1 and 2, it can be concluded that developing countries reduce the income gap over time in relation to developed countries, e.g. converge. However, more concrete and precise conclusions can only be made after a detailed regression analysis that will be carried out in the next section.

RESEARCH METODOLOGY

The paper will examine the existence of both types of convergence, sigma and beta convergence. The paper uses data from the The Word Bank database. Sigma income convergence is calculated using the coefficient of variation, as follows:

CV = standard deviation / arithmetic mean

GDP per capita will be used as a measure of the dispersion of development among countries. If there is a trend of reducing the coefficient of variation of GDP per capita, income convergence exists. In other words, income convergence exists if the differences in income per capita is reduced over time.

In order to examine the existence of beta convergence, the following regression equation will be tested (Barro & Sala-i-Martin, 2003):

$$1/T \log(y_{it}/y_{i0}) = \alpha + \alpha_1 log y_{i0} + u_{it},$$

where:

y_{it} - GDP per capita of the country *i* in the year *t*; y_{i0} - the initial GDP per capita of the country *i*; T - observed period (1995-2016); α - constant; u_{it} - standard error. If the coefficient α_1 has a negative sign, beta convergence exists.

RESULTS AND DISCUSSION

The results of sigma convergence are shown in Figure 3. In the observed group of countries (EU + WBS) there is a trend of decreasing coefficient of variation, so it can be said that income convergence exists. The decrease in GDP per capita dispersion is noticeable in the EU15 + NMS group, i.e. in the European Union. This means that EU countries converge in the GDP per capita in the entire observed period. In both groups of countries, an increase in the coefficient of variation from 2008-2011 was observed as a result of the Crisis, which resulted in a income divergence in these years.





EU15+W Source: The World Bank, author's calculation

Growing trend of coefficient of variation of WBS and EU15 groups is recorded. Therefore, it can be concluded that the WBS have not converged to the income level of the most developed EU countries, but have converged to the income level EU.

The results of the regression analysis of beta convergence are shown in Table 1, for the entire observed period (1995-2016), as well as for the three subperiods (1995-2000, 2001-2008 and 2009-2016). In the whole observed period, there has been a income convergence the EU countries and WBS, because the coefficient α_1 is negative with a statistical significance at a level below 5%, ans R² of 0.775. Such results are in line with the set hypothesis that the WBS are catching up the EU member states. In the subperiods 1995-2000 and 2001-2008, income convergence existed, while in post-crisis years (2009-2016) it was not proven.

EU+WBS									
	1995-2016		1995-2000		2001-2008		2009-2016		
	Coef.	р	Coef.	р	Coef.	р	Coef.	р	
Constant	0,203	<0,0005	0,181	0,007	0,389	<0,0005	0,069	0,082	
logy _i	-0,02	<0,0005	-0,019	0,008	-0,029	<0,0005	-0,01	0,069	
\mathbb{R}^2	0,7	0,775 0,212		0,702		0,102			
EU15+NMS									
	1995-2016		1995-2000		2001-2008		2009-2016		
	Coef.	р	Coef.	р	Coef.	р	Coef.	р	
Constant	0,225	<0,0005	0,171	<0,0005	0,476	<0,0005	0,097	0,112	
logyi	-0,02	<0,0005	-0,018	<0,0005	-0,038	<0,0005	-0,1	0,098	
\mathbb{R}^2	0,785		0,399		0,805		0,102		
EU15+WBS									
	1995-2016		1995-2000		2001-2008		2009-2016		
	Coef.	р	Coef.	р	Coef.	р	Coef.	р	
Constant	0,169	<0,0005	0,176	0,097	0,31	<0,0005	0,029	0,517	
logyi	-0,02	<0,0005	-0,019	0,086	-0,021	<0,0005	-0,004	0,422	
R^2	0,702		0,163		0,763		0,036		

Table 1:	Regression	results of	β-convergence
	0		

Source: author's calculation

The existence of beta convergence has also been tested among EU countries and among EU15 and WBS. EU countries converged throughout the observed period, as well as in the subperiods 1995-2000 and 2001-2008, which proves the negative sign of the α_1 coefficient and statistical significance at the level below 5% (*p*<0.0005). In post-crisis years, income convergence has not been proven. The WBS have converged towards the developed countries of the EU in the whole observed period, which is proven by strong regression statistics (*p*<0.0005 and R²=0.702). In addition, the WBS achieved faster per capita GDP growth in the subperiod 2001-2008, i.e., in the years from the beginning of the transition to the outbreak of the Crisis. In the other two subperiods (1995-2000 and 2009-2016), income convergence has not been proven.

CONCLUSIONS

One of the main expectations of developing countries, on the path of transition and joining the EU, is to achieve the level of standard of living of developed EU countries. Therefore, the main goal of the Western Balkans States is the acquisition of full membership in the EU. Such expectations are in line with the income convergence theorem, which implies cathing up of countries of different levels of development, i.e., faster growth of developing compared to developed countries.

Over time, numerous research on income convergence among EU countries has appeared, but also a much smaller number of research among the EU and WBS countries. The aim of the paper was to examine the existence of income convergence between the EU countries and the WBS in the period from 1995 to 2016. The results show the existence of both types of convergence (sigma and beta) between EU and WBS. However, sigma convergence has not been proven between the EU15 and WBS countries, while beta convergence between these two groups has been proven. The results indicate that it is possible to confirm our assumption that the WBS are catcing up the income level of EU.

REFERENCES

- Barro, R. J. & Sala-i-Martin, X. (1991). Convergence across States and Regions. *Brookings Papers on Economic Activity*, 1, 107-182.
- Barro, R. J. & Sala-i-Martin, X. (2004). Economic Growth Second Edition. Cambridge: The MIT Press.
- Cavenaille, L. & Dubois, D. (2010). An Empirical Analysis of Income Convergence in the European Union. (CREPP Working Paper 1001), University of Liège: Research Center on Public and Population Economics.
- El ouardighi, J. & Somun-Kapetanovic, R. (2009). Convergence and Inequality of Income: the Case of Western Balkan Countries. *The European Journal of Comparative Economics*, 6(2), 207-225.
- Gligoric, M. (2014). Paths of Income Convergence Between Country Pairs Within Europe. *Economic Annals*, LIX(201), 123-155.
- Kang, Y. (2011). Real Convergence and European Integration: What Factors Make the Difference in Growth at Regional Level? (KIEP Working Paper 11-10), Korea: Korea Institute for International Econimic Policy.
- Matkowski, Z. & Próchniak, M. (2004). Real Economic Convergence in the EU Accession Countries. International Journal of Applied Econometrics and Quantitative Studies, (1-3), 5-38.
- Matkowski, Z. & Próchniak, M. (2007). Economic Convergence between the CEE-8 and the European Union. *Eastern European Economics*, 45(1), 59-76.
- Milutinović, S. (2015). Income Convergence and Economic Integration Evidence from European Union. *Megatrend revija*, 2(3), 127-140.
- Murgasova, Z., Ilahi, N., Miniane, J., Scott, A., & Vladkova-Hollar, I. (2015). *The Western Balkans: 15 Years of Economic Transition*. Washington DC: International Monetary Fund.
- Próchinak, M. & Witkowski, B., (2013). Real β-convergence of Transition Countries. Robust Approach. *Eastern European Economics*, 51(3), 6-26.

- Savić, Lj. & Mićić, V. (2015). The Global Economic Crisis Effects and Consequences. Contemporary Issues in Economics, Business and Management – EBM 2014, Faculty of Economics University of Kragujevac, Kragujevac, 347-363.
- Solow, R. (1956). A Contribution to the Theory of Economic Growth. *The Quarterly Journal of Economics*, 70(1), 65-94.
- Stanišić, N. (2012). The Effects of Economic Crisis on the Income Convergence in the European Union. Acta Oeconomica, 62(2), 161-182.
- Stanišić, N. (2016). Dohodovna konvergencija u procesu pridruzivanja zemalja Zapadnog Balkana Evropskoj uniji. *Ekonomski horizonti*, 18(1), 3-14.
- Tsanana, E., Katrakilidis, C., & Pantelidis, P. (2012). Balkan Area and EU-15: An Empirical Investigation of Income Convergence. In: *Balkan and Eastern European Countries in the Midst of the Global Economic Crisis*, (Karasavvoglou, A. & Polychronidou, P., eds.), Contributions to Economics, Berlin Heidelberg: Springer-Verlag, 23-33.
- Varblane, U. & Vahter, P. (2005). An Analysis of the Economic Convergence Process in the Transitions Countries. (Tartu University Working Paper 37), Tartu: Tartu University Press.
- Vojinovic, B. & Oplotnik, Z. (2008). Real Convergence in the New EU Member States. *Praque Economic Papers*, 17(1), 23-39.
- Vojinović, B., Acharya, S., & Próchniak, M. (2009). Convergence Analysis Among the Ten European Transition Economies. *Hitotsubashi Journal of Economics*, 50, 123-141.
- Zdravković, K. & Durkalić, D. (2017). European Integration as the Engine of Economic Development: a Comparative Analysis. In: *Knowledge – Economy – Society. Selected Problems of Dynamically Developing Areas of the Economy*, (Seweryn, R. & Rojek, T., eds.), Krakow: Foundation of the Cracow University of Economics, 25-36.