ASSESING THE EFFECTS OF THE ECONOMIC AND FINANCIAL CRISIS ON INCOME CONVERGENCE IN THE EUROZONE

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Abstract: *The introduction of the single currency within the European continent has represented an unpreceded decision that has brought closer than ever 19 European countries. Although the Euro Area has been founded on strong principles and mechanisms, one of the main concern of the European policy makers derive from the asymmetries that still persist between the Old and New Member States. Moreover, the economic prosperity and political stability of this group was recently threatened by the economic and financial crisis, calling into question the capacity of Eurozone to preserve its unity. The aim of this paper is to examine income convergence in the Eurozone, taking into consideration the evolutions which occurred before and after the outbreak of the economic and financial crisis. In this respect, we have calculated the absolute β- and σ-convergence for the New and Old Member States included in the Eurozone between 2000 and 2018 and during two sub-periods (2000-2008 and 2009-2018), illustrating that the Central and Eastern European countries have been catching-up at the beginning of the 21st century.*

Key-words: *Eurozone, income convergence, absolute convergence, economic and financial crisis.*
JEL Classification: *O40, O47, O52.*

1. Introduction

The establishment of the Eurozone has represented an unpreceded political initiative that has changed the historical path of the regional group. Comprising initially twelve Members, the Euro Area has been considered both by researchers and practitioners and elitist group, formed only by developed countries that proved to have sound monetary and financial determinants. The subsequent waves of accession, together with the economic and financial and debt crises have challenged the stability of a group of countries that seemed to be indestructible. Nowadays, one of the main goal for the Euro Area is to preserve the unity between its Members given the regional and global challenges that have threatened the economic prosperity and political stability. The main purpose of this paper is to study real convergence in the Euro Area, also taking into consideration the consequences of the economic and financial crisis. In this respect, we have tried to examine the evolution of (absolute) β-convergence in two sub-periods (2000-2008 and 2009-2019), illustrating that the catching-up process from the beginning of the 2000s was hampered by the economic and financial crisis. Moreover, we have examined the evolution of σ-convergence, revealing that income disparities diminished both within European Union and Euro Area between 2000 and 2019. The paper is structured as follows. The literature review chapter presents some representative perspectives on the recent developments that took place in the Euro Area, mainly with the accession of the New Member States. Further, we have presented the methodology used in order to test the convergence hypothesis and detailed the main findings. In order to examine the impact of the economic and financial crisis, we have discussed the evolutions that occurred in two sub-periods 2000-2008 and 2009-2019. Finally, we present the main implications of our findings, together with the limitations of our empirical study.

2. Literature Review

Even since its establishment, Eurozone has been considered an elitist group composed only by the European countries with stable economic determinants. One of the key points in the recent history of the Eurozone was the accession of the ex-communist countries from Central and Eastern Europe. In this respect, Slovenia was the first Central and Eastern European country that adopted the Euro currency and stepped into a new stage of integration. In the following years, other ex-communist states and two Mediterranean countries joined the Eurozone, after accomplishing the nominal convergence criteria. Although initially, analysts have focused mainly on the nominal criteria, as prerequisite of adopting the single currency, the financial and economic and the sovereign debt crises have brought a paradigm change in the mind-set of the decision makers. For all the parties involved, it has become increasingly clear that the set of parameters included in the Maastricht Treaty were not sufficient in order to assure that the economies were ready for adopting the Euro currency.

Recent developments in the European Union have highlighted the persistent disparities in terms of income, labour productivity or competitiveness not only between the New and Old Member States, but also among the members of the Eurozone. Real convergence in the Euro Area has been analysed by Diaz del Hoyo et al. (2007), Christodoulakis (2009), Monfort et al. (2013), auf dem Brinke (2015), Gros (2018), Franks et al. (2018). From the perspective of Franks et al. (2018), countries that initially joined the Eurozone experienced a slowdown in income convergence and even divergence. However, Franks et al. (2010) identified a temporary process of real convergence between the first adopters of the euro that preceded the economic and financial crisis of the 2000s. According to the analysts, the economic and financial crisis had a significant negative impact on the group of states included in the Euro Area, hampering the progresses obtained at the beginning of 2000s. At the same time, Franks highlighted that although income convergence is not a necessary condition for the functioning of the Economic and Monetary Union, it has been and will remain a key objective of the European Union, which can also contribute to strengthening the cohesion between the Euro economies. Similarly, according to Marelli (2007) the adoption of the Euro is an important initiative that may contribute to a gradual opening of national and regional economies, the synchronization of business cycles and the deeper integration of markets of goods, services and factors of production.

Christodoulakis (2009) illustrated that the divergences in terms of real determinants, especially GDP per inhabitant, increased significantly after the creation of the Eurozone. Despite the process of convergence between the Members the European Economic Community in the 1980s and early 1990s, the introduction of the Euro was accompanied by increasing divergences. According to Christodoulakis, real convergence was perceived as a continuation of the nominal convergence achieved by the Member States before the adoption of the common currency, that has not been accomplished so far. According to Christodoulakis, the strongest divergences in the Euro Area are determined by the high deficits of the current accounts and trade balances. From another perspective, Tokarski (2019) studied nominal and real convergence in three founding Member States - Germany, France, Italy. According to the analyst, one of the main challenge for the proper functioning of Economic and Monetary Union is determined by the different economic models and the degree of interventionism of governmental actors in the economy, which have been adjusted to meet the realities of Economic and Monetary Union.

Monfort et al. (2013) studied income convergence, identifying significant divergences between Member States. By applying quantitative methods, analysts have identified that the New Member States from Central and Eastern Europe together with Greece form a convergence club. In contrast, Monfort et al. did not identify a clear division between Euro and Non-Euro countries. Following the discrepancies confirmed by the applied model, experts emphasized the need to implement structural reforms in order to catalyse real convergence, especially within the Eurozone. According to the study conducted by Monfort et al., Eurozone is a dual economy, which comprises countries that have different growth rates and industrial structures. From the analysts' perspective, the accession of the Central and Eastern European countries to the Eurozone might negatively affect the stability of the Economic and Monetary Union.

In contrast with the other experts that focused on income convergence, Estrada et al. (2013) studied the labour market variables within the Eurozone, highlighting that the adoption of the single currency was not a source of discrepancies between countries in terms of unemployment rates. According to analysts, the lack of convergence between countries in the field of unemployment was most likely caused by a combination of factors, among which the most relevant were: the economic and financial crisis, the autonomy loss of the central banks in the countries that have adopted the Euro and the lack of a mechanism to compensate the asymmetric regional shocks.

3. Data & methodology

Studies aiming the topic of real convergence initially derived from the economic growth literature. Over the last past decades, researchers interested in studying convergence using quantitative methods have been popularized two indicators: β-convergence and σ-convergence. The purpose of β-convergence is to identify if the initially poorer countries or regions experience higher growth rates comparing to the richer countries or regions. This concept derives from the neoclassical growth model (1956) and it is based on the hypothesis of diminishing returns to capital. According to this assumption, economies with lower volume of capital, with a higher profitability in this factor, record higher growth rates than the capital intensive economies. β-convergence is used both in the absolute and conditional frameworks. The former assumes that countries and regions have similar initial conditions and economic structures and will reach on the long run the same state of equilibrium. By contrast, the conditional convergence presumes that economies have different conditions and economic determinants and will tend to different states of equilibrium. Taking into consideration that this study focuses on the Eurozone, which is assumed to be a group of countries with similar economic structures, we will take into consideration the absolute convergence hypothesis. β-convergence is accompanied by σ-convergence, which studies if income gaps between countries or regions diminish over time. According to Gligor & Ausloos (2008), β-convergence is a necessary but not sufficient condition for reducing disparities between economies (σ-convergence). According to Gligor and Ausloos (2008), although low-income countries grow faster than high-income countries, this might not be sufficient to promote income equalization between economies.

In order to examine the impact of the economic and financial crisis on the evolution of income convergence, we have divided the interval 2000-2019 in two sub-periods: 2000-2008 and 2009-2019. Our database comprises the evolution of GDP per capita calculated as real expenditure per capita in PPS, as provided by Eurostat, for the Eurozone Members between 2000 and 2019.

The absolute β-convergence has been computed based on a simple linear regression, where the depended variable is the GDP per capita growth rate in two sub-periods (2000-2008 and 2009-2019) and the independent variable is the logarithm of the initial income (in our case, 2000 and 2009):

$$\frac{1}{T}\left[\frac{y_{it}}{y_{it-1}}\right] = a + \beta_1 ln(y_{io}) + \varepsilon \tag{1}$$

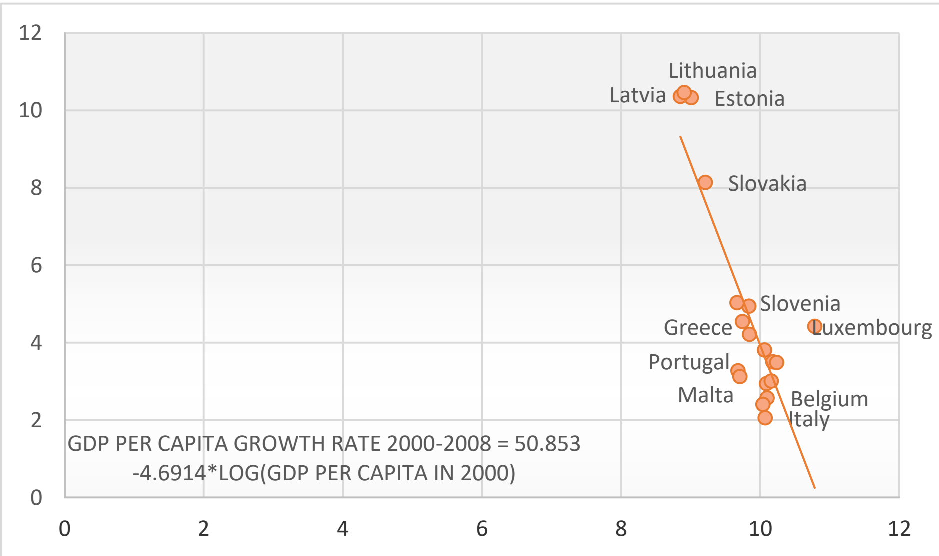
In addition to β-convergence, σ-convergence was computed based on the standard deviation of the logarithms, as follows:

$$\sigma log_t = \sqrt{\left(\frac{1}{n}\right)\sum_{i=1}^{N}[\log(y_{it}) - \log(\mu_t)]^2} \tag{2}$$

4. Results

Figure 1 illustrates the results of β-convergence, computed based on equation 1 for the Members of the Eurozone between 2000 and 2008, a period that preceded the economic and financial crisis. According to our calculations, the three Baltic states, that joined the Euro Area starting with 2011 experienced the highest catching-up speed in this group of states, exceeding on average 10%: Lithuania (10.5%), Latvia (10.4%) and Estonia (10.3%). Moreover, other two member States – Slovakia and Slovenia – experienced growth rates above Community's average, reaching between 2000-2018 8.1% and 5%. From the group of the Old Members, the highest growth rates before crisis were recorded by Greece (4.5%) and Luxembourg (4.4%). In contrast, the lowest GDP growth rates were experienced in this sub-period by France (2.4%) and Italy (2%).

Figure 1. β-convergence in the Eurozone between 2000-2008



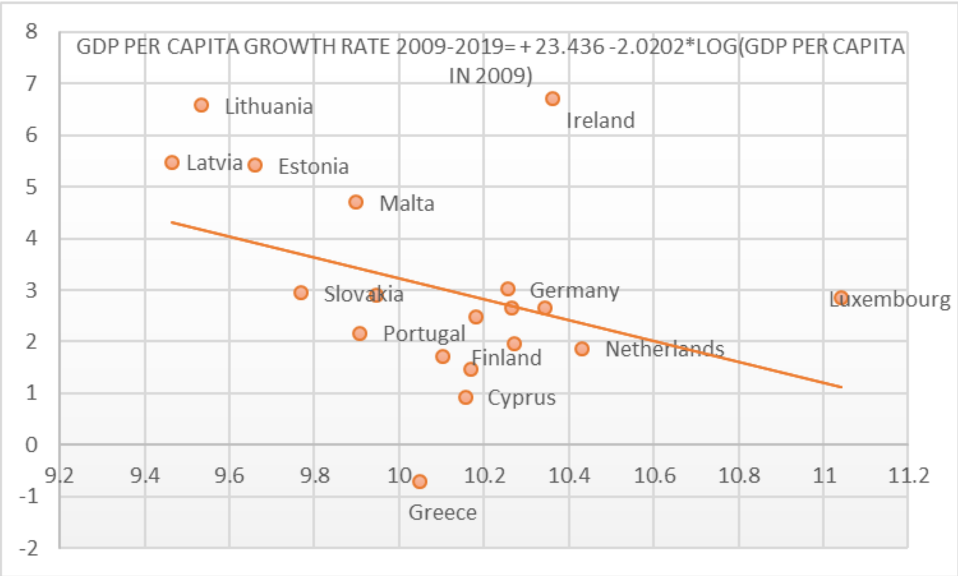
Source: Author's computations

In order to study the impact of the economic and financial crisis on income convergence in the Eurozone, we have also analysed the evolution of β-convergence during the sub-period 2009-2019. In this respect, Figure 2 illustrates that in the last decade, the growth rates of the Eurozone Members were lower than in the sub-period 2000-2008, and even negative. Consequently, the economic and financial crisis, that was followed by the sovereign debt crisis, hampered the catching-up process that took place at the beginning of the 21st century. The only country that experienced better economic performances in the second sub-period was Ireland, with average growth rates reaching

7.7%. Ireland was followed by the three Baltic States, that although have continued the process of catching-up, have recorded lower growth rates comparing to the sub-period 2000-2008: Lithuania - 6.6%, Latvia - 5.5% and Estonia - 5.4%. The catching-up process in Slovenia and Slovakia has been negatively affected by the crisis, as the growth rates were significantly below those experienced between 2000-2009 (8.1% vs. 2.9% in Slovakia and 5% vs. 2.9% in Slovenia). The most significant affected economy in the Eurozone was Greece, which experienced a negative economic growth, reaching on average -0.7%.

In contrast with the results obtained for the sub-period 2000-2008, where it was a strong relationship between the initial income and the subsequent growth rates (R-squared – 0.71), in the sub-period 2009-2019, the relationship is weak (R-squared – 0.14). Consequently, we have found evidences in favour of (absolute) β-convergence only for the sub-period 2000-2008.

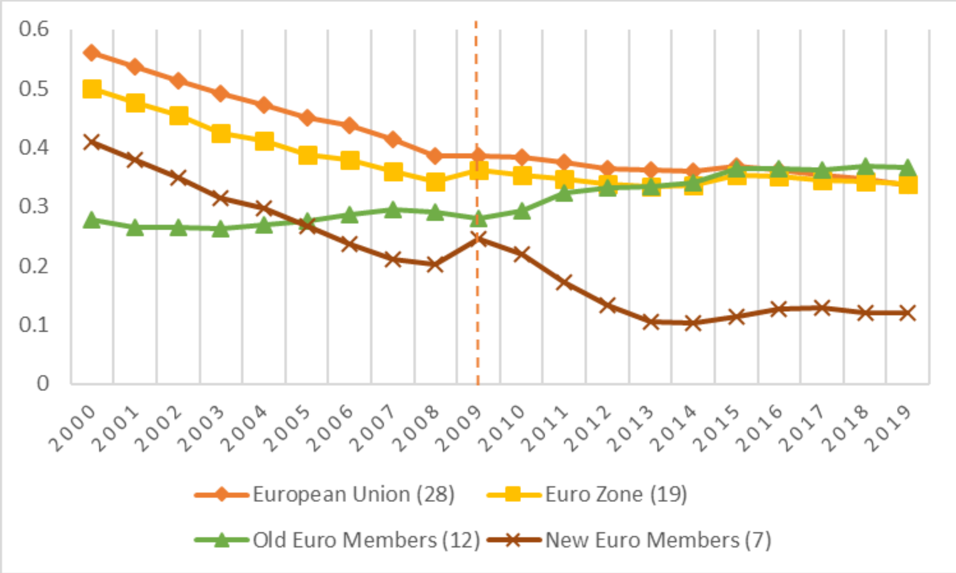
Figure 2. β-convergence in the Eurozone between 2009-2019



Source: Author’s computations

With the purpose to examine if the income gaps in the Euro Area decreased between 2000-2018, we have calculated the evolution of σ-convergence based on equation 3. In this respect, the values of the standard deviation suggest that during 2000-2019, the income gaps between the Members of the Eurozone decreased with 32%, while in the European Union with 40%. However, the analysis of the evolutions which occurred in the New and Old Euro Member States leads to contradictory results: while in the Old Members States, the divergences increased with 32% during the entire period, the New Members have become increasingly homogenous. The analysis of the σ-convergence in the sub-period 2000-2008 illustrates that the income gaps also within the European Union and the Eurozone decreased with 31%. In contrast, in the sub-period 2009-2018, the σ-convergence decreased with only 12% in the European Union and 6% in the Eurozone, increasing with 30% in the Old Euro Members.

Figure 2. σ-convergence in the Eurozone between 2000-2019



Source: Author's computations

5. Conclusions

Real convergence has been and will remain in the upcoming years a complex, but increasingly debated topic. The aim of this paper was to study income convergence in the Euro Area, also taking into consideration the impact of the economic and financial crisis. In this respect, we have calculated the (absolute) β-convergence for two sub-periods (2000-2008 and 2009-2019) illustrating that the economic and financial crisis have significantly hampered the process of catching-up in the Eurozone. Although, in the poorer New Euro Members the process of income convergence has continued after the crisis, the growth rates were lower comparing with the values from 2000-2008. In contrast, the Old Euro Member States were more affected than the New Members, Greece recording even negative economic growth between 2009-2019. In spite of the strong relationship between the initial income and the subsequent growth rates identified between 2000-2008, the results of the absolute convergence regression were not significant for the period 2009-2019. Consequently, the findings should be interpreted with cautions. As far as σ-convergence is concerned, we have illustrated that although the divergences decreased between 2000-2019, the crisis had negatively influenced the income distribution. The most affected were the Old Euro Members, where the income gaps raised mainly after 2009. In spite of the negative influence of the economic and financial and sovereign debt crises, the progress of the New Members continues to be encouraging. Consequently, the Eurozone leaders should take effective measures in order to enhance the economic growth to the levels before the crisis and to promote cohesion between its Members.

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