DO EUROPEAN FUNDS FOR SUSTAINABLE GROWTH POLICY SUPPORT CONVEEREGENCE PROCESS?

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Abstract

Sustainable growth policy has been in the main scope of political and socio-economic agenda of European Commission and European governments for last decades. Effective policy supporting sustainable growth has been considered as a factor, which should significantly increase a speed of convergence process in Europe. Thus, the sustainable growth policy has been supported with significant funding form European budged. In this regard the main aim of the article is to verify the effectiveness of the European sustainable growth expenditure in supporting the convergence process among the European Union member states. The research concentrates on the 2007-2013 budgeting perspective. The data for the study was provided by the European Commission. In the analysis dynamic panel modeling within the analytical framework of conditional ß-convergence is applied. On the one hand, the conducted econometric research confirms the process of convergence among the EU countries in the analyzed period. However, the analysis does not confirms influence of the sustainable growth expenditure on the convergence process. This result can be treated as an argument supporting the thesis on relatively low effectiveness of the European sustainable growth policy and the sustainable growth expenditure in supporting the process of closing development gap among the European Union countries.

Key words: structural funds, sustainable growth, conditional ß-convergence, European Union

JEL Code: O47, Q01, C23

Introduction

The objective of supporting conditions for sustainable growth has been in the main scope of political agenda of European Union and European governments for last few decades (Balcerzak & Pietrzak, 2016a; Pietrzak & Balcerzak, 2016a). In recent years the concept of sustainability is considered as a core of policy that can lead to building knowledge based economy (Żelazny & Pietrucha, 2017) and improve international competiveness of EU countries (Łapińska, 2016). Currently, it is obvious that without effective sustainable growth policy, it is not possible to

solve basic problems of labor markets at national and regional level (Hadaś *et al*, 2016; Pietrzak & Balcerzak, 2016b) or keep the macroeconomic and financial stability of countries (Lajtkepová, 2016; Majerová 2016; Balcerzak, 2016), which could make the economies less vulnerable during the times of crisis. The idea of sustainable growth is pointed as the justification for government policies supporting investments in human capital and influencing institutional reforms (Shuaibu & Oladayo 2016; Balcerzak & Pietrzak, 2016b).

In this regard the main aim of the article is to analyze the effectiveness of the European sustainable growth expenditure in supporting the convergence process among the European Union member states during the 2007-2013 budgeting perspective. It should be stressed that the research is deliberately conducted for the latest full budgeting perspective, where the data is available. It is assumed that extending the research on the 2000-2006 budgeting perspective is not justified, as the year 2004 is the year of the biggest EU enlargement, which must be considered as the most significant institutional and macroeconomic change in the analyzed region.

In the research the following empirical thesis was given: *European funds for sustainable growth supported the process of convergence at macroeconomic level in the analyzed years*. In order to verify the hypothesis, in the research the dynamic panel modeling within the analytical framework of conditional ß-convergence was used.

1 Method of empirical research and data

In recent years the analytical convergence framework has been commonly used not only in traditional research on growth determinants at national and regional level (Barro & Sala-i-Martin, 1991; Próchniak & Witkowski, 2016), but also in the research concerning the problem of innovativeness of economy (Furková & Chocholatá, 2017), financial stability of governments (Balcerzak & Rogalska, 2016) and social convergence (Kuc, 2017).

In the case of current article conditional β-convergence framework is applied. Based on the β-convergence concept all countries in the long term converge in terms of income per capita, but every country tend to do it according to its own steady state. The income level in the steady state for every analyzed country or region can be determined by some fundamental economic processes. From the empirical perspective this concept is the source of big empirical applicability, but in the same time it can lead to contradictory results. From the theoretical perspective, it is assumed that within β-convergence framework the countries or regions reach

the same income level, but only under condition that they are similar in terms of the fundamental economic variables that determine the output in the steady state.

The hypothesis of conditional β-convergence can be tested as a result of estimation of parameter γ of a dynamic panel model given with equation 2. The value of parameter γ, which is statistically significant and lover than 1 is interpreted as positive verification of the hypothesis of conditional β-convergence (Baltagi, 1995).

In the model the dependent variable is GDP per capita in purchasing power standards. Based on the aim or the research the independent variable is an expenditure from European Union funds for sustainable growth. If the parameter α_1 is positive and statistically significant, the hypothesis on the positive influence of the European sustainable growth funds on the convergence in a given period can be accepted. It can be interpreted as a confirmation of influence of the funds on the convergence process.

In the research the following specification of the dynamic panel model was assumed:

$$\mathbf{Y}_{it}^{*} = \beta_0 - \beta_1 \ln \mathbf{Y}_{it-1} + \alpha_1 \mathbf{X}_{1,it} + \boldsymbol{\eta}_i + \boldsymbol{\varepsilon}_{it}, \quad \mathbf{Y}_{it}^{*} = \ln(\mathbf{Y}_{it} / \mathbf{Y}_{it-1}) \tag{1}$$

$$\ln \mathbf{Y}_{it} = \beta_0 + \gamma \ln \mathbf{Y}_{it-1} + \alpha_1 \mathbf{X}_{1,it} + \boldsymbol{\eta}_i + \boldsymbol{\varepsilon}_{it}, \ \gamma = (1 - \beta_1) \tag{2}$$

Where: Y_{it} is the vector of GDP per capita for i-country in the period t, Y^{*}_{it} is the vector of the rate of growth of GDP per capita, X_1 is the vector of the values of expenditure from the European budged for sustainable growth, β_0, β_1, α_1, γ are the structural parameters of the model, η_i is the vector of individual effects of the panel model, and ε_{it} is the vector of disturbances. The variables are determined for i-country in the period t.

The data on the sustainable growth expenditure form the European Union funds was provided form the European Commission database: EU expenditure and revenue 2014-2020, http://ec.europa.eu/budget/figures/interactive/index_en.cfm. The information on the structure of sustainable growth expenditure is given in table 1. The data on the GDP (according to PPS) is provided form Eurostat, both expenditure for sustainable growth and GDP are given in million Euro and recalculated to per capita values. The conducted analysis concentrated on the aggregated values of sustainable growth expenditure.

Tab. 1: Structure of European sustainable growth expenditure

SUSTAINABLE GROWTH (million euro/per capita)			
1	SUSTAINABLE GROWTH	1.2	Cohesion for growth and employment
1.1	Competitiveness for growth and employment	1.2.1	Structural funds
1.1.1	Seventh Research framework program	1.2.11	Convergence objective
1.1.2	Decommissioning (Direct research)	1.2.12	Regional competitiveness and employment objective
1.1.3	Ten	1.2.13	European territorial cooperation objective
1.1.4	Galileo	1.2.14	Technical assistance
1.1.5	Marco Polo	1.2.2	Cohesion Fund
1.1.6	Lifelong Learning	1.2.DAG	Decentralized agencies
1.1.7	Competitiveness and innovation framework program (CIP)	1.2.OTH	Other actions and programs
1.1.71	CIP Entrepreneurship and innovation		
1.1.72	CIP ICT policy support		
1.1.73	CIP Intelligent energy		
1.1.8	Social policy agenda		
1.1.9	Customs 2013 and Fiscals 2013		
1.1.10	Nuclear decommissioning		
1.1.11	European Global Adjustment Funds		
1.1.DAG	Decentralized agencies		
1.1.OTH	Other actions and programs		

Source: based on European Commission: European Commission database: EU expenditure and revenue 2014-2020.

2 Convergence analysis for EU countries

In order to verify the hypothesis of the research the analysis of β-convergence for the EU countries for the years 2007-2013 was conducted. The research was done for 24 EU countries. Malta, Cyprus and Luxemburg were excluded from the research due to the sizes of the countries and specifics of these economies. Croatia was not included in the sample, as it become the member of the UE in 2013.

For the purpose of verifying the main hypothesis the parameters of the dynamic panel model (equation 2) were estimated. In order to estimate the parameters of the model, the system GMM estimator was applied (Blundell & Bond, 1998). The idea of the estimator is based on the estimation of both equations in first differences and equations in levels. The results of two-step estimation with asymptotic standard errors are given in table 2.

Tab. 2: Results of estimation of parameters of the *β*-convergence model for the EU countries

Parameters	Estimations of parameters	p-value
β_0	1.224	0.204
γ	0.883	≈0,000
α_1	-0.011	0.283
Statistical tests		
Sargan Test	23.784	0.204
AR(1)	-3.421	≈0,000
AR(2)	-2.161	0.06

Source: own estimation.

In order to verify the statistical quality of the model the Sargant test was used, as it enables testing of over-identifying restrictions. The statistics of the test at the level 23.784 indicates that the null hypothesis should be rejected. The instruments applied in the estimation process were proper. Then, autocorrelation of the first-differenced of disturbances was also tested. The statistics of the test for first-order serial correlation equals -3.421, which means that the null hypothesis that there is no first-order serial correlation should be rejected. The statistics of the test for second-order serial correlation equals -2.161, which means that the null hypothesis of no second-order serial correlation should not be rejected (Baltagi, 1995). These results indicate that the system GMM estimator was consistent and efficient.

The parameter γ is statistically significant. Additionally, the estimate of the parameter below 1 enables to estimate the value of parameter β_1 equal to 0,117, which indicates verification of the hypothesis of convergence. However, the parameter α_1 is statistically insignificant. This results indicate that the European funds for sustainable growth in the years 2007-2013 were not determining the output in the steady state for the European Union countries.

However, in the case of the provided interpretation it should be remembered that budged perspective applied in the study was relatively short from the analytical perspective. On the other hand, the obtained results are in line with the thesis of relatively low effectiveness of allocation of the European Union structural funds.

Conclusion

The main objective of the article was to verify the effectiveness of the European sustainable growth expenditure in supporting the convergence process among the European Union member states in the 2007-2013 budgeting perspective. In the research the β-convergence analytical

framework for the analysis at the national level was applied. The dynamic panel analysis confirmed the process of convergence among the European Union countries in the analyzed period. On the other hand, the research does not confirm the significant influence of the European sustainable growth expenditure on the convergence process. As a result the hypothesis pointing to the positive influence of the European sustainable growth funds on the convergence process should be rejected.

In the case of interpretation of this result, some basic limitations must be taken into account. It should be remembered that the research was conducted for relatively short period of one budgeting perspective, and it was done at the national level. In the case of longer periods and for example regional level of the research the importance of the sustainable growth funds can be higher. Additionally, the obtained result can be significantly influenced by the cyclical factors, as the research does not cover the whole business cycle, and it can be also influenced by global financial crisis. However, as the aim of the paper concentrated on the specific budgeting perspective, and the data from previous budgeting perspectives is not fully comparable, excluding of the mentioned limitations thorough simple extending the timespan of the research is not justified. Thus, these factors should be considered as the tasks for future research.

However, in spite of the mentioned analytical limitations of the current research, the obtained empirical result should be considered as an argument supporting the thesis on relatively low effectiveness of the European sustainable growth policy and the sustainable growth expenditure in supporting the process of closing development gap among the European Union countries.

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