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The Impact of Fiscal Transfer from the EU Budget on Economic Growth in CEE Countries

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Abstract

Fiscal transfer is defined as the allocation of funds from the European Union's budget to its member states or regions for various purposes. This transfer constitutes an essential aspect of the European Union cohesion policy that aims to reduce the economic and social disparities among member states and to promote economic development and integration across the Union. The purpose of this paper was to determine the impact that these fiscal transfers from the union budget had on the economic performance in the Central and Eastern European countries. To achieve this, I used a panel data fixed effect model, taking into account the effects of the cohesion policy, but also other relevant variables. The paper focused on the period 2009-2022, being aimed at the member countries of the Central and Eastern European Union because they have a similar economic path. The results of the research demonstrated the fact that the expenses from the union budget had a positive impact on the economic performance in this region during the analysed period.

Keywords: EU budget, EU expenditure, CEE countries, panel model.

JEL Classification: C21, H87, O11, O47.

1. Introduction

The conclusion of the Cold War and the collapse of the Eastern Bloc resulted in the formation of a new political and economic environment in Eastern Europe. With the beginning of the new millennium, the process of Eastern European countries' integration into the European Union (EU) was brought on the EU agenda. Year 2004 brought the greatest expansion wave of the European Union, as 10 countries that are part of the Central and Eastern region attached to it. In the

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following years, specifically in 2007 and 2013, Bulgaria, Romania, and Croatia also joined the union.

In order to reduce the economic and social disparities between European countries, the main function of the community budget is that of allocation. As a consequence, it may be stated that the Cohesion Policy held an utmost role for the European territory across time.

The objectives of the Cohesion Policy, as a program, include environmental betterment, welfare, the EU sustainable development, and employment opportunities, together with the enhancement of regional economies' integration. Therefore, the program aims to make it possible for every citizen of the EU, no matter where, to participate and celebrate the benefits that actions intended to protect the development of the European territory bring into their lives.

Estimations find that the EU mobilized investments of EUR 392 billion in the period of 2021-2027 for the cohesion policy. In addition, program financing in the EU Member States and their regions shall be ensured via funding of around EUR 500 million, brought by national co-financing.

According to the European Commission (2023) and the research of Dicharry and Stiblarova (2023), the Cohesion Policy is being implemented through the following funds:

- The European Regional Development Fund (ERDF) will allocate investments to the regions and cities of the EU;
- Cohesion Fund CF will provide transportation and environmental programs targeted to the EU member states that are of a weaker degree of development;
- European Social Fund Plus (ESF+) developed to help EU countries build a society that is inclusively-minded through the employment-promotion agenda;
- The Just Transition Fund (JTF) shall support this area hardest hit by the consequences of the transition to carbon neutrality.

In other words, the aim of the Cohesion Policy is to safeguard development and convergence in the long term, a goal that has also been stressed in the past.

The study assessed the influence that has been generated by Cohesion Policy towards economic performance on CEE countries using a panel data fixed effect model examining the influence of EU expenditure and other critical variables, and addressing for example, education, investment, and population growth.

2. Literature Review

This research approaching economic development and convergence in the European Union presents steadiness. Numerous authors have examined how European regional policy impacts the economic growth and convergence of European countries (e.g., Ederveen et al., 2006; Mohl & Hagen, 2010; Montresor et al., 2011). For their analyses, all of these writers chose the panel data method.

An important author who studied the impact of the EU budget on the process of economic convergence of EU member states is Výrostová (2016). Her work is relevant for the specialised literature because it takes into consideration the EU budget contribution and additional fiscal transfers from the EU as explanatory

variables in a panel econometric model of conditional β-convergence, as well as accounting for the effects of the cohesion policy.

Convergence can be understood and analysed using a variety of methods. Islam (2003) emphasised in his research that this method has an advantage over s-convergence in that it provides information about the structural parameters of the growth model. The assessment of β-convergence is based in the neoclassical growth theory, for instance Solow's 1956 exogenous growth model. The examination of β-convergence originates from neoclassical growth theory, such as Solow's 1956 exogenous growth model.

According to these theories, there exists an inverse linkage between the starting amount of income per labour unit and the economic growth rate per labour unit. Based on the theory of absolute (unconditional) convergence, all countries and regions coincide on the same stable rate due to the decreasing returns on capital.

Consequently, economies with a lower development level grow with a faster speed than the developed economies. In order to explain the differences across economies with different structural features, a number of additional explanatory variables are included in the growth-initial level regression, as conditional β-convergence predicts that these economies will eventually converge to different steady states.

For most empirical studies, neoclassical growth theories like Romer and Weil's (1992) serve as the basis. But by adding endogenous technological improvement, the concept of endogenous growth expands the paradigm. Human capital is given priority since it boosts the output of other inputs.

Some studies extend the *Solow model* to include the accumulation of human capital, showing a relationship between savings and population increase, as well as the accumulation of human capital. Before studies employed education-related variables (e.g., average years of schooling or tertiary education) or innovation-related variables (e.g., Mohl & Hagen, 2010, used the number of patents per million people) since measuring human capital is challenging.

This research contributes to the relevant literature due to the fact that it does not consider all the member countries of the union and the paper was concentrated on CEE member states of the EU because this region has a similar economic path and joined the Union at the same time or in close years.

3. Aims of the Research

Determining the impact of European funds in Central and Eastern European countries is important to ensure a more efficient use of them in these countries, as well as an improvement of public policies. Nowadays, when the trust in the European Union is put to the test, a positive evaluation of the impact of the European funds can lead to a better consolidation of the trust of the beneficiary countries in the Union, but also in their institutions.

4. Methodology

In this research, the impact of the EU budget on economic performance is studied and the method used was the cross-sectional panel data fixed effect.

This approach allows for the consideration of individual (country) effects, or technical differences between countries, perhaps mitigating the issue of the omitted variable bias. The model incorporates human capital accumulation as an explanatory variable, enhancing the neoclassical *Solow-type* growth model.

Starting from the models developed by other authors, such as Mohl and Hagen (2010) and Výrostová (2016), the regression function estimated in my analysis is:

$$ln(GDP\text{-}per\ capita)_{i,t} = \beta 0 + \beta 1 \cdot ln(Y)_{i,t}\text{-}1 + \beta 2 \cdot ln(Inv)_{I,t}\text{-}1 + \beta 3 \cdot ln(N_{i,t}\text{-}1+\delta+g) + \beta 4 \cdot ln(Educ)_{I,t}\text{-}1 + \beta 5 \cdot ln(Spen)_{I,t}\text{-}1 + u i + \mathcal{E}_{i,t} \quad (1)$$

Where I = 1, 2, 3, …, 11 represent the countries from Central and Eastern Europe that are part of the European Union (Croatia, Czech Republic, Romania, Slovakia, Bulgaria, Hungary, Poland, Slovenia, Estonia, Latvia, Lithuania), and T =1, 2, ..., represent the time (period 2009-2022). βi are the parameters of the model.

Table 1. Variables of the model

Variables	Description of the variables	Source
Real GDP per capita	The dependent variable. Is often used as a proxy for the standard of living.	Eurostat
$Y_{i,t-1}$ = Real GDP per capita in *Purchasing Power Standards* (PPS)	The explanatory variable. As initial income	Eurostat
$INV_{i,t-1}$ = Investment Share in GDP	The explanatory variable. It's a key economic indicator that measures the proportion of a country's GDP that is accounted for by investment spending	Eurostat
$N_{i,t-1}$= Annual population growth rate	The explanatory variable	This variable is determined using the data of the total population on January 1st for country *i* (Eurostat, 2024)

Variables	**Description of the variables**	**Source**
g = *R*ate of technical progress	The explanatory variable	Many empirical papers have used the assumption that g and δ are constant across countries and time, as well as $g + \delta = 0.05$
δ=ate of depreciation	The explanatory variable	
Educ $_{i,t-1}$ = Population with tertiary education (levels 5-8) as a percentage of the total population.	Our proxy for the growth of human capital is this variable. Primarily because it aligns with one of the objectives of the "Europe 2020" plan for intelligent, sustainable, and equitable growth.	Eurostat
u_i = fixed national effects		
$\varepsilon_{i,t}$ = error term for the country and time		

Source: authors' own data processing.

The data I used to calculate this variable were figures on *EU spending and revenue for 2021-2027 from* European Commission (2024).

• $Spen_{i,t-1}$ represents the EU budget spending per capita for country i in the previous year in million EUR. This variable takes into account all of the spending that countries get from the EU budget, not just the structural and cohesion fund expenditures, which are typically examined in research of this kind.

From 2021 onwards, there will be a new trailblazing temporary recovery tool to help the economic recovery of Europe from the coronavirus pandemic, called NextGenerationEU. This expenditure also covers the new fund and pre-accession funding for Croatia, which became a member during the examination period.

5. Results and Discussions

The empirical results showed that the initial value of GDP per capita is positive and highly statistically significant, so an increase in initial value contributed to greater economic performance in the period 2009-2022. Therefore, the countries that have a good start from an economic point of view develop it even more throughout the period.

Table 2. Fixed effects panel data model results

Variables	Coefficient	Std. Error	T-Statistic	Prob.
C	3.096	0.245	12.625	0.000***
$\ln(y)_{i,t-1}$	1.058	0.063	16.814	0.000***
$\ln(inv)_{i,t-1}$	0.170	0.032	5.344	0.000***
$\ln(educ)_{i,t-1}$	0.190	0.034	5.600	0.000***
$\ln(n_{i,t-1}+g+\delta)$	-0.017	0.015	-1.152	0.252
$ln(spen)_{i,t-1}$	0.059	0.017	3.421	0.049*

Notes: In this model, R-squared = 0.988, adjusted R-squared =0.986 and Durbin-Watson = 0.74, The *,***, denote statistical significance at 5% and 1% levels, respectively.

Source: authors' own data processing in EViews 12, based on the data from Table 1.

Also, the investment share in GDP is positive and statistically significant. A variety of factors, such as: the effectiveness of investment allocation, the calibre of institutions, governmental policies, worldwide economic circumstances, and the business cycle, can affect how investments affect real GDP growth.

I used as a proxy for human capital accumulation the population with tertiary education (levels 5-8), and in this model has a positive and statistically significant result that follows the *Endogenous Growth Theory.*

The *Endogenous Growth Theory* provides a framework for understanding sustainable economic growth that is centred on the internal dynamics of the economy, more especially the accumulation of knowledge, innovation, and human capital. It offers details on the potential effects of institutional and policy factors on long-term economic growth and development

The population growth rate is negative and it does not indicate statistical significance, this fact being coherent with estimations of the *Solow Growth model.* According to the *Solow* growth *model,* population growth rate shapes the long-run equilibrium level of the output per capita as well as the economic growth rate. In this acceptance, higher population growth rates are correlated with decreased levels of output per capita in the long term.

Most of the CEE countries are net beneficiaries of the EU budget, and in our model, the coefficient corresponding to the EU budget, spending per capita is positive and statistically significant. EU spending, particularly through various funding mechanisms such as structural and cohesion funds, has had significant impacts on the economies of CEE countries since their accession to the EU.

EU spending as a whole has played a crucial role in supporting their economic development, enhancing competitiveness, and fostering integration within the European Union.

Therefore, the expansion of the European Union had a positive impact on economic growth, and this can be linked both to the redistribution of resources among its members, but also to other advantages created with its expansion (free trade, economies of scale, increased competition, specialisation) especially since 2004.

6. Conclusions

In this article, I analysed the impact of fiscal transfers from the EU budget on economic performance in Central and Eastern European countries using a panel econometric model, taking into consideration the effects of EU spending and other relevant variables, such as education, investment, and population growth. The data collected covered the period 2009-2022.

This research contributes to the relevant literature because it does not take into account all the member countries of the union, and the paper was concentrated on CEE member states of the EU because this region has a similar economic path and joined the Union at the same time or in close years. Determining the impact of European funds in Central and Eastern European countries is important to ensure a more efficient use of them in these countries, as well as an improvement of public policies.

Over time, many academic papers have analysed the economic effects of EU cohesion policy, but this topic still remains an open empirical issue. Although the results of the specialised literature have proven to be inconclusive and uneven, the recent literature identifies a positive impact.

The results of this article align with the recent results from the specialised literature, namely with the works that identified a positive impact of European funds on economic development.

Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work the author used AI Service in the introduction of the paper in order to correct the language and ensure clarity, coherence, and precision in communication. After using this service, the author reviewed and edited the content as needed and takes full responsibility for the content of the publication.

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