
THE COHESION POLICY OF THE EUROPEAN UNION AND INTER-REGIONAL DISPARITIES IN BULGARIA

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Abstract: The article presents a theoretical analysis of the causes for inter-regional disparities and an empirical study on the impact of the EU Cohesion Policy on the standard of living in Bulgaria. It also gives some recommendations for maximizing the beneficial effect of this policy on the regions in our country. The author defends the thesis that the economic imbalances among regions cause social and demographic ones. Accordingly, the study focuses on the economic inter-regional differences and the way they are affected by the Cohesion (Regional) policy of the European Union as a tool utilized by the Community to achieve economic and social cohesion.

Keywords: Bulgaria, cohesion policy, standard of living, regional differences.

JEL: F02, F15, F36.

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Introduction

In Bulgaria nowadays there are great and complex inter-regional disparities that pose numerous economic, social and demographic challenges. Economic disparities are measured in terms of the differences between the living standards (gross domestic product per capita) and the employment or unemployment rates between regions. Social inequalities can be measured in terms of the differences in the share of the population at risk of poverty and social exclusion and in the distribution of income in certain regions (the Gini coefficient). Demographic imbalances are associated with differences in

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population's quantitative and qualitative characteristics such as density, birth rate, mortality, natural growth, life expectancy, migration (mechanical growth), age structure, etc.

The study aims to prove the thesis that the economic imbalances among regions cause social and demographic ones. The study focuses on the economic inter-regional disparities and the way they are affected by the cohesion (regional) policy of the European Union as a tool utilized by the Community to achieve economic and social cohesion.

The object of this study are the inter-regional disparities in Bulgaria, and the subject of the study is the cohesion policy of the European Union. The article includes the following sections:

- Theoretical concepts for inter-regional disparities;
- Empirical analysis of the effect of the EU's cohesion policy on the living standard in Bulgaria's administrative regions (provinces).

The study uses the methods of analysis, aggregation, and least-squares regression of panel data (LSRPD) to formulate recommendations for raising the living standards in Bulgaria's provinces.

1. Theoretical background of inter-regional disparities

Inter-regional disparities are a broadly discussed issue in the scientific literature (European Parliament, 2016; Darvas, 2017; Birciakova et. al., 2015; Eurostat, 2014; The Economic Research Institute at BAS, 2014; Stoilova, 2014; Ganchev, 2014, etc.)

The four main determinants of economic disparity in the European Union (EU) as a whole and in Bulgaria in particular are the Regional (Cohesion) Policy (CP) of the Union, comparative advantages, urban agglomeration and European integration. In order to assess their impact, the characteristics of individual national and regional economies may be grouped into three large categories: the relative availability of labour resources, economic geography features and policies affecting the location of economic activity. These characteristics are affected by the process of European integration. (Baldwin and Wyplosz, 2012).

Relative availability of labour resources

EU member-states and regions with a relatively high proportion of highly skilled workers usually have a relatively larger shares of industrial production, which require a relatively higher percentage of such workers. The same relationship is observed in the EU countries and regions a relatively large share of medium- and low-skilled workers and the share of their sectors that

employ such kind of labour. In Bulgaria the average and low-skilled labour predominates, and this is why our economy relies mostly on industries that use low-skilled and low-skilled labour such as mining, agriculture, light industry, some services, etc.

Specific characteristics of national and regional economic geography

The spatial allocation of demand affects the allocation of business activities. Industries which benefit from economy of scale thrive in the vicinity of large markets. This demand-based cause-and-effect relationship is complemented by supply-side factors - companies that use intermediate goods for their production prefer locations with a high concentration of suppliers of such goods.

Policies that affect the allocation of economic activities

Various EU, national, regional and local policies can affect directly the location of certain businesses and thus increase or decrease the importance of certain production factors and economic geography factors for the location of the sector. An example of such a policy is the EU Regional (Cohesion) Policy.

European integration is accompanied by domestic locational effects that differ from those between the countries. European integration allocates economic activities evenly among the EU member-states in terms of convergence of GDP per capita. The trend in the member-states themselves, however, is opposite. In most European Union (EU) member-states, including Bulgaria, European integration increases the regional disparities. The main factor for this is the free movement of production factors. Financial capital and highly-skilled workers are more mobile than working capital and low-skilled labour.

The effect of the European integration over economic disparities and allocation of economic activities

The removal of all barriers to the free movement of goods, people and capital within the EU allows Member States to specialize in sectors where they have competitive advantages. The increase in efficiency as a result of specialization allows the states to increase their combined national product. The more far-reaching effects of integration, such as foreign direct investments (FDI) and student mobility, suggest that European integration should be accompanied by convergence of the national technological levels with the best European practices and gradual catching-up of the countries that lag behind the leaders in terms of technological development. Both factors should encourage a convergence of per capita income among the European countries.

Deeper integration can create favourable conditions for greater geographic concentration of some industries on a national level.

The increased mobility of production factors within a country has implications in various aspects. Regions with intensive economic growth attract more firms due to their low production costs and higher demand levels. This results in concentration of companies and production factors in this region, which further accelerates its growth. Such a region in our country is the Southwest region. Conversely, regions with unfavourable cost and demand factors (e.g. the Northwest region) suffer from withdrawal of firms and labour from them and relocation to other, more attractive regions such as the Southwest region.

2. Empirical analysis of the effect of the Cohesion Policy of the European Union on the standard of living in Bulgaria's provinces

The most important measure of economic disparity, which is the main drive of migration, is the living standard, measured in terms of GDP per capita. If it was sufficiently high across all regions, population density would be spread more evenly across the regions. EU member-states can benefit from the Cohesion (Regional) Policy of the Union as an efficient tool for raising the living standard in certain regions and reducing the disparities among them. Therefore, the empirical analysis aims to determine the effect of this policy on the living standard in Bulgaria's regions and its effectiveness in Bulgaria.

The determinants of long-term living standard in Bulgaria were analyzed by Todorov and Durova (2016).

2.1. Methodology and empirical analysis data

The study is based on least-squares regression of panel data (LSRPD) for the 28 Bulgarian provinces for the period 2014–2015 using the equation:

$$(1) \text{PCGDP}_{ij} = b_0 + b_1 * \text{PCFAC}_{ij(-1)} + b_2 * \text{PCFDI}_{ij(-1)} + b_3 * \text{PCEUF}_{ij} + b_4 * \text{PCFAC}_{ij} + v_{ij},$$

where: PCGDP_{ij} is the GDP per capita in BGN in province i in year j ; PCFAC_{ij} is the costs for acquisition of fixed tangible assets (FTA) per capita in BGN in province i in year j ; PCFDI_{ij} is the foreign direct investments (FDI) per capita in BGN in province i in year j ; PCEUF_{ij} is the uptake of EU funds per capita in BGN in province i in year j ; b_0 is the intercept, b_1 , b_2 , b_3 are regression coefficients, v_{ij} is disturbance.

The analysis uses the annual statistics published by the National Statistical Institute of Bulgaria (NSI) regarding the GDP per capita, the cost of acquisition of fixed assets per capita, the foreign direct investment per capita, and the uptake of EU funds per capita in Bulgaria's provinces.

2.2. Descriptive statistics and tests of stationarity

The descriptive statistics of the variables from Equation (1) are shown in Table 1.

The GDP per capita across the provinces varies from BGN 5852 to BGN 26690 and has an average value of BGN 8875. The cost of acquisition of fixed assets per capita across the provinces varies from BGN 925 to BGN 7160 and has an average value of BGN 2155. The uptake of EU funds per capita across the provinces varies from BGN 202 to BGN 1731 and has an average value of BGN 542. The foreign direct investment per capita across the provinces varies from BGN 2 to BGN 45 and has an average value of BGN 13.

Table 1

Descriptive statistics of the variables from Equation (1)

	GDP per capita, BGN	FTA acquisition costs per capita, BGN	Uptake of EU funds per capita, BGN	FDI per capita, BGN
Average value	8875.27	2155	542.14	13.46
Highest value	26690.00	7160.36	1730.53	44.51
Lowest value	5852.00	924.85	202.30	2.11
Standard deviation	3868.52	1230.11	253.42	10.16
Number of observations	56	56	56	56

Source: Author's calculations

The analysis of panel data is complemented with tests of stationarity (see Table 2). The results of these tests indicate that there are reasons to accept the alternative hypothesis for lack of a union root and stationarity of all variables.

Table 2

Tests of stationarity

Type of test, probability	GDP per capita	FTA acquisition costs per capita	Uptake of EU funds per capita	FDI per capita
Im, Pesaran and Shin W-stat	0.0076	0.0546	0.0028	0.0007
ADF - Fisher Chi-square	0.0113	0.0623	0.0047	0.0016
PP - Fisher Chi-square	0.0053	0.0001	0.0000	0.0000

Source: Author's calculations

2.3. Results from the empirical analysis

The panel data used for this study is highly balanced (i.e. there are no missing values for any of the variables). The results of the estimation of Equation (1) according to the LSR method are shown in Table 3.

Table 3

Estimation of the variables of Equation (1)

Variable	Estimate	Standard error	t-test	Significance
Intercept	948.10	871.00	1.09	0.28
FTA acquisition costs per capita during the previous period	0.58	0.26	2.23	0.03
FDI per capita during the previous period	76.22	35.06	2.17	0.03
Uptake of EU funds per capita	5.59	1.52	3.67	0.00
FTA acquisition costs per capita	1.20	0.31	3.88	0.00

Source: Author's calculations

The GDP per capita across the provinces (**PCGDP**) is affected by the costs of acquisition of fixed tangible assets (FTA) per capita during the current period (**PCFAC**) and during the previous period (**PCFAC(-1)**), the foreign direct investment per capita during the previous period (**PCFDI(-1)**), and the uptake of EU funds per capita (**PCEUF**).

The polarity of all variables in Equation (1) meet the theoretical assumptions. The value of 0.58 of the regression coefficient of **PCFAC(-1)** shows that a change of BGN 1 in the costs of FTA acquisition per capita during the previous period results, ceteris paribus, in a change of BGN 0.58 with the same polarity of the GDP per capita during the current period. The value of 76.22 of the regression coefficient of **PCFDI(-1)** shows that a change of BGN 1 in the FDI per capita during the previous period results in a change of

BGN 76.22 of the GDP per capita during the current period. The value of 5.59 of the regression coefficient of **PCEUF** implies that that a change of BGN 1 in the uptake of EU funds per capita results, *ceteris paribus*, in a change of BGN 5.59 with the same polarity of the GDP per capita. The value of 1.20 of the regression coefficient of **PCFAC** implies that that a change of BGN 1 in the FDA acquisition costs per capita during the current period results in a change of BGN 1.20 with the same polarity of the GDP per capita.

The value of 0.70 of the coefficient of determination shows that 70% of the changes in the standard of living in Bulgaria's provinces can be explained with changes in the cost of FTA acquisition per capita during the current and the previous period, the FDI per capita during the previous period, and the uptake of EU funds per capita.

The F-test significance (0.00) confirms the alternative hypothesis for the adequacy of this model for significance levels of 0.01. We should note, however, that this does not mean that this is the best possible model but simply that it shows adequately the relationship between the dependent variable and the independent variables.

Conclusion

The Regional (Cohesion) Policy of the EU has a significant effect on the geographical location of economic activity in the Member States. In the course of time, the CP evolved from a simple system of redistribution of funds to a mechanism for achieving actual economic and social cohesion that can raise the standard of living in Bulgaria.

The empirical analysis of the effect of the CP in Section Two shows that the standard of living in Bulgaria's provinces in terms of GDP per capita can be increased in the following ways:

➤ Increasing the FDI per capita. This factor has the strongest effect (despite its time-lag of one year) on the standard of living in Bulgaria's provinces, since an increase of FDI with BGN 1 results in an increase of GDP per capita with BGN 76.22.;

➤ Another way to raise the standard of living in Bulgaria's provinces is to increase the uptake of EU funds per capita. An increase of BGN 1 in the uptake of EU funds results in an increase of GDP per capita with BGN 5.59, all other conditions remaining unchanged.;

➤ A third way to raise the standard of living in Bulgaria's provinces is to increase the cost of acquisition of FTA per capita.

The empirical analysis of the factors that affect the living standard regional level shows that private and public investments have a positive effect on the living standards in Bulgaria's provinces as well as that private invest-

ment contributes about 14 times more than the uptake EU funds. Hence, it can be inferred that the Cohesion Policy of the EU is an important but insufficient condition for reducing the economic disparities among the regions. A much greater contribution to overcoming the regional disparities at Community, national, and regional level have market factors that affect the economic activity of the private sector on microeconomic level. The Cohesion Policy of the EU cannot by itself eliminate the existing regional disparities but can accelerate this process by stimulating entrepreneurial activity in the private sector.

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