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# The Changing Spatial Structures of East-Central European Countries

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## Abstract

*This paper focuses on the spatial structures of East-Central European countries. We compare the disparities in these countries based on GDP per capita (source: Eurostat database) and we analyse the relationship between regional development inequalities and the spatial structures. We also pay attention to the changing of the spatial structures. (This paper was supported by the János Bolyai Research Scholarship of the Hungarian Academy of Sciences.)*

**Key words:** East-Central Europe, Spatial Structure, GDP per capita.

**JEL Classification:** R11

## 1 Introduction

The East-Central European Countries, the Czech Republic, Hungary, Poland and Slovakia (ECE-countries), Bulgaria and Romania are new members of the European Union. In the 10 years from 1995 to 2005, GDP per head growth in all countries exceeded the average rate in the EU-27. While the disparities in GDP per head between countries in the EU narrowed markedly, the divergence of GDP per head at regional level has occurred [1], [2], [3], [4]. This paper focuses on the territorial properties of these trends in the ECE-countries, Bulgaria and Romania, and we compared these countries - do they resemble one another?

## 2 The Changing of the Spatial Structure

### 2.1 The Nomenclature of Statistical Territorial Units in the ECE-countries, Bulgaria and Romania

The socio-economic inequalities can be analysed on different territorial levels. First we describe the territorial systems of the examined countries. The current NUTS nomenclature - valid from 1 January 2008 - subdivides the economic territory of the European Union into 97 regions at NUTS 1 level, 271 regions at NUTS 2 level and 1303 regions at NUTS 3 level. Despite the aim of ensuring that regions of comparable size all appear at the same NUTS level, each level still contains regions which differ greatly in terms of area, population, economic weight or administrative powers. This heterogeneity across the Community often simply reflects the situation at Member State level [5]. We experience this in the case of the examined countries, but

the differences are more moderate (Table 1). For this reason we have to compare the regional disparities of these countries carefully (for example in some cases the capital is one region, in other cases the capital and its agglomeration is one region), and researches examine the changing of the disparities within the countries more frequently.

**Table 1. The NUTS-regions in the ECE-countries and Bulgaria, Romania [5]**

	<b>Czech Republic</b>	<b>Hungary</b>	<b>Poland</b>	<b>Slovakia</b>	<b>Bulgaria</b>	<b>Romania</b>
<b>NUTS 2</b>	<b>8</b>	<b>7</b>	<b>16</b>	<b>4</b>	<b>6</b>	<b>8</b>
<b>Name</b>	<b>Oblasti</b>	<b>Tervezési-statisztikai régiók</b>	<b>Województwa</b>	<b>Oblasti</b>	<b>Rajoni za planirane</b>	<b>Regiuni</b>
<b>Area of the regions (km<sup>2</sup>)</b>	<b>9658</b>	<b>13 290</b>	<b>19 543</b>	<b>12 259</b>	<b>18 500</b>	<b>28 750</b>
<b>Population of the regions (1000), 2005</b>	<b>1281</b>	<b>1440</b>	<b>2385</b>	<b>1347</b>	<b>1286</b>	<b>2701</b>
<b>NUTS 3</b>	<b>14</b>	<b>20</b>	<b>66</b>	<b>8</b>	<b>28</b>	<b>42</b>
<b>Name</b>	<b>Kraje</b>	<b>Megyék+ Budapest</b>	<b>Podregiony</b>	<b>Kraje</b>	<b>Oblasti</b>	<b>Judet+ Bucuresti</b>
<b>Area of the regions (km<sup>2</sup>)</b>	<b>5519</b>	<b>4652</b>	<b>4738</b>	<b>6129</b>	<b>3964</b>	<b>5476</b>
<b>Population of the regions (1000), 2005</b>	<b>732</b>	<b>504</b>	<b>578</b>	<b>674</b>	<b>276</b>	<b>515</b>

The changes to the NUTS 2003 version are as follows [5]:

Czech Republic: NUTS level 3 – A minor boundary shift affects the regions Vysočina and Jihomoravský kraj. A number of small municipalities have been transferred between these NUTS level 3 regions.

Poland: NUTS level 3 – Half the non-administrative NUTS level 3 regions will be reorganised where necessary to comply with the NUTS Regulation criteria. A total of 23 regions are being split up and reorganised to form 44 new regions, i.e. a net increase of 21 NUTS level 3 regions. 22 NUTS level 3 regions remain intact.

Bulgaria: NUTS level 1 – There are still two regions at NUTS level 1, but the border between them has been modified to reflect the population size criteria in the NUTS Regulation. The northern region now includes the south-eastern part of Bulgaria, while the southern region is reduced to the south-western and south central parts of Bulgaria. NUTS level 2 – The number of regions remains the same, but five of the six regions at NUTS level 2 have new borders with effect from 2007. The modification was necessary to reflect the population size criteria in the NUTS Regulation. The unchanged NUTS 2 region is the south-western region around the capital of Sofia.

Romania: NUTS level 1 – Due to the size of the country, it was necessary to introduce regions at NUTS level 1 to coincide with accession to EU. There are four non-administrative NUTS level 1 regions in Romania. NUTS level 2 – At NUTS level 2, there are no territorial changes, but there are a few modifications of names of existing regions. One effect of the changes in NUTS is that when the codes are selected in ascending numerical order the different elements of the nomenclature are not necessarily presented in the order used by the Member States.

## 2.2 The Data

In this paper we analyse the GDP per head. The regional Gross Domestic Product (GDP) is an indicator calculated by Eurostat based on data from the European System of Accounts (ESA 1995), using a harmonized methodology. The ESA95 indicators are sent to Eurostat by the National Statistical Institutes.

The extent of the disparities can be measured with different methods. In this paper we use the Eurostat formula: the dispersion of regional GDP is measured by the sum of the absolute differences between regional and national GDP per inhabitant, weighted with the share of population and expressed in percent of the national GDP per inhabitant. The indicator is calculated from regional GDP figures based on the ESA95.

## 2.3 The Regional Disparities

Between 1995 and 2006 within the EU-27 the regional (NUTS 2) disparities of the GDP per head decreased (convergence), at the same time in the examined countries the regional disparities increased (divergence) (Figure 1).

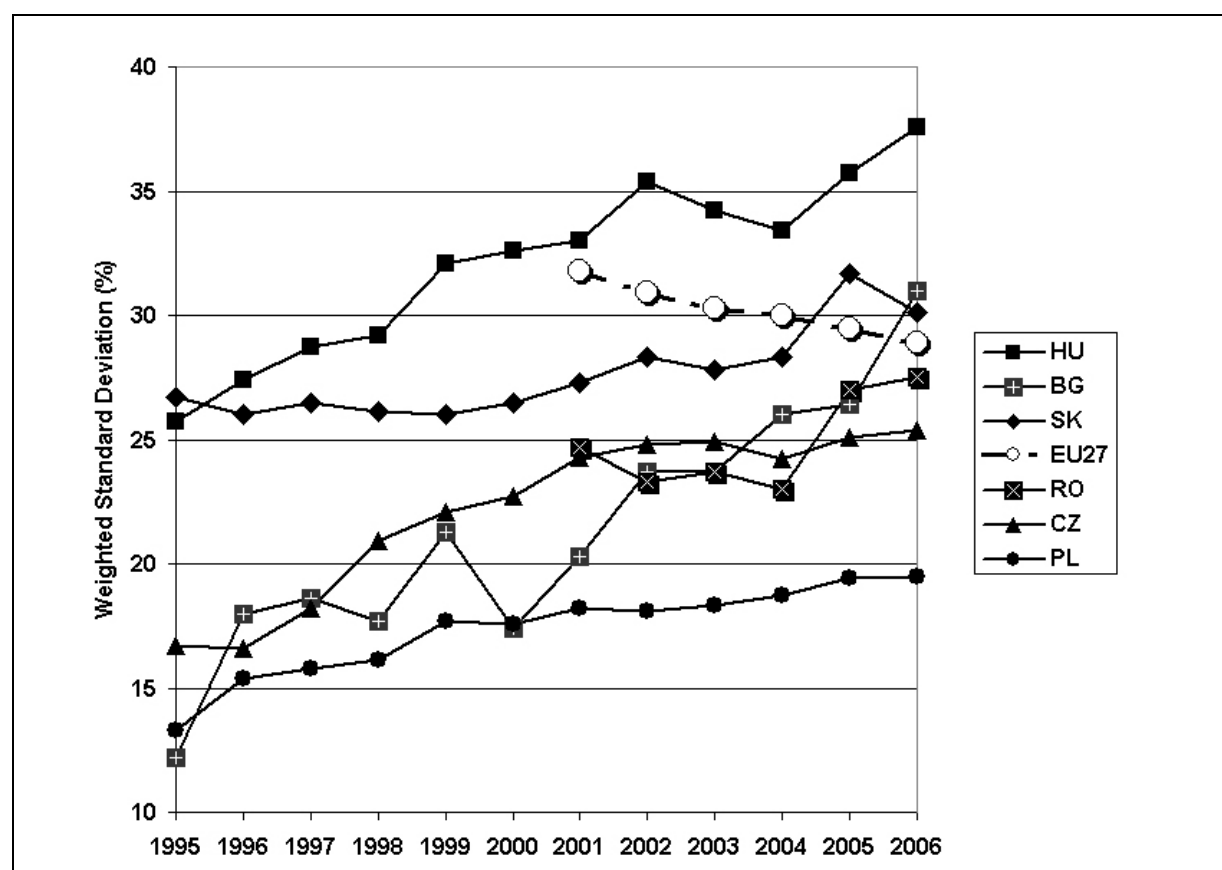
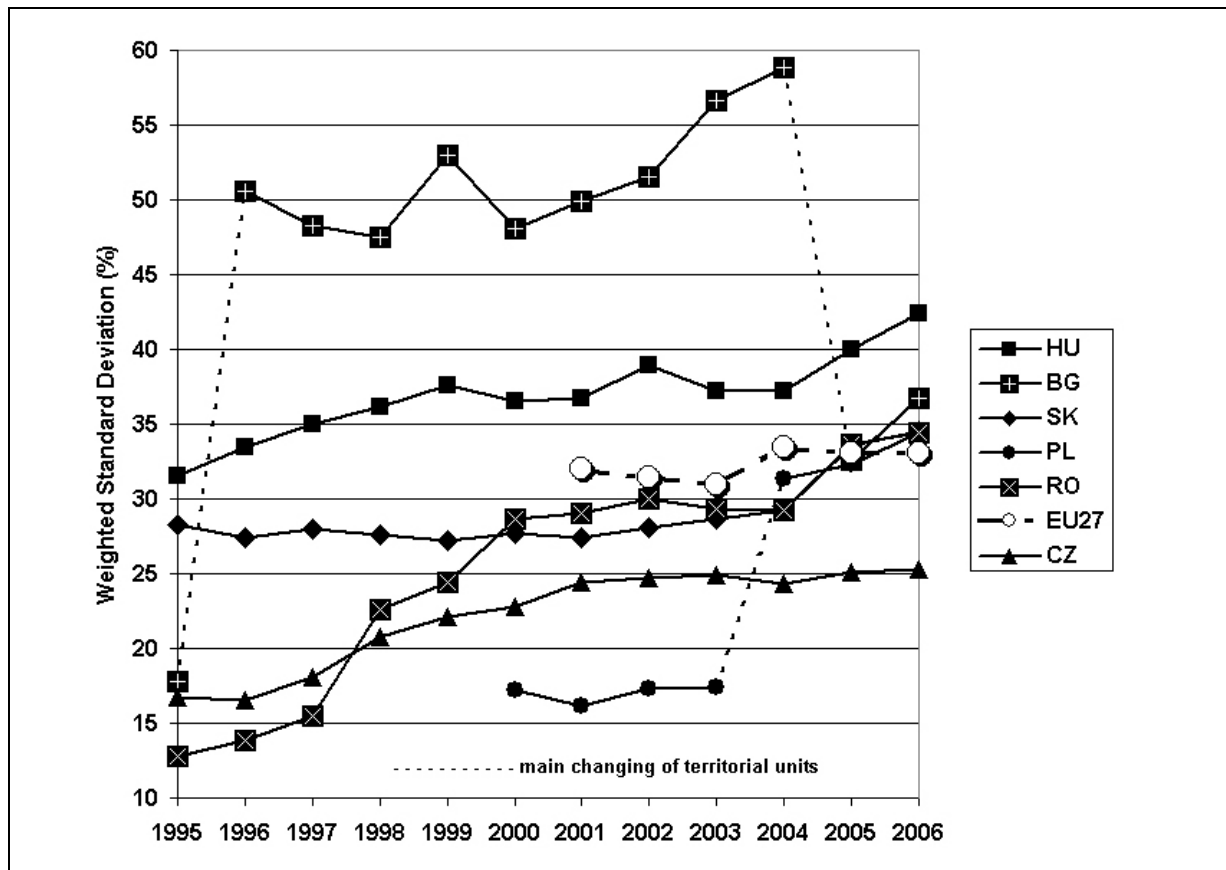


Figure 1. The regional (NUTS 2) disparities of the GDP per head in the ECE-countries and Bulgaria, Romania (source of data: Eurostat)

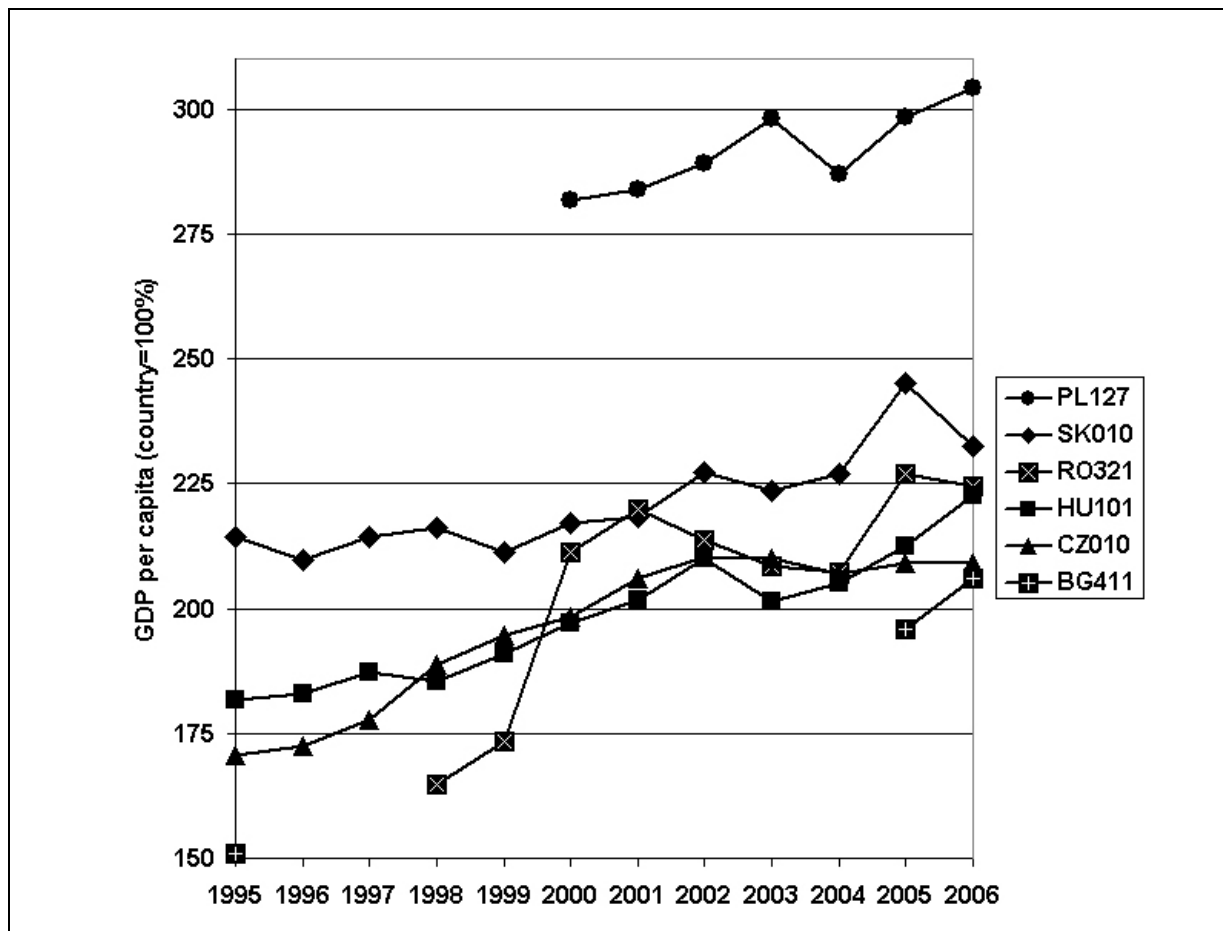
Between 1995 and 2006 within the EU-27 the regional (NUTS 3) disparities of the GDP per head practically did not change, at the same time in all the examined countries it increased (divergence) (Figure 2).



**Figure 2. The regional (NUTS 3) disparities of the GDP per head in the ECE-countries and Bulgaria, Romania (source of data: Eurostat)**

What is in the background? “Evidence suggests that economic prosperity in the EU is becoming less geographically concentrated: the traditional economic «core» of Europe ... contributed a substantially smaller share of ... GDP ... This tendency is due to the emergence of new growth centres such as Dublin, Madrid, Helsinki and Stockholm, but also Warsaw, Prague, Bratislava and Budapest. Within the Member States, however, economic activity has become more concentrated in capital city regions throughout the EU, with the exception of Berlin and Dublin. ... Increasing concentration of population and economic activity in capital city regions ....” [3, xii].

This fact is also true in the examined countries, the gap between the capital regions and the surrounding areas has increased (Figure 3).



**Figure 3. The Changing Positions of the Capital City Regions**

The question arises: which regions could still develop in the examined period? We can give an answer if we analyse Figure 4: these regions can be found on the top of the figure.

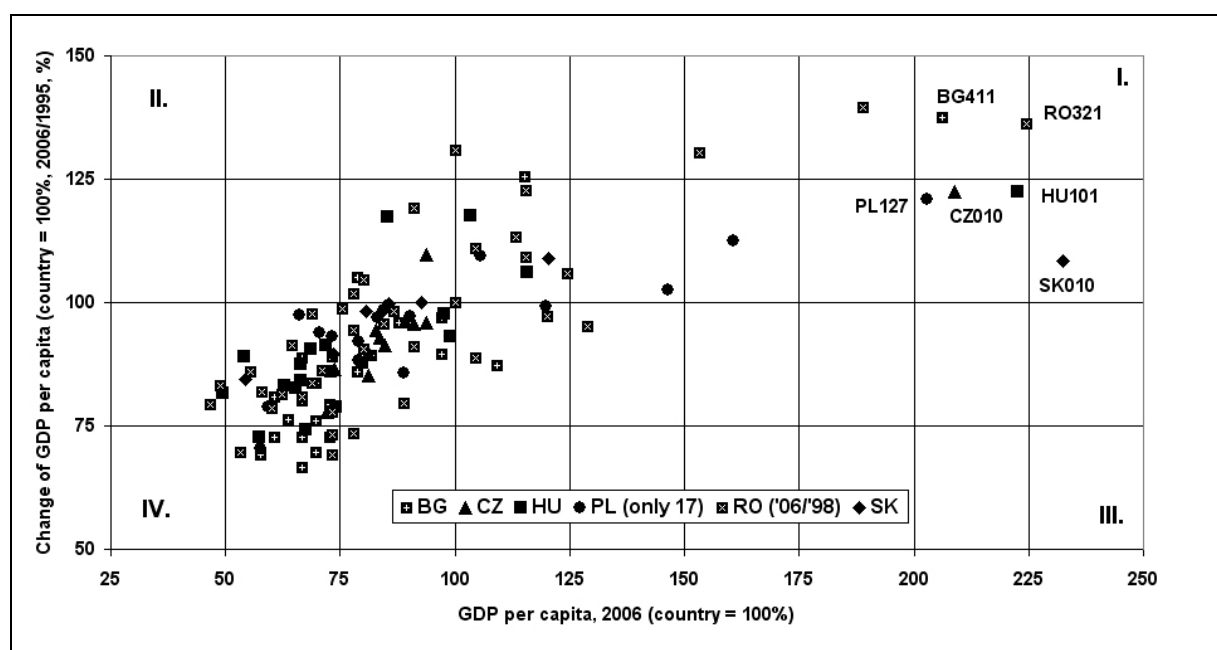
In the top right part of the figure (I.) there are those regions (21 regions) whose GDP per head value was over the average of the countries in 2006, and from 1995 to 2006 this relative value increased. We find here the capital cities (SK010, RO321, HU101, CZ010, BG411, PL127), and with lower values there are the agglomerations of capital cities, the large cities and the city-regions (RO322, RO424, PL213, PL633) etc.

In the top left part of the figure (II.) there are those regions whose GDP per head was below the average of the country in 2006, but their relative values increased. There are only six regions: two of them are capital city agglomerations (HU102, CZ020), the others have different characteristics (BG423, RO423, RO112, RO411).

In the bottom of the figure there are those regions whose relative economic development decreased between 1995 and 2006.

In the bottom right part of the figure (III.) there are those regions whose GDP per head was over the average of the country, but the relative positions became worse. There are only five regions (RO223, RO122, RO412, PL113, BG331), these are large city regions.

In the bottom left part of the figure (IV.) we can find most of the regions. These are undeveloped, their values of GDP per head were below the average of the country, and their positions became worse.



**Figure 4. The Development Positions of the NUTS 3 regions**

We can establish that in the examined period (1995-2006) there were only simple changes: the developed regions became more developed, and the undeveloped regions became more undeveloped; there are only some regions from the examined area in the other categories. We also found that in Romania there were big changes: several Romanian regions are good examples for the “top-down” and “bottom-up” categories.

Moreover we can establish that in the examined area (on these regional levels – NUTS 2 and 3) continuous developed zones do not take form, in contradiction with West Europe (Blue Banana or Pentagon etc.) [6], [7], [8], [9], [10]. The reason is that currently large cities are the centres of economic development, and in ECE-countries, Bulgaria and Romania there are not any polycentric urban regions and city-chains (except Katowice’ region), thus we find isolated poles of development.

### 3 Conclusion

The ECE-countries and Bulgaria, Romania resemble one another in more points of view, they are undeveloped countries of the EU, and there are serious regional development disparities within the countries. The main reason is the significant weight of the capital cities, moreover this weight is increasing continuously. For this reason (similar spatial structures and similar problems) the territorial cooperation is advisable between these countries, and their interests coincide in connection with the regional policy of the EU.

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