

THE CURRENT STATE AND DYNAMICS OF REGIONAL DISPARITIES IN ROMANIA¹

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Abstract

The paper aims to highlight the dynamics and current state of regional disparities in Romania, discussing both inter-regional disparities -between the eight development regions, corresponding to the NUTS II level- and intra-regional disparities -between the counties (corresponding to the NUTS III level) included in each region. The analysis of regional disparities has been based on a series of data and indicators provided by Romanian official statistics for 2000 and 2005, processed by various statistical methods. We constructed a new variant of the relative distances ranking method adapted to the objective of our study, so as to make it possible to measure simultaneously the intra and inter-regional disparities. Based on a multidimensional index of inequality, the 41 Romanian counties plus Bucharest municipality have been ranked and included into four major development categories, according to their relative position in economic development. Gini index, Herfindahl index and Theil index have been also employed, showing a low level of concentration, which suggests a relatively low amplitude of both inter-regional and intra-regional disparities.

JEL Classification: R11, R12

Key words: disparities, ranking, concentration, region, county, Romania

“Inequality is like an elephant: You can’t define it, but you know it when you see it”
(Fields 2001, 14)

1. Introduction

Economic regional disparities in the European Union moved upwards following the two last enlargements, although this effect is likely to diminish in time due to encouraging high dynamics of growth in the new member states, which is leading to a tendency towards narrowing the development gap.

The variation in the level and dynamics of disparities among the regions in one country can diverge almost as widely as among regions in different countries. The highest gap in dynamics is experienced by Romania, a country where the GDP per inhabitant increased six times faster in the most developed region –Bucharest-Ilfov compared to the least developed one – North-East. Despite their recent rise, territorial inequalities are still moderate in Romania compared to most of the EU countries.

Any attempt to explain the evolution of territorial inequalities in Romania has to be placed within the general context of its transition to the market economy, starting from the early 1990s.

Although regional inequalities were relatively low before, they rapidly increased since the beginning of transition, as the political control of the economy was gradually replaced by market forces. Economic restructuring has had a significant negative impact upon mono-industrial areas, thus

deepening regional disparities. The trend was reversed since 2000, the persistent economic growth entailing a reduction of the regional development inequalities.

Narrowing or even closing the economic development gaps is one of the most complex and difficult issues in regional policy. In order to address this goal, policy makers need operative instruments of regional economic analysis, such as synthetic measures of territorial inequalities.

Starting from these overall considerations we attempted to contribute to the existing research with new statistical multidimensional measurements, focusing on recent evolutions in Romania's territorial inequalities.

The remainder of this paper is organised as follows: section 2 gives a description of the statistical data and methodology employed in our research, section 3 presents the main results on the level and dynamics of the composite index of disparities and provides a regional typology based on economic inequalities, section 4 moves on to a related topic – the measuring of the territorial concentration for different economic variables, based on several statistical indicators. Our analysis is supplemented by a European study of regional economic performances, followed by summarising and conclusions in section 6.

2. Methodology

The territorial inequalities are the result of an uneven distribution of natural and human resources, the effect of many different economic, social, politic and demographic variables and of the way they spatially interconnect, and are also marked by the historic evolution of the regions. Consequently, the assessment of territorial disparities requires many data and information regarding various economic, social, political, cultural and geographical aspects that influence the development gaps.

There is a considerable literature devoted to inequality definition and measurement. Various concepts and categories are used, reflecting the broad coverage of the term. Three groups of relevant variables have been defined in order to cover the main forms of disparities, namely **geographical**, **economic** and **social**, from which the most common is GDP per inhabitant, largely accepted as a key variable of disparities.

Since each variable used to measure inequality gives only partial information, there is a need for multidimensional statistical measures, as well as different statistical methods to work on data, in order to understand and manage the complex development of the territorial units.

By adapting different statistical measures of variation to the specificity of spatial analyses, many indicators and techniques for territorial comparisons and ranking, as well as for inequality measurement, have resulted. Each one has its own advantages and limitation, and a specific utility that guides the choice of the best statistical methods to use for each empirical study.

Various variables have to be considered simultaneously in order to get a multidimensional characterisation and ranking of the territorial units in a country. One simple, yet powerful statistical technique that meets the needs of multidimensional comparisons is the relative distances ranking method. It combines different ranking criteria into one all-embracing hierarchy. Compared to other ranking methods, it has the advantage that it also measures the relative distances (therefore inequalities) between the units for each one of the variables employed and combines them in one synthetic value. All these make the relative distances method a valuable multidimensional measure of disparities.

The specific of this method is the transformation of the initial values of variables into relatives to the best value for each criterion (variable). Therefore, for each variable (ranking criterion) j the best placed unit $X_{\max j}$ is taken as a reference base and relatives to it are computed for all others territorial units i as:

$$\frac{X_{ij}}{X_{\max j}},$$

where X_{ij} is the value unit of variable j in the territorial i , and $X_{\max j}$ stands for the best value of variable j among the territorial units investigated (for most of the ranking criteria it is the maximum value, but for variables such as the unemployment rate it represents the minimum value). The ratio

$\frac{X_{ij}}{X_{\max j}}$ measures the relative distance of each territorial unit i to the best performance for variable j . The

same computation is repeated for every ranking criteria j .

According to the methodology of the relative distances ranking, we further have to calculate the average relative distance of each unit i to the best performance as a simple geometric mean of the previous ratios for all the variables j :

$$D_i = \sqrt[m]{\prod_{j=1}^m \frac{X_{ij}}{X_{\max j}}} \quad (1)$$

Finally the territorial units i can be ranked according to the decreasing value of the average relative distance D_i . Since it provides a multi-criteria measurement of relative distances, therefore disparities, between the territorial units, this simple yet powerful method is suitable for the evaluation of spatial inequalities.

We have constructed a new variant of the relative distances ranking method adapted to our objective of multi-level analysis, so as to make it possible *to measure simultaneously the intra and inter-regional disparities based on the same ratios* (individual relative distances).

Economic disparities between the territorial units in a region can be compared with the disparities inside other region only if there is a common reference ground. The traditional method of relative distances does not satisfy this requirement, so we decided to **replace the best performance for a variable j ($X_{\max,j}$) by the average national value of that variable ($\bar{X}_j$)**, thus obtaining a new formula of the multi-criteria distance to the mean for every territorial unit i :

$$D_i = \sqrt[m]{\prod_{j=1}^m \frac{X_{ij}}{\bar{X}_j}} \quad (2)$$

This way, regardless of the territorial perspective, we get a fixed position of each territorial unit, the individual distances relative to the mean enabling comparisons at different levels-national and regional. The disparities within and between regions now become comparable because they all share a common reference base –the national average. Moreover, relative distances above 1 indicate the developed counties/regions, while the values below 1 point to the territorial units in need for economic assistance.

The selection of the economic criteria for disparities measurement had to meet several conditions. We searched for variables which are synthetic, relevant for the analysis and spatially comparable (such as values per capita). Considering the goals of our research, and the limitations of statistical data available as well, we selected three main economic variables:

- GDP per inhabitant, as a key measure of the development level;
- the unemployment rate, as an essential indicator of the local labour market;
- the average monthly net earnings, for its connection with the standard of living.

Thus, in order to measure the relative position of each territorial unit (both NUTS II and NUTS III level) and to establish a corresponding typology, a composite index has been built, taking into consideration GDP per capita, average earnings and unemployment rate.

Last but not least, a problem to be solved refers to the different perspective upon best performance in the case of the unemployment rate. Unlike the other two variables selected, the lower the unemployment rate, the better the performance of a region/county. Formula (2) had to be adapted to this particularity by inverting the ratio for unemployment rate:

$$D_i = \sqrt[3]{\frac{X_{GDPi}}{\overline{X_{GDP}}} \cdot \frac{X_{AEi}}{\overline{X_{AE}}} \cdot \frac{\overline{X_{UR}}}{X_{iUR}}} \quad (3)$$

where:

- D_i is the composite index of disparities (the multi-criteria distance to the national average for the territorial unit i);
- X_{GDPi} , X_{AEi} and X_{URi} stand for GDP per inhabitant, average monthly earnings and unemployment rate in the county/region i;
- $\overline{X_{GDP}}$, $\overline{X_{AE}}$ and $\overline{X_{UR}}$ are the national averages for GDP per inhabitant, average monthly earnings and unemployment rate.

Both individual and average disparities point to favourable positions when above the unit value and show negative situations when below 1.

3. Disparities between and within regions

Romania has eight development regions corresponding to the NUTS 2 level of the EUROSTAT and 41 counties corresponding to the NUTS 3 level. Territorial inequalities have been measured in Romania only relatively recently (Green Paper, 1997, Pascariu, 2002, Goschin, 2008). The studies revealed an uneven regional distribution of economic activity and an even bigger intra-regional heterogeneity recorded by county. Territorial inequalities have increased during the transition period to the market economy, although their level is still below the one recorded in most European countries (Constantin et al., 2008, Goschin et al., 2008).

3.1. Disparities between counties

Using the renewed relative distances method for the three selected variables we computed **the composite index of disparities** (relation 3) obtaining a multi-criteria ranking of the Romanian counties displayed in Figures 1 (2000) and 2 (2005).

As expected Bucharest municipality gets the best position for its overall economic performance, surpassing by 76% the national average in 2000 (mean relative distance $D=1.76$), and by 87% in 2005 ($D=1.87$). Like most of the new member states of the European Union, Romania is characterised by a marked economic dominance of the capital region Bucharest-Ilfov, which concentrates a substantial share in the national economy, and bigger rates of growth, thus increasing the development gap. The higher GDP per inhabitant mainly results from the notably bigger productivity than in the rest of the regions. In-commuting, which provides larger labour force relative to the inhabitants of the capital region, is another explanation of its considerable economic power.

The second position is held by Ilfov county, placed by 46% above the average and the third one comes Bihor county ($D=1.23$).

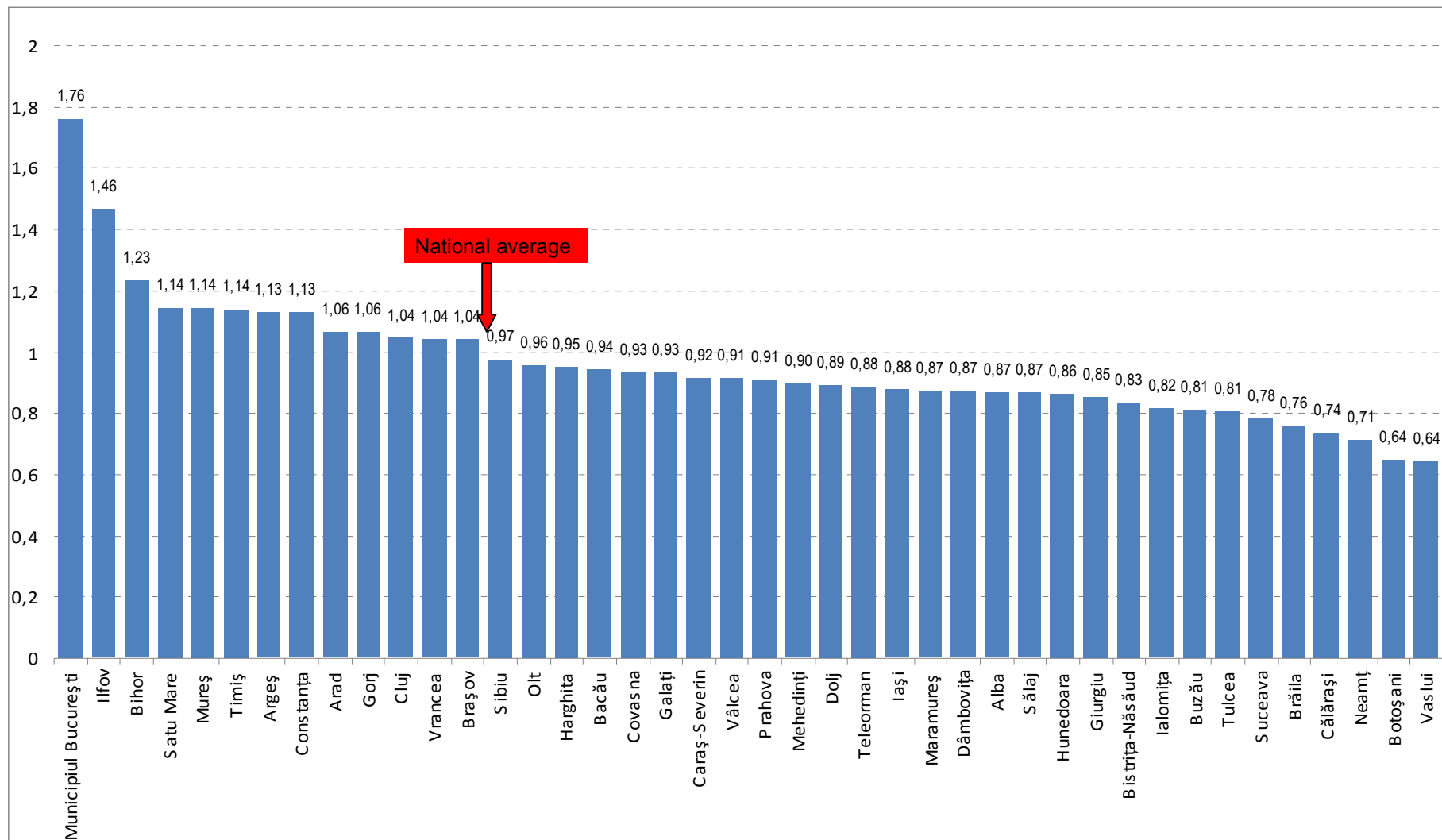
After these three prominent counties, distances between successive positions get smaller, frequently being two or more counties on the same place, such as the fourth position held ex equo by Timiș, Mureș and Satu-Mare counties ($D=1.141$).

Other above average counties in 2000 were Argeș, Constanța, Arad, Cluj, Gorj, Brașov and Vrancea.

There is a numerous group of counties below the average, but 10 of them are only by up to 10% below the average national performance, which is not such a big disadvantage compared to the last ones in the hierarchy (such as Botoșani and Vaslui).

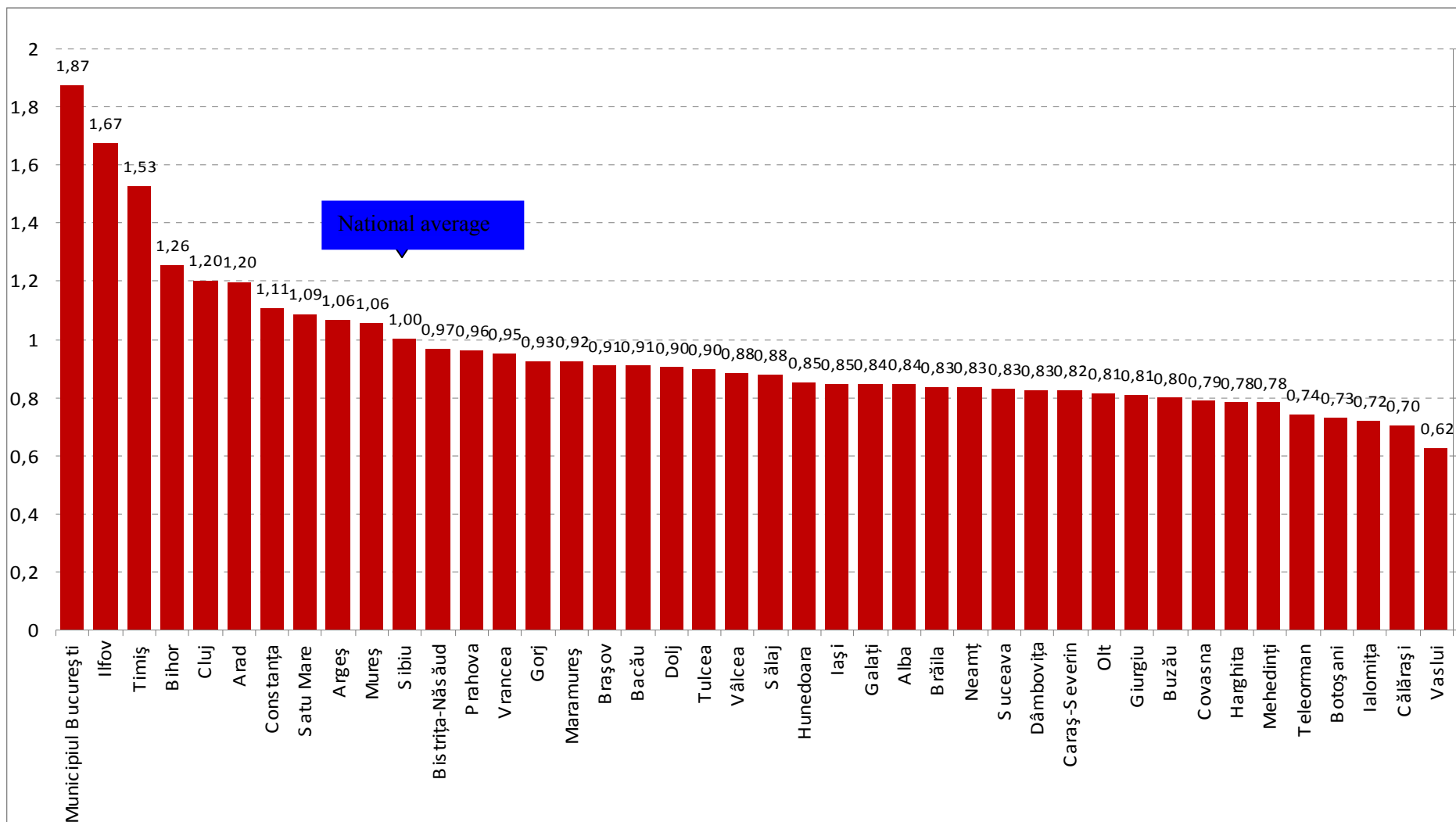
The total distance between extremes (maximum minus minimum relative performance) is relatively high, reaching 112 percentage points in 2000: 1.87 (Bucharest) – 0.64 (Vaslui) = 1.12 or 112 p.p. The overall economic performance in Bucharest is more than twice the Vaslui performance.

Figure 1. County ranking by the level of the composite index of disparities, 2000



Source: authors

Figure 2. County ranking by the level of the composite index of disparities, 2005



Source: authors

The year 2005 brought some changes in the hierarchy (Figure 2). Bucharest municipality strengthens its dominant position, closely followed by Ilfov county, while Bihor and Timiș counties change places.

Gorj, Vrancea and Brăila drop below the average, partly because of the rise of the national average induced by the achievements of the leading counties during 2000-2005: Bucharest municipality advances by 11 pp, Ilfov county by 21 pp and Timiș county by 39 pp.

Vaslui county keeps the last position in 2005, while Botoșani advances by 9 pp. The total distance between extremes rises by 13 pp compared to 2000, mainly owing to the significant progresses of Bucharest municipality.

3.2. A typology of multi-criteria disparities

Based on the absolute level and dynamics of the composite index of disparities, the 41 Romanian counties plus Bucharest municipality have been divided into four groups, as follows: above average, on progress counties (improving their relative position); under average, on progress counties; above average, on decline counties (worsening their relative position); under average, on decline counties (Figure 1, appendix).

- above average, in progress counties are developed counties improving their relative position during 200-2005 Timiș, Cluj, Arad, Ilfov, and Bucharest municipality;
- under average, in progress counties are placed under the average but are narrowing the economic development gap, due to a higher growth during 2000-2005: Neamț, Botoșani, Brăila, Tulcea and others;
- above average, in decline counties are developed counties worsening their relative position because of a decline in economic performances: Constanța, Satu-Mare, Argeș, Mureș;
- under average, in decline counties are a numerous group of lagging counties having declining performances during 2000-2005: Teleorman, Hunedoara, Giurgiu, Călărași, Ialomița, Gorj and others.

3.3. Disparities between regions

The data in Table 1 depict the overall image of disparities by region from the perspective of the multi-criteria measure of inequalities which reunites the three main economic variables: GDP per capita, average monthly net earnings and unemployment rate.

The regional ranking with respect to the national average in 2000 against 2005 displays stability at the extremes of the distribution, the first two places being held by the regions Bucharest-Ilfov and North-West, while the regions South and North-East have been constantly the last ones. The distance between the extreme positions (held by Bucharest-Ilfov and North-East regions) increased from 0.9478 (meaning 94.78% of the national average) to 1.0313 (103.13%) during 2000-2005, but is lower than the corresponding distance between the extreme counties.

Table 1. The composite index of disparities by region

Region	Average composite index of disparities		Dynamics of the composite index
	2000	2005	2005/2000
North-East	0.777961	0.808986	1.039879
South-East	0.935756	0.921524	0.984791
South	0.912979	0.864391	0.946781
South-West	0.940855	0.870843	0.925587
West	0.992267	1.083653	1.092099
North-West	1.001947	1.088392	1.086278
Center	0.997265	0.907345	0.909833
Bucharest-Ilfov	1.725762	1.840255	1.066344

Source: authors' computation.

3.4. Disparities within regions

The **North-East region** encompasses some of the poorest counties in Romania, such as Vaslui, constantly on the last place in all territorial hierarchies (Figures 1 and 2), Botoșani, Neamț and Suceava, therefore inequalities are small here.

The range of relative disparities is low within this region, except for unemployment rate (Table 2) and the average composite index of disparities takes the smaller regional value in Romania (Table 1).

Table 2. The range of relative disparities by region

Region	The range of relative disparities ($\frac{X_{\max j} - X_{\min j}}{\bar{X}_j}$) in percentage points for:					
	GDP per inhabitant		Average net earnings		Unemployment rate	
	2000	2005	2000	2005	2000	2005
North-East	34	31	18	18	69	76
South-East	52	52	30	23	88	73
South	48	45	17	37	62	117
South-West	33	38	25	32	84	54
West	33	48	25	20	84	120
North-West	55	47	18	26	78	57
Center	28	35	20	17	55	71
Bucharest-Ilfov*	-					

Source: authors

* the results are not statistically significant

The **South-East region** is a relatively well developed region, slightly below the average performance (Table 1). The separate analysis of disparities by variable gives a more complex image, with a wide range of economic performances of the counties and consequently displays large disparities. Constanța, which is situated above average for all the ranking criteria, represents the success story of the region, while other counties have lower but still satisfactory results (for instance, Galați in 2005), but there are also some poor, clearly underdeveloped counties (Tulcea, Brăila, Buzău).

The **South region -Muntenia-** includes only one developed county – Argeș, which continued its upward trend during 2000-2005, while Prahova is about the average and all other counties in the region are clearly under the average and on a declining trend.

In the **South-West region –Oltenia-** all the counties are placed under the national average, which explains the relatively low amplitude of economic disparities in this region. Inequalities slightly increased in 2005, compared to 2000, for GDP per capita and earnings, but sharply decreased for the unemployment rate.

The **West region** includes two developed counties -Timiș and Arad, situated on an upward trend in the last years and two underdeveloped ones -Caraș-Severin and Hunedoara. Separate

measurement of disparities by criteria show that the inequalities in the West region do not originate from the GDP/capita, like in many other regions. On the contrary, all the counties in the region have good values for this indicator. The weakness came from the high unemployment rate generated by economic restructuring, especially in Caraş-Severin and Hunedoara. On the opposite side stands Timiş, a well-developed county, having a very low unemployment rate (of about one third of the national average).

The **North-West region** is more polarised than other areas of the country: Cluj and Bihor counties are well developed, Satu-Mare stands above the average only because of its low unemployment rate, while Bistriţa-Năsăud, Maramureş and Sălaj are clearly underdeveloped, all having low levels of GDP per capita.

The counties in the **Center region** all have good values of GDP per capita, but serious problems of unemployment, excepting for Mures. Even the most developed county in the region –Brasov) faces an unemployment rate high above the national average in 2005. During 2000-2005, there was a general declining trend for the economic performances in the Center Region, excepting for Sibiu county.

Clearly the most developed region in Romania, far above all other regions for all economic criteria considered, the **Bucharest-Ilfov region**, is dominated by the Bucharest municipality. Both territorial units belonging to this region are very well placed in all partial hierarchies. The Bucharest municipality is the absolute economic leader: a level of GDP per capita double than the national average, unemployment rate at half of the average, and high earnings.

4. Concentration of economic activities

As far as Romania is concerned, studies on concentration have been undertaken both in national and international context. For example, Traistaru, Nijkamp and Longhi (2002) have focused on regional specialisation and location of industrial activity in several accession countries (Romania, Bulgaria, Slovenia, Hungary and Estonia).

Starting from the idea that Central and East European countries have experienced since 1990 increasing integration with the EU via trade and FDI the authors have aimed to identify and

explain the economic effects of economic integration on patterns of regional specialisation. The research questions envisaged the changes in regional specialisation patterns since 1990, whether greater specialisation implies greater polarisation, to what extent relocation of manufacturing activities has taken place, the relationship between regional specialisation and growth. Besides specific features for various countries the overall conclusion has been the existence of a negative correlation between regional specialisation and regional GDP per capita and unemployment rates and the association of lower growth of regional GDP per capita with higher unemployment rates.

The impact of increasing economic integration with the EU on regional structural change and growth has been also analysed, highlighting the changes in regional specialisation patterns as well as the relationship between regional specialisation and growth (Traistaru, Iara, Pauna, 2002).

The question of regional specialisation has been analysed in national context too, mainly addressing the influence of transition, restructuring and privatisation on this process (e.g. Russu, 2001; Mitrut and Constantin, 2006; Andrei et al., 2007). The results highlight structural changes of a low significance to most of industries in the first ten years. These changes were determined by basic factors such as the removal of the COMECON¹ market and the openness of foreign trade towards the EU countries as well as by temporary action-based factors, including political (e.g. the war in the former Yugoslavia) and economic (e.g. the raise of oil price) ones (Russu, 2001). They supported the increase in the share of some industries unable to face competition forces (e.g. metallurgy) and disfavoured other industries, of high recovery and development potential in the future (e.g. machinery and electric appliances).

Territorial concentration of the economic activities is usually captured by the shares of the territorial units (regions or counties) in the total national value of each activity. Statistical measurement of the concentration implies dividing the volume of the economic activity j in the territorial unit i (X_{ij}) by the total of activity j (X_j):

$$g_{ij}^c = \frac{X_{ij}}{\sum_{i=1}^n X_{ij}} = \frac{X_{ij}}{X_j}, \quad (4)$$

¹ Council of Mutual Economic Assistance

where g_{ij}^C is the share of unit i in activity j .

These g_{ij}^C shares are the starting point for most of the statistical indicators of concentration. As far as the variable employed is concerned, X_{ij} has to be a synthetic economic indicator, relevant for the specific goals of the analysis, but also depending on the statistical data available at the territorial levels of interest. The most common variables in the concentration analysis are GDP, Gross Value Added, Gross Product, turnover, employment, the number of employees, and gross capital formation. For the current analysis GDP, number of employees and civil employment were chosen.

The statistical methods for the measurement of concentration used in this paper are well known ones, namely Gini Inequality Index, Theil Index, and Herfindahl Index.

The Herfindahl Index was used for measuring the territorial concentration of each variable j (GDP, number of employees and civil employment) by summing the squared shares of the counties/regions i in the total volume of the variable considered at the economy level:

$$H_j^C = \sum_{i=1}^n (g_{ij}^C)^2 . \quad (5)$$

The Herfindahl index is increasing with the degree of concentration, reaching its upper limit of 1 when the variable j is concentrated in one county/region. The lowest level of concentration is $1/n$ i.e. all counties/regions have equal shares in variable j . This means that the lower-bound of the Herfindahl Index is sensitive to the number of observations (counties), which is not a shortcoming for us since all computation were made for Romania only. Another limit of the indicator is due to the fact that the Herfindahl index is an absolute measure and big regions having larger shares mainly influence the changes in the concentration (the index is biased towards the larger regions).

The Theil Index measures the inequalities in the repartition of a variable x using the following formula:

$$T = \frac{1}{n} \cdot \sum_{i=1}^n \left(\frac{x_i}{x} \cdot \ln \frac{x_i}{x} \right) , \quad (6)$$

where:

x_i - the value of variable x in the territorial unit i ;

$\bar{x}$ - the arithmetic mean of variable x ;

n - the number of territorial units.

The values of the Theil Index range from 0 (meaning an even distribution) to $\ln n$ (maximum concentration).

The **Gini Inequality Index** was initially used to measure the earnings differentials, but was afterwards adapted to the requirements of the spatial analysis.

$$G = \frac{1}{n} \cdot (n+1 - 2 \cdot \frac{\sum_{i=1}^n (n+1-i)x_i}{\sum_{i=1}^n x_i}), \quad (7)$$

where:

n - the number of territorial units;

x_i - the increasing values of the variable considered.

Gini's values range from 0 (perfectly even distribution) to 1 (maximum concentration).

All the three indices presented above are indicating low levels of concentration and inequalities for the variables employed: GDP, number of employees and civil employment (table 3). Most of the values are close to the lower limit possible, which is 0 for the Gini and Theil indices and 0.125 for the Herfindahl Index, proving a small level of inequality.

Table 3. Statistical indicators of concentration and inequality between regions for GDP, number of employees and civil employment

	GDP		Number of employees		Civil employment	
	2000	2005	2000	2005	2000	2005
Gini Index	0.100564	0.109923	0.080018	0.100564	0.103205	0.076278
Theil Index	0.033444	0.024509	0.010902	0.006286	0.016591	0.009243
Herfindahl Index	0.130317	0.131654	0.127645	0.130317	0.129154	0.127283

Source: authors

The same statistical indicators of inequalities calculated within the regions, for GDP, number of employees and civil employment (Table 3), showed higher levels of concentration and disparity, although still limited to moderate values of these indicators.

Table 4. Statistical indicators of concentration and inequality within each region for GDP, number of employees and civil employment

	2000			2005		
	Herfindahl Index	Gini Index	Theil Index	Herfindahl Index	Gini Index	Theil Index
1. North- East						
GDP	0.19	0.21	0.02	0.19	0.21	0.02
Number of employees	0.19	0.20	0.01	0.19	0.21	0.02
Civil employment	0.18	0.13	0.05	0.18	0.14	0.04
2. South-East						
GDP	0.22	0.28	0.04	0.21	0.27	0.02
Number of employees	0.20	0.25	0.05	0.20	0.25	0.03
Civil employment	0.18	0.18	0.03	0.19	0.21	0.02
3. South Muntenia						
GDP	0.19	0.31	0.04	0.18	0.29	0.03
Number of employees	0.20	0.33	0.04	0.20	0.33	0.05
Civil employment	0.17	0.23	0.03	0.17	0.25	0.11
4. South-West Oltenia						
GDP	0.22	0.16	0.030	0.22	0.16	0.02
Number of employees	0.22	0.16	0.004	0.22	0.16	0.01
Civil employment	0.22	0.16	0.004	0.22	0.16	0.07
5. West						
GDP	0.28	0.19	0.02	0.29	0.22	0.02
Number of employees	0.27	0.17	0.01	0.29	0.20	0.02
Civil employment	0.27	0.15	0.06	0.28	0.18	0.30
6. North-West						
GDP	0.22	0.29	0.03	0.21	0.29	0.04
Number of employees	0.21	0.27	0.02	0.21	0.28	0.02
Civil employment	0.19	0.21	0.10	0.19	0.23	0.09
7. Center						
GDP	0.19	0.21	0.01	0.19	0.22	0.018
Number of employees	0.19	0.20	0.02	0.19	0.22	0.021
Civil employment	0.18	0.17	0.03	0.18	0.18	0.051
8. Bucharest- Ilfov*	-					

Source: authors

* the results are not statistically significant

5. Romanian regions from a European perspective

Our analysis of Romanian regions is further supplemented with a European perspective. A hierarchical cluster analysis (European Parliament, 2007) for the 268 regions in the EU-27 places Romanian regions in the group of the most lagging regions in Europe but with the advantage of a relatively low level of unemployment rate. The study establishes 7 main types of regions (Map 1, Appendix) each group being defined by some specific characteristics.

- **Type Low-1**, which includes regions in Poland, Slovakia, Bulgaria and Southern Italy, indicates a negative situation and clearly points to the most lagging regions in Europe, characterised by very low GDP per capita, high unemployment, low life expectancy and relatively low levels of education.
- **Type Low-2** is very similar to previous type Low-1 but with the advantage of a relatively low level of unemployment rate. However the performance is smaller for indicators such as education or life expectancy.
- **Type Medium-1** is characteristic to regions with low-medium situations across all criteria except education. Displaying better levels of highly skilled labour force, these regions could base their future development on this specific advantage.
- **Type Medium-2** is also characteristic to regions with a medium situation in respect of GDP per capita and education, higher levels of life expectancy, but specific weakness relating to employment. They should therefore focus on the reduction of unemployment.
- **Type Medium-3** is comprising regions which are generally considered as being “without problems” as they have high levels of GDP per capita and relatively small unemployment. These regions are characterised by rather poor performances in respect of life expectancy and the share of people with a high level of education. Regional policy here should therefore focus mainly on the development of infrastructures for health and education.

- **Type High-1** includes regions with good global performance on all criteria, except employment, higher than the EU average. These regions can generally rely on good social conditions relatively high economic competitiveness. As in the case of type Medium-2 regions, their problem is how to reduce unemployment without breaking the good level of performance in respect of the other criteria.
- **Type High-2** also displays good global performance on all criteria but with some differences as compared to type High-1. The situation is clearly better in terms of low levels of unemployment and slightly better in terms of GDP per capita. Performance levels are less good than type High-1 however in respect of life expectancy and education.

6. Summary and conclusions

In this paper we have constructed a new variant of the relative distances ranking method adapted to the objective of our study, so as to make it possible to measure simultaneously the intra and inter-regional disparities. Thus, in order to capture the relative position of each territorial unit (both NUTS II and NUTS III level) and to establish a corresponding typology, a composite index has been built, taking into consideration GDP per capita, average net monthly earnings and unemployment rate.

Based on this index absolute level and dynamics, the 41 Romanian counties plus Bucharest municipality have been divided into four groups, as follows: above average, in progress counties (improving their relative position); under average, in progress counties; above average, in decline counties (worsening their relative position); under average, in decline counties.

Gini index, Herfindahl index and Theil index have been also employed, showing a low level of concentration, which suggests a low amplitude of both inter-regional and intra-regional disparities, although, the intra-regional disparities are much higher than the inter-regional disparities.

Nevertheless, even the most developed region, Bucharest-Ilfov, has the GDP per capita less than 75% of the EU average, so that all Romanian development regions are eligible under the Convergence objective. This conclusion supports the need to analyse regional disparities both in relative and absolute terms and not only at national scale but also compared to the EU average.

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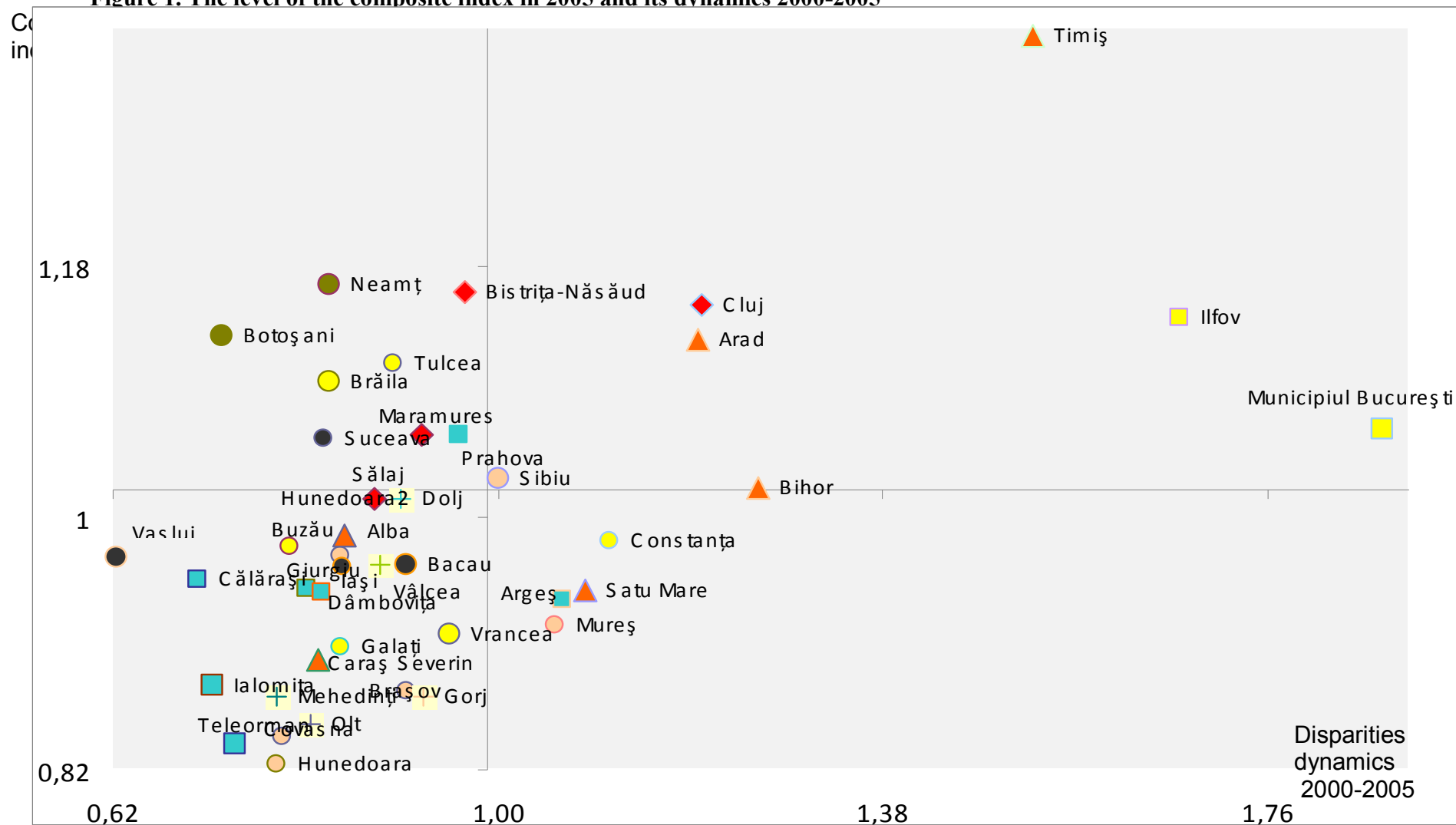
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APPENDIX

Figure 1. The level of the composite index in 2005 and its dynamics 2000-2005



Source: authors

Table 1. The composite index of disparities for the counties in North-East

	The composite index of disparities		Dynamics
	2000	2005	2005/2000
North-East	0.777961	0.808986	1.039879
Bacău	0.941043	0.909241	0.966206
Botoșani	0.644461	0.727998	1.129623
Iași	0.875249	0.846671	0.967348
Neamț	0.713663	0.832989	1.167203
Suceava	0.784365	0.828579	1.056370
Vaslui	0.641336	0.622940	0.971316

Source: authors' computation

Table 2. The composite index of disparities for the counties in South-East

	The composite index of disparities		Dynamics
	2000	2005	2005/2000
South-East	0.935756	0.921524	0.984791
Brăila	0.75882	0.833147	1.097951
Buzău	0.81172	0.795401	0.979896
Constanța	1.127404	1.109567	0.984179
Galați	0.93093	0.844688	0.907359
Tulcea	0.80699	0.896476	1.110889
Vrancea	1.038876	0.952381	0.916742

Source: authors' computation

Table 3. The composite index of disparities for the counties in South- Muntenia

	The composite index of disparities		Dynamics
	2000	2005	2005/2000
South- Muntenia	0.912979	0.864391	0.946781
Argeș	1.129789	1.063396	0.941234
Călărași	0.735831	0.703934	0.956652
Dâmbovița	0.872292	0.825915	0.946832
Giurgiu	0.853472	0.81052	0.949674
Ialomița	0.816111	0.718815	0.880781
Prahova	0.907129	0.961341	1.059762
Teleorman	0.883530	0.740859	0.838522

Source: authors' computation

Table 4. The composite index of disparities for the counties in South-West Oltenia

	The composite index of disparities		Dynamics
	2000	2005	2005/2000
South-West Oltenia	0.940855	0.870843	0.925587
Dolj	0.890788	0.903343	1.014094
Gorj	1.062376	0.926296	0.871909
Mehedinți	0.896565	0.781852	0.872052
Olt	0.955389	0.814507	0.852539
Vâlcea	0.914623	0.884147	0.966678

Source: authors' computation

Table 5. The composite index of disparities for the counties in West

	The composite index of disparities		Dynamics
	2000	2005	2005/2000
West	0.992267	1.083653	1.092099
Arad	1.062664	1.198682	1.127997
Caraș-Severin	0.915594	0.822949	0.898814
Hunedoara	0.8596	0.849391	0.988124
Timiș	1.135836	1.527808	1.345095

Source: authors' computation

Table 6. The composite index of disparities for the counties in North-West

	The composite index of disparities		Dynamics
	2000	2005	2005/2000
North-West	1.001947	1.088392	1.086278
Bihor	1.230323	1.256547	1.021315
Bistrița-Năsăud	0.833306	0.968203	1.161882
Cluj	1.043113	1.202024	1.152343
Maramureș	0.872576	0.924966	1.060041
Satu Mare	1.14478	1.086212	0.948839
Sălaj	0.866489	0.878601	1.013978

Source: authors' computation

Table 7. The composite index of disparities for the counties in Center

	The composite index of disparities		Dynamics
	2000	2005	2005/2000
Center	0.997265	0.907345	0.909833
Alba	0.868212	0.844614	0.972819
Brașov	1.037996	0.910187	0.876870
Covasna	0.932417	0.786482	0.843488
Harghita	0.949079	0.782374	0.824351
Mureș	1.144199	1.057122	0.923896
Sibiu	0.973843	1.000845	1.027728

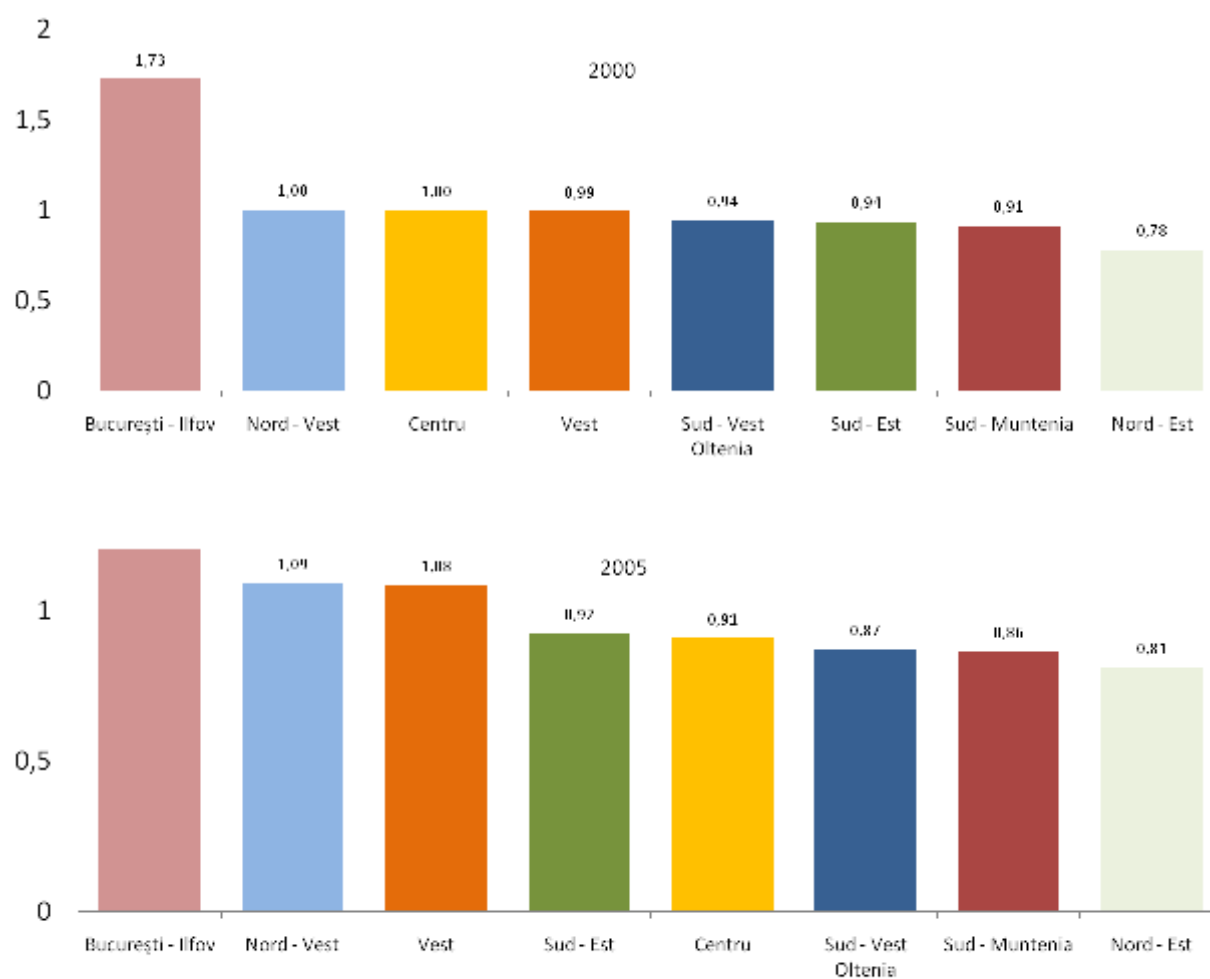
Source: authors' computation

Table 8. The composite index of disparities for the counties in Bucharest-Ilfov

	The composite index of disparities		Dynamics
	2000	2005	2005/2000
Bucharest - Ilfov	1.725762	1.840255	1.066344
Ilfov	1.464964	1.673844	1.142584
Municipiul București	1.761561	1.873268	1.063414

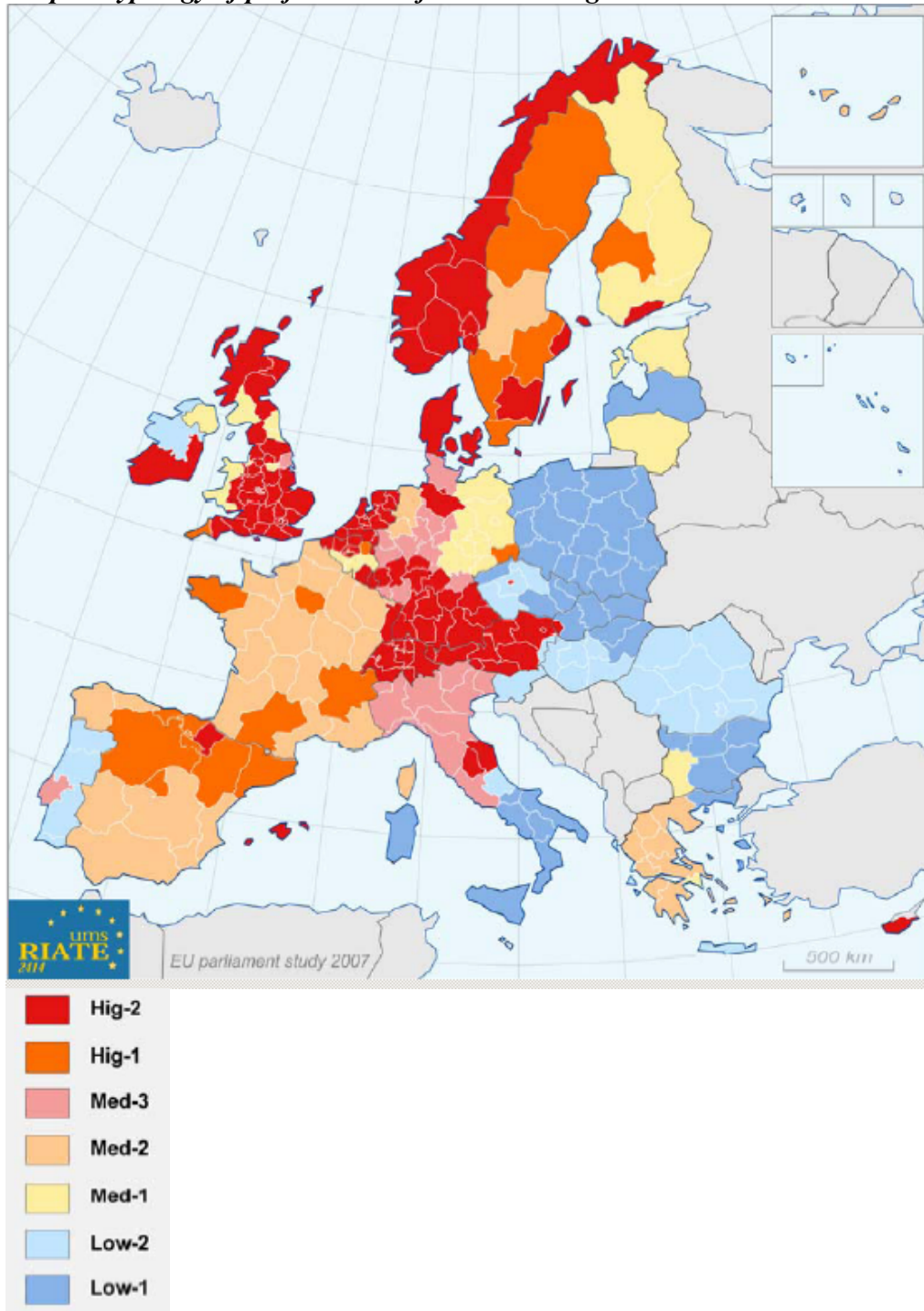
Source: authors' computation

Figure 2. The level of the composite index of disparities by region, 2000 and 2005



Source: authors

Map 1. Typology of performance of the EU-27 regions in 2000



Source: European Parliament, 2007