TERRITORIAL COHESION AND SECTORAL CONCENTRATION IN THE EUROPEAN UNION[1]

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RESUME
It is not surprising that the economic level of the European Union differs not only across Member States but also the regions. The crucial part of the economic activities of the EU is still quite heavily concentrated, both in terms of geography and sector. Nearly half of the GDP is produced in the most advanced regions of the North-Western Europe, where slightly less than a third of the Union's population lives. Sectoral concentration reaches a relatively high level. According to current data of the European Cluster Observatory, more than 2,000 different industry-concentrated clusters operate within the European Union. The goal of this study is to clear up the current trends of regional differentiation and agglomeration (regional clusters) of the European Union. To monitor regional differences in economic level, gross domestic product per capita expressed in purchasing power parity is used as an indicator which is also suitable for international comparisons, since it addresses issues of the effects of price levels and exchange rates. In analysing the clusters, we use the data from the database of the European Cluster Observatory. This electronic database includes comparable data on all 27 Member states of the EU, and concentrates only on those clusters with a high qualitative level.

Key words: *European Union, regional disparities, regional clusters*

Introduction

The European integration process is constantly deepening. In the 90s of the last century the project of the internal market was completed and then Member States started to implement the provisions of a monetary union.

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Coordination proceeds also in terms of fiscal, structural and to some extent and social policies. Nevertheless, the European Union is quite a heterogeneous as a whole. Individual economies are different both in absolute and relative economic indicators, the economic and social disparities of the member base is even more marked after the recently realized enlargement of the original Fifteen by the twelve new member states.

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To monitor regional differences in economic level, gross domestic product per capita expressed in purchasing power parity is used as an indicator which is also suitable for international comparisons, since it addresses issues of the effects of price levels and exchange rates. In analysing the clusters, we use the data from the database of the European Cluster Observatory. This electronic database includes comparable data on all 27 Member states of the EU, and concentrates only on those clusters with a high qualitative level.

1 Regional differences of the European Union

Specifically, in this chapter we will use the data on regional GDP of the European Statistical Office database, in order to ensure the comparability of the data for all 27 member countries. At the time of processing this chapter the latest data at disposal were those for 2007. A substantial issue in the assessment of regional disparities represents a selection of examined territorial units. In our analysis we will come out, for reasons of comparability, from the unified classification of territorial regions of the European Union, which divides the territory of all member countries into the so-called NUTS regions. Specifically, we will follow namely the units at NUTS 2 level.

Regional differentiation of the European Union belongs among intensively studied topics. It is not surprising that the economic level of the European Union varies not only across the countries, but also the regions. In addition, the differences persist in a long term and in some countries they even grow, representing an ongoing challenge for the makers of economic and regional policies.

The last two rounds of the enlargement of the European Union logically contributed to the widening of regional disparities. According to current statistics there are quite substantial differences among the European regions. The most advanced regions of the European Union at the NUTS 2 level exceed the frontier 200% and more of the average GDP per capita of the European Union, but, by contrast, the least-developed regions of the jnew member states reach from 20 to 30% of the average GDP per capita of the enlarged European Union (EU 27). Gross domestic product per capita in London is more than twelve times higher than that in the Severozapaden in Bulgaria.

The 15 most advanced and least developed regions of the European Union. The first three places in terms of GDP per capita levels are occupied by Inner London (303% of the average of EU_27), Luxembourg and Brussels (the two regions reach about 250% of the EU_27 average). Further follow the regions Hamburg, Prague and Paris conurbation (Ille de France).

Still, the central part of the EU remains the pentagon - the area framed by five points: London, Hamburg, Munich, Milan and Paris. However, there is a gradual drop in the dominance of the region. The most advanced regions are more scattered in an area of the European Union (the examples are such regions in Ireland, the Scandinavian countries or Vienna).

Table 1: EU regions with highest and lowest GDP per capita (PPP), 2007

Region	**EU–27 =100**	**Region**	**EU–27 =100**
Inner London (UK)	334	Észak-Magyarország (HU)	40
Luxembourg (LU)	275	Nord-Vest (RO)	40
Bruxelles (BE)	221	Lubelskie (PL)	37
Hamburg (DE)	192	Podkarpackie (PL)	37
Praha (CZ)	172	Észak-Alfföld (HU)	36
Ile de France (FR)	169	Lubelskie (PL)	33

Southern & Eastern Scotland (UK)	166	Sud-Est (RO)	34
Groningen (NL)	165	Sud-Muntenia (RO)	34
Oberbayern (DE)	165	Severoiztochen (BG)	32
Stockholm (SE)	165	Yugoiztochen (BG)	31
Wien (AT)	163	Sud-Vest Oltenia (RO)	31
Bratislavský kraj (SK)	160	Yuzhen tzentralen (BG)	27
Berkshire, Buckinghamshire, Oxfordshire (UK)	156	Severen tzentralen (BG)	27
Bremen (DE)	159	Nor-Est (RO)	27
Darmstadt (DE)	158	Severozapaden (BG)	26

Source: EUROSTAT

Fifteen of the least-developed regions of the European Union come from only four countries - Bulgaria, Romania, Poland and Hungary. Their gross domestic product per capita is between 26 and 40% of the EU average. Regional underdevelopment is not only a problem for these countries. For the New EU Member States both the continuing regional disparities within individual states and also the global backwardness of those regions compared to the EU average are characterised (EU-27). Just four regions of the researched states achieve higher GDP/per capita than the EU average (Prague in the Czech Republic, Bratislava in Slovakia, Zachodna Slovenia and Közép-Magyarország in Hungary) and only seven regions go beyond the level of 75% of the EU average GDP/per capita (besides mentioned regions also Bucuresti in Romania, Mazowieckie in Poland and Střední Čechy in the Czech Republic), which is crucial for the classification among the most underdeveloped regions within the framework of the economic and social coherency policy of the EU. The GDP/per capita of the other regions fluctuates from 26% to 73% of the enlarged EU average.

The peripheral regions of the New EU member states are, conversely, to be found in geographically advantaged areas (this is from the point of view of proximity to the core areas of the EU). The nine least developed regions of the current EU are in only two countries - Bulgaria and Romania (e.g., Severozapaden, Severen Tzentralen a Yuzen tzentralen in Bulgaria; or, Nord-Est, Sud_muntenia a Sud-Vest Olstenia in Romania]. We can also find other backward areas in the Eastern borderlands of the new memberstates, which are significantly less attractive from the view of foreign investors. A typical examples of non-developed eastern regions are the regions of East Slovakia (Východné Slovensko) and Hungary (Észak-Alfföld and Észak-Magyarország) and primarily the areas of East Poland (Podkarpatskie, Podlaskie, Lubelskie and Warminsko-Mazurskie), where the proportion of employment in agriculture exceeds 30% and, moreover, there is only a low development of economic activities in industry and services, which supports the over-employment in the agricultural sector as well as its low productivity (Römisch and Ward, 2004: 96).

Underdeveloped regions with per capita GDP levels between 55-75% are located on the territory of the original EU_15 Member States, too. And that happens despite the long-term use of policy instruments of the economic and social cohesion in the European Union. This applies namely for French overseas territories (Guyana, Reunion and Guadeloupe), southern Italy (Sicily, Campania, Puglia), Portugal and Centro Notre, some of the new German Lands and selected areas of Spain, Greece and Great Britain.

When looking for crucial trends of regional differentiation, we find that in all countries EU_15 a large part of differences in regional prosperity results from the concentration of economic activity and growth in the vicinity of major cities. Even in countries where differences in the period decreased or remained constant, per capita GDP in capitals grew faster than in other regions. An exception in this respect is only Berlin, which as the only capital city in the EU is making a lower economic level than the national average and also its development in the last decade was substandard in the national comparison.

Favourable development of major cities is strongly associated with their attractiveness for business and for the people. In 2004 the regions with the capitals produced on average 32% of the given country's GDP. Polarization of the main cities brings some advantages such as economies of scale and agglomeration of businesses and market size. However, there are also some clear disadvantages, such as traffic congestion, poorer air quality and higher property prices. Only in four countries there are other strong centres of growth, which offset the regions of major cities. These are Barcelona in Spain, the centres in northern Italy - Milan and Turin, the region of Utrecht in the Netherlands and the developed areas of Germany - Munich, Frankfurt and Hamburg. Berlin and Rome are not even the most advanced areas of the country (European Commission, 2007).

In other countries the region with the capital tends to dominate. In France and Great Britain, Paris and London contribute to gross domestic product by almost one third, while the other major centres only by around 3-4% (such as Lille, Marseille, Birmingham, Manchester or Glasgow). Significantly dominant position of the central region can be found in Belgium, Greece and Austria. Brussels achieves almost 250% of the average level of the EU_27 and the least developed region of Hainaut in Belgium, by contrast, less than 80%. In Austria, Vienna excesses 177% of the EU average and Burgenland makes less than 80%. In principle all member countries of the European Union, however, show enormous differences between the most and least developed region. (Eurostat, 2008)

As another important feature of regional differentiation in the EU one can name the dichotomy of the centre-periphery, which is reflected in lower economic levels of the regions that are from geographically distant core regions. As an example one can state the new European Union Member States (especially Hungary, Slovakia and Poland), where the eastern border regions achieve lower economic development than those bordering the developed Members. In this context, we can also name the regional differentiation in Italy, Spain and Nordic countries.

2 Clusters in the EU

Most expert studies carried out on the basic requirements of regional clusters agree. The concentration of firms, as a rule, is defined within the framework of the same, or similar, economic branch, which works inside the frame of a narrow (small) geographical space. In order to statistically underpin the clusters, we need, of course, a concrete definition of the region and a detailed set of conditions expressing the agglomeration of firms. In this regard, there has not been, to date, any single approach put forward. We can find a whole host of methods for measuring and evaluating clusters.

In our analyses we use the data from two renowned international institutions. One is the evaluation of cluster development according to the World Economic Forum, and above all, the concrete information on the clusters' development from the database of the European Cluster Observatory. Both institutions provide different types of data on clusters. The database of the European Cluster Observatory includes comparable data on all 27 member states of the EU, and concentrates only on those clusters which are on a qualitatively high level. In order to ascertain the quality of the branch speciality and agglomerations, the so called star classification is used, according to which clusters can gain one, two or three stars. Three stars are seen as the highest achieveable evaluation.

The following are the qualifying criteria:

- *The size* of the cluster is set by its overall employment rate. To gain stars it is necessary for the employment rate in the cluster belongs among the highest in the frame of the European clusters under examination. Stars are awarded to only 10% of clusters with the highest employment rate.
- *Specialisation* is set according to the specialisation coefficient, which is done like so:

$$\frac{\text{Employment rate in the branch category/overall employment in the region}}{\text{Employment in the branch category in the EU/overall employment in the EU}}$$

In the case that the resulting coefficient value reaches 2, or more, the cluster gets a star.

- *Dominance* is expressed on the basis of the share which the cluster has of total employment in the given region. Stars are awarded to the 10% of clusters with the highest share within the frame of the sample under examination.

According to the recent data of the European Cluster Observatory, clusters represent a significant phenomenon in the economic environment of the EU. According to the star classification there exist about two thousand of clusters, which operates more than a third of all employees within the EU. The employment rate of clusters varies according to the European regions, with the maximum of about 70% and the minimum of about 20%. The highest number of clusters that have received in the reviews of the European Cluster Observatory at least one star can be found in the Italian regions of Lombardy, Veneto, Emilia-Romagna, in the Spanish region of Catalonia, in the Paris agglomeration, in the German areas of Oberbayern, Dusseldorf, Stuttgart and Karlsruhe but also in Romanian regions Centre and Sud-Muntenia (the European Commission, 2007a: 8-13).

Table 2: Clusters of services in the European union

Regional cluster	Employment	Stars
Financial Services		
Île de France (Paris), FR	426 596	***
Inner London, UK	254 760	***
Lombardia (Milan), IT	174 101	**
West-Nederland (Amsterdam), NL	157 810	**
Darmstadt (Frankfurt am Main), DE	135 793	***
Madrid, ES	117 019	**
Düsseldorf, DE	105 996	**
Oberbayern (München), DE	100 173	**
Cataluña (Barcelona), ES	97 597	**
Stuttgart, DE	94 021	**
Business Services		
Île de France (Paris), FR	215 845	**
Inner London, UK	186 696	***
West-Nederland (Amsterdam), NL	123 420	**
Outer London, UK	105 373	***
Vlaams Gewest, BE	91 853	**
Lisboa, PT	87 506	***
Lombardia (Milan), IT	81 512	*
Berks, Bucks and Oxon (Oxford), UK	73 865	***
Düsseldorf, DE	70 237	**
Oberbayern (München), DE	68 923	**
Hospitality and Tourism		
Andalucía (Sevilla), ES	89 366	**

Île de France (Paris), FR	84 560	*
Canarias (Tenerife), ES	82 099	***
Cataluña (Barcelona), ES	80 649	*
West-Nederland (Amsterdam), NL	64 876	*
Madrid, ES	58 912	*
Ireland, IE	56 346	**
Inner London, UK	53 781	*
Lombardia (Milan), IT	53 282	*
Valencia, ES	50 083	*

Source: European Cluster Observatory on-line http://www.clusterobservatory.eu/index.php?country_ID).

Largest clusters in the tertiary sector (as measured by total employment) were found in financial services, business services, education and in hospitality and tourism. The largest clusters of financial services can be found in developed regions of the Old Member States (EU_15), such as London, Paris, Darmstadt, Amsterdam, Athens, Lombard, etc. In the framework of the New Member States shows concentration of financial services only central regions (Mazowieckie, Praha, Bratislava).

Table 3: Industrial clusters in the European union

Regional cluster	**Employment**	**Stars**
Automotive		
Stuttgart, DE	136 353	***
Piemonte (Turin), IT	85 915	***
Oberbayern (München), DE	82 339	***
Braunschweig, DE	79 997	***
Cataluña (Barcelona), ES	74 086	*

Île de France (Paris), FR	61 351	*
Lombardia (Milan), IT	51 631	*
Vlaams Gewest, BE	46 084	*
Västsverige (Gothenburg), SE	42 832	***
Karlsruhe, DE	40 694	***
Chemical		
Rheinhessen-Pfalz (Mainz), DE	40 075	***
Lombardia (Milan), IT	33 528	*
Cataluña (Barcelona), ES	30 645	*
Düsseldorf, DE	25 248	**
Vlaams Gewest, BE	21 937	**
Rhône-Alpes (Lyon), FR	20 361	**
Darmstadt (Frankfurt am Main), DE	16 250	**
Köln, DE	15 928	**
Zuid-Nederland (Maastricht), NL	14 946	*
West-Nederland, NL	14 825	*
Biopharma		
Île de France (Paris), FR	47 493	**
Lazio (Rome), IT	21 990	**
Darmstadt, DE	16 459	**
Kozep-Magyarorszag HU	14 197	**
Centre (Orléans), FR	13 960	**
Karlsruhe, DE	13 207	**
Mazowieckie (Warszawa), PL	11 522	**
Berlin, DE	10 350	**

Stockholm, SE	10 325	**
Tübingen, DE	9 650	**
Textile		
Lombardia (Milan), IT	91 468	**
Cataluña (Barcelona), ES	52 885	*
Norte (Porto), PT	51 205	***
Nord-Est (Iasi), RO	45 786	***
Centru (Brasov), RO	38 378	***
Piemonte (Turin), IT	35 914	**
Veneto (Venice), IT	32 153	*
Vlaams Gewest, BE	31 583	*
Toscana (Florence), IT	29 943	**
Valencia, ES	27 376	*

Source: European Cluster Observatory on-line
http://www.clusterobservatory.eu/index.php?country_ID)

The largest clusters of business services providers also found mainly in the so-called Pentagon's most advanced regions of the European Union, which includes mainly the regions of northern Italy, western Germany, Benelux, northeastern France, Austria and Great Britain. High employment in the tourism cluster is evident mainly in the areas of the Mediterranean countries (Italy, Spain, Greece, Portugal, Cyprus and Malta) and also in large conurbations (London, Paris, Amsterdam, etc.). Significant knowledge-based clusters are found mainly in the regions of Great Britain, Scandinavian countries and in developed areas of Western European countries.

Industrial agglomerations with the highest number of employees occurring in the automotive, pharmaceutical, chemical and clothing industries. Agglomeration of automotive industry are mainly in German regions, northern Italy, northern Spain, western Austria, western France, southern England and southern Sweden. Many automotive clusters formed in the 90´s also served in the new EU Member States, in western and central Hungary, in the west of the Slovak Republic and particularly in the Northeast region and Central Bohemia, the Czech Republic. The largest number of clusters in the chemical industry operates in Belgium, the Netherlands and Germany. Apart from those countries are major clusters, which employ more than 10 thousand. Workers still in northern Italy, Catalonia and in Lyon, France.

Concentration of biotechnology and pharmaceutical industries are typical for France, Germany, Denmark, Italy, northern and central regions and major cities in Sweden, Poland and Hungary. Although the sectors of clothing and textile industry are not on the continent of dynamic sectors, show a relatively large concentration of employment in the cluster. The largest of them are located in regions of Southern Europe (mainly Portugal, Italy, Bulgaria, Romania and Spain) and in Poland and the Baltic countries.

Conclusions

The economic level of the European Union varies not only across the countries, but also the regions. In addition, the differences persist in a long term and in some countries they even grow, representing an ongoing challenge for the makers of economic and regional policies. The relatively large differences in economic level between the central regions and peripheral areas persist in a number of new and the original European Union countries, despite the effects of national policies regional policies as well as the policy of economic and social cohesion of the EU. Moreover, some regions (mainly urban agglomerations or geographical advantage localized regions) are undoubtedly in a better competitive position in the globalized economy. (Ušiak, Dolinec, 2010)

The last two rounds of the enlargement of the European Union logically contributed to the widening of regional disparities. According to current statistics there are quite substantial differences among the European regions. The most advanced regions of the European Union at the NUTS 2 level exceed the frontier 200% and more of the average GDP per capita of the European Union, but, by contrast, the least-developed regions of the new member states reach from 20 to 30% of the average GDP per capita of the enlarged European Union (EU 27). Gross domestic product per capita in London is more than twelve times higher than that in the Severozapaden in Bulgaria.

When looking for crucial trends of regional differentiation, we find that in all countries of the EU 15 a large part of differences in regional prosperity results from the concentration of economic activity and growth in the vicinity of major cities. As another important feature of regional differentiation in the EU one can name the dichotomy of the centre-periphery, which is reflected in lower economic levels of the regions that are from geographically distant core regions.

As an example one can state the new European Union Member States (especially Hungary, Slovakia and Poland), where the eastern border regions achieve lower economic development than those bordering the developed Members.

Balanced development and cohesion in the EU is a significant issue, though. Complete elimination of economic and social inequalities under the existing external and internal conditions of the European economy is not possible or it would not be economically efficient. Regional, national and European actions should therefore continue to look for optimal tools to maintain a balanced regional development and solving serious structural problems by strengthening the competitive position of regions in the national but also global environment (e.g. through investing in infrastructure, increasing the attractiveness of the region to foreign and domestic firms, promoting the improvement of business environment, making the research and innovative potential more efficient, through the intensification of network and cluster cooperation of companies, etc.).

The importance of clusters for regional economic competitiveness is confirmed both by theoretical concepts of regional development and the current strategic documents at regional, national and EU level. Their importance grows in the context of globalization of world economy. Despite the unifying effect of globalization, there are still between countries and regions substantial differences in terms of specialization, competitiveness and industrial dynamics. Competitive industries and industrial clusters can maintain their successful position despite the efforts of other organizations to imitate their actions.

The area of the European Union is characterized by relatively strong sectoral concentration. Within regional clusters there work more than a third of all employees. However, there are still relatively large differences between Member States and regions. Moreover, there is an apparent gap in relation to the United States and other developed economies in terms of the levels of clustering the economy and also with regard to the number of innovation-oriented clusters.

The emergence and development of clusters is driven primarily by market factors and we can, based on the analysis made in the surveyed countries, state that qualitative development in the advanced economies cannot do without the concentrated support at the national and subsequently at the regional level. Implemented policies can have a positive effect on the potential of the cluster. We therefore continue to consider it positive to develop various forms of cluster policies and instruments at the national and EU level.

The form of cluster instruments will be strongly influenced not only by national but also by the Union's strategies. For the future within the EU a selective support of selected clusters of excellence (the so-called world-class clusters) is planned. The same is true about a stimulation of cross-border outreach and the cooperation within the European Union. Globally competitive clusters, supporting a high degree of specialization of European economies should be created. Greater emphasis will be also placed on the measurement of the performance and efficient management of clusters. A uniform procedure for quality management and certification clusters is being prepared. The attention will be also paid at the efficient use of grant funds for the development of clusters.

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