

COHESION OF THE EUROPEAN REGIONAL SPACE

Marek Proniewski

Faculty of Economics and Management

University of Białystok

Warszawska 63, 15-062 Białystok: Poland

marek.proniewski@uwb.edu.pl

Abstract. The purpose of the EU cohesion policy is to reduce disparities at the level of economic, social and spatial development of the underdeveloped regions. The Europe 2020 Strategy establishes more growth- and innovation-oriented investments. The main objective of this paper is to analyze and evaluate the differences and dynamics of the EU regions at the NUTS 2 level, characterized by the selected variables in the economic, social and territorial accessibility (transport infrastructure) area to determine the clusters of different levels of disparities in the EU regions (HDI) and transport infrastructure as well as to examine their interdependence. Calculations were based on statistical data acquired from Eurostat databases. The results confirm a distinctively clear inequality of economic development in the European regional space between Central and Eastern Europe as well as Northern and Western Europe regions, with the highest growth of dynamics identified in the regions of the countries that joined the EU in 2007 and 2004. The analysis also identifies the European regions with a high level of spatial cohesion (accessibility) and validates the thesis about the presence of interdependence between the EU regional development and spatial cohesion (accessibility) of the regions.

Keywords: European Union, economic, social, spatial cohesion, regional development, HDI, transport infrastructure.

Introduction

Socio-economic development of the European regional space varies territorially. The European Commission has already recognized the need for the use of cohesion policy in reducing economic and social disparities in spatial accessibility. However, years of experience in this field show that despite supporting the underdeveloped regions with the EU funds, these are still undergoing regional divergence process. Therefore, the current regional development policy is focused, in the light of the Europe 2020 Strategy, on greater support to pro-innovation, pro-growth and knowledge-based economy investments.

In this paper, the following objectives are addressed:

- analysis and evaluation of the differences and dynamics of regional development of the EU regions at the NUTS 2 level, characterized by selected variables from the economic, social and spatial accessibility (transport infrastructure);

- determination of the difference level groups in the development of the EU regions according to the HDI;
- determination (k-means method) of the European region clusters based on the development level of transport infrastructure;
- elaboration of the interdependences between the HDI level and development of transport infrastructure in the regions using statistical methods.

The paper supports the thesis on presence of significant interdependence between the level of European Union regional development (HDI) and spatial cohesion (accessibility) of regions (variables characterizing the transport infrastructure).

The selected elements of disparities in regional space for each indicator are illustrated in the form of maps. The paper includes author's own calculations based on data acquired from Eurostat databases.

Dimensions of regional cohesion

The analysed issue has been widely discussed in the literature. The need for regional cohesion is present in the most important EU documents: Single European Act, Maastricht Treaty, Green Papers, and in recent publications, e.g. Europe 2020 Strategy and the Sixth report on economic, social and territorial cohesion of the European Commission. Cohesion has been also discussed by G. Gorzelak (2007), T.G. Grosse (2008) who adds the aspect of innovation to the issue of cohesion, D. Strahl (2003) and J. Szlachta (2011b), who discusses cohesion in the aspect of the financial crisis.

"Socio-economic cohesion" appeared in the Single European Act, stating the need to reduce the disparities in development of certain EU regions. The Maastricht Treaty of 1992 included a statement that the Community develops and continues the actions to strengthen its economic and social cohesion. The Treaty of Lisbon in 2007 added another dimension of cohesion – the territorial dimension. This territorial dimension of cohesion has been later widely discussed in the Green Paper on Territorial Cohesion and Territorial Agenda of the European Union 2020 and expressed as a set of rules for sustainable spatial development by adapting the developmental opportunities to the conditions prevailing in the area. The issue of cohesion in the territorial dimension is also presented by J. Zaucha and T. Komornicki (2010) and J. Szlachta (2011a) and G. Gorzelak (2009) and M. Proniewski (2012).

As the part of the ESPON programme, two projects – INTERCO and TERCO – related to the topic of cohesion were executed. The first one, INTERCO, referred to the measures of territorial cohesion, whereas the second one, TERCO, executed in cooperation with the EUROREG team and other European scientific institutions, addressed the impact of territorial cooperation on cohesion and development.

The concept of "cohesion" is used to determine the disparities between the regions and countries participating in the integration process and is defined as the degree of politically and socially accepted differences. However, cohesion becomes greater when the number of economic and social disparities between European regions is reduced.

Cohesion is described in three dimensions: economic, social and territorial. The concept of economic cohesion refers to the level of overall economic activity in the regions, measured using the GDP or economic aggregates as its variety. Social cohesion is defined as reduction of disparities in human capital among different areas and measured by the level of unemployment and the participation ratio

(measure that determines the percentage of total population that is either employed or is seeking employment). Territorial cohesion should be understood as a relative and dynamic category and “is a condition of spatial planning, which guarantees the improvement of economic and social cohesion”. It can determine the status of user’s satisfaction with the arrangement of space, (i.e.accessibility to) resource and demand values and values that co-create the living conditions (Position of Committee ... 1998). Territorial (spatial) cohesion is measured by travel time to the area by air, road and rail and sometimes by the number of consumers who can be simultaneously reached. Therefore, the growth of territorial (spatial) cohesion is also understood as eliminating barriers in accessing the peripheral regions through a better interrelationship with central areas of the Community.

Economic cohesion

Measurement of regional disparities in terms of economic cohesion is presented as GDP per inhabitant at current prices in PPS (Fig. 1).

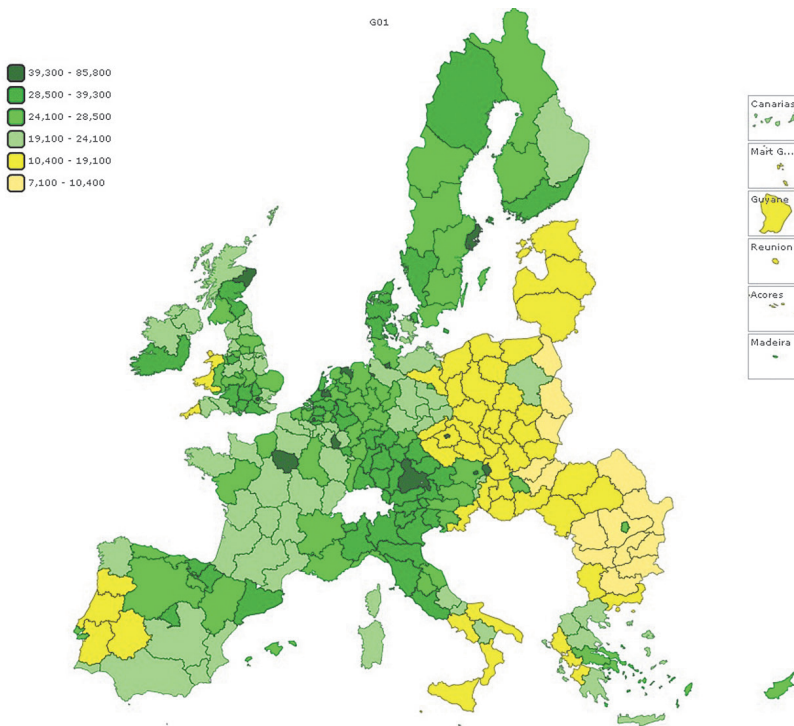


Figure 1. GDP at current prices measured by purchasing power standards per inhabitant in 2008
Source: author’s own study, based on Eurostat database.

The results show very clear disparities in the European regional space. The wealthiest regions selected on the basis of the diagnostic variable included the UK’s Inner Region and Luxembourg, where the analyzed index was registered at the level of EUR 85 800 and 70 000 in 2008. By comparison, the lowest delivered value was measured in the Bulgarian region Severozapaden, in which

the analyzed diagnostic variable reached EUR 7 100. Clusters of areas in which the index reached its lowest values in Europe are worth noticing. These regions include: Polish, Romanian, Bulgarian, Italian and Portuguese regions, followed by Lithuania, Latvia and Estonia.

The average level of the variable was 24480.9, whereas the middle level (median) reached 24100. This variable varied, what was confirmed by the coefficient of variation equal to 37.6%. GDP Distribution displayed very strong right-side asymmetry, which means that vast majority of the regions characterized by GDP level at current prices placed itself below the average.

Analysis of the territorial cohesion diversity in terms of economic dynamics of GDP per capita calculated by PPS reveals clear disparities between EU regions (Fig. 2).

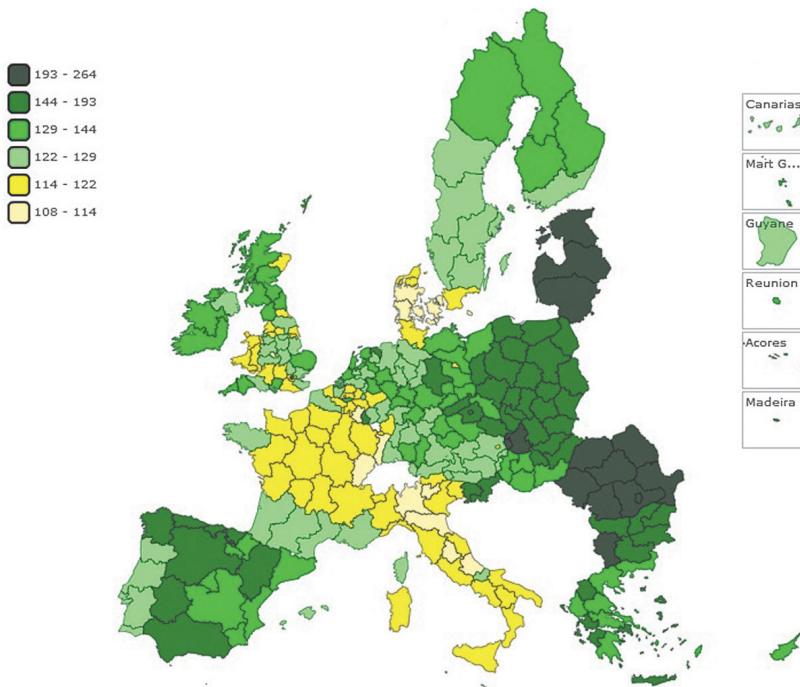


Figure 2. Dynamics of changes in GDP per inhabitant at current prices measured by purchasing power standards in 2000-2008

Source: author's own study, based on Eurostat database.

It should be noted that the highest growth rate of this variable was concentrated in the regions that joined the EU in 2007 and 2004. In the group of regions with the highest observed growth rate (at a level exceeding 193%) all regions of Romania, the region of South-West Bulgaria, Lithuania, Latvia, Estonia and Západné Slovensko region in Slovakia were identified.

Social cohesion

Social cohesion was measured by long-term unemployment rate and employment rate among people aged 15-64 in % (Fig. 3).

Analysis of spatial distribution of long-term unemployment rate defining the conditions of the regional labour market shows a clear disparity in the European space. In 2008, the highest diagnostic value of this variable exceeding 7.5% was recorded on the Italian island of Sardinia and in certain parts of Germany and Slovakia. Equally high values of this index characterized the French overseas regions: French Guiana, Réunion and Martinique, classified as the most distant regions of Europe.

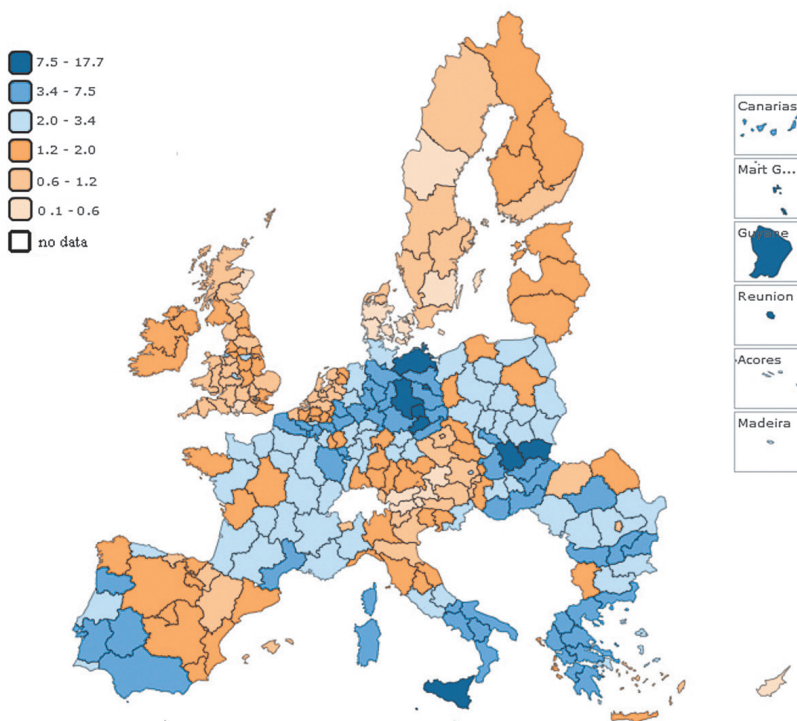


Figure 3. Disparities in the level of long-term unemployment rate in % in 2008
Source: author's own study, based on Eurostat database.

Average long-term unemployment rate (KL01) in the studied regions was 2.64%, however featured strong diversity indicated by the value of coefficient of variation that was equal to 75%. Positive skewness factor indicates also that vast majority of regions characterized by long-term unemployment rate was below the average. Median of this variable accounted for 1.99, which means that half of the regions reached the level of long-term unemployment rate not exceeding 1.99%.

By analyzing the spatial distribution of long-term unemployment at the regional level it can be seen that during the period (2008/2000) the highest growth rate of this variable (at a level exceeding 197%) was recorded in the regions of Portugal (Centro Norte and the Autonomous Region of Madeira Archipelago), 3 regions in Austria (Burgenland, Lower Austria and Vorarlberg), 4 provinces of the Netherlands (Drenthe, Gelderland, North Brabant and Zeeland), Luxembourg and the county of Lincolnshire in Eastern England (Fig. 4).

The lowest level of dynamics of changes in diagnostic variable (less than 26%) was observed in the region of South-West Bulgaria, Spain (in the regions of Cantabria, Principality of Asturias and

Madrid), Lithuania, Latvia, Sweden (Norrland and ÖvreMellersta Norrland). There were also four Polish voivodeships in this group: Mazowieckie, Warmińsko-Mazurskie, Lubuskie and Pomorskie with the ratio at the level of 24.53%, 24.17%, 22.72% and 21.06%, respectively.

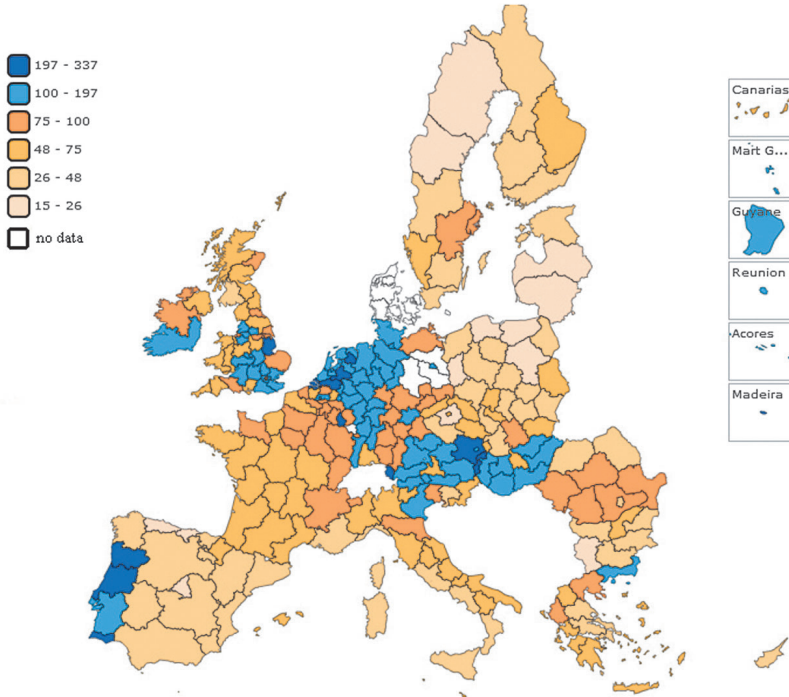


Figure 4. Dynamics of changes in long-term unemployment rate in 2000-2008

Source: author's own study, based on Eurostat database.

The employment rate displays fairly significant spatial variation of this phenomenon (Fig. 5).

The regions in which the employment rate among people aged 15-64 was very high can be distinguished easily. The regions where this variable exceeded 77% include the Netherlands, Germany, Sweden and the UK. The Åland Islands of Finland also belong to this category.

The average rate of employment in the analyzed regions amounted to 66.35% with the median of 67%. The second measure indicates that in half of the regions the employment rate not exceeded 67%. The lowest employment rate was 42.5% and the highest 82.5%. Diversity of this variable was poor (coefficient of variation is 10.85%), and the skewness was moderate and left-side. This means that the employment rate in majority of the regions exceeded the average.

In terms of employment rate among people aged 15-64 years (%), it is worth noting that in most European regions in the period of 2008-2000 the recorded dynamics of changes was below 100%, which poses a downward trend in this area (Fig. 6).

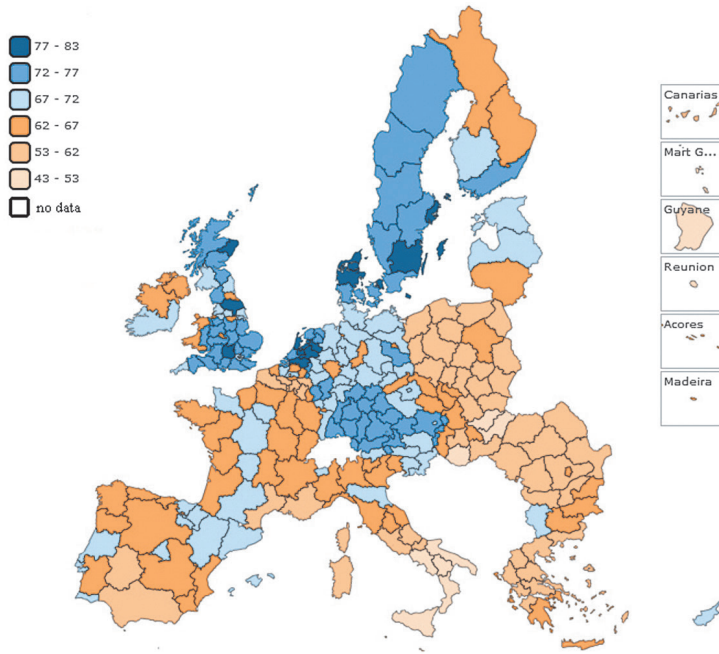


Figure 5. The level of employment rate among people aged 15-64 in% in 2008
 Source: author's own study, based on Eurostat database.

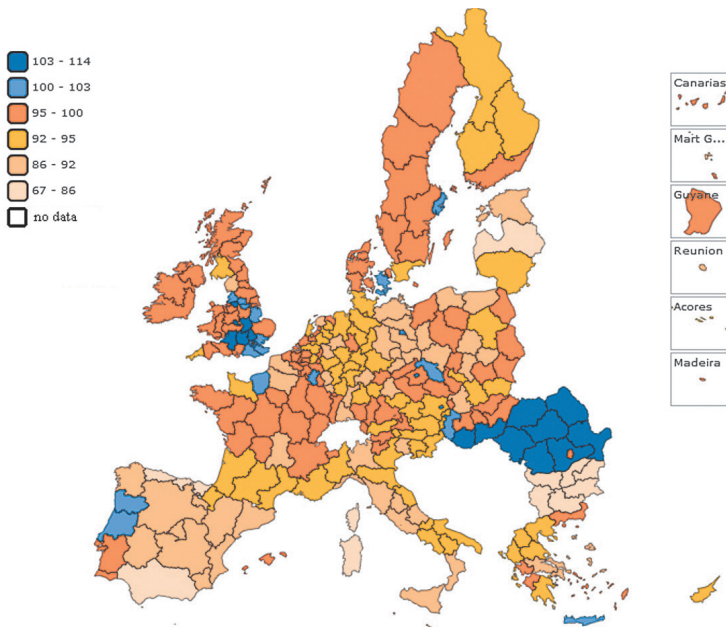


Figure 6. Dynamics of changes in employment rate among people aged 15-64 in% in 2000-2008
 Source: author's own study, based on Eurostat database.

The regions in which the analyzed index increased in 2008 when compared to the base year 2000 included: all the Romanian regions, with the exception of Bucharest-Ilfov region, three regions of Hungary, the Greek island of Crete, Centro and Norte regions of Portugal, the Austrian Land of Vienna, Belgian province – Luxembourg, German constituent country – Berlin, French region – Haute-Normandie, the Czech regions – Prague and Severovýchod, one Danish region – Zealand (Danish: Sjælland), Swedish Stockholm and several regions of the United Kingdom.

Spatial cohesion

Territorial (spatial) cohesion was measured using an index characterizing both condition and quality of transport infrastructure, assuming that the better saturation of space with highways, the better accessibility of the EU regions. The variable characterizing transport infrastructure of the EU regions was the length of highways in km per 1000 sq km. Highways affect the accessibility of European regions and cities and lack of them can be a factor limiting the development of the country and geographical regions.

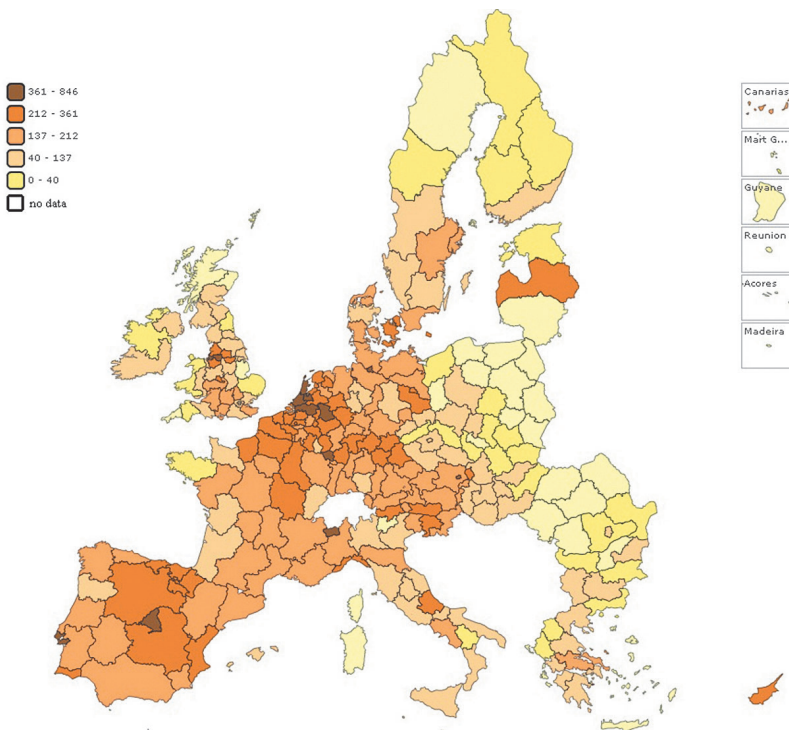


Figure 7. Length of highways (km per 1000 sq km – EU27 = 100)

Source: author's own study, based on Eurostat database.

Accordingly, in 2006-2009 the highest concentration (density) of highways characterized the regions of Germany, Belgium, the Netherlands and northern France. The highest value was recorded

in the Portuguese capital region – Lisbon (index of 846, if EU27 = 100). Other regions in the European space, particularly areas of Central and Eastern Europe reached much lower values.

The average level of the “length of highways” variable was 27.69 km per 1000 sq km with the middle level (median) of 21 km. High diversification of this variable was indicated by the coefficient of variation equal to 104.3%. Distribution of this variable had a very strong right-side asymmetry. This means that highway length in vast majority of regions was below the average.

The analysis of spatial variation measured by the increase in the length of Europe’s highways was also p (Fig. 8).

The analysis shows that the regions with the highest growth rate in length of highways (at a level above 250%) were the ones of Ireland, Hungary, Slovakia, Romania, two Polish provinces – Łódzkie Voivodeship and Wielkopolskie Voivodeship, where the analyzed variable accounted for 410% and 406.25%, respectively. It is worth mentioning at this point, that the analysis excluded a number of European regions due to problems with the availability of data¹.

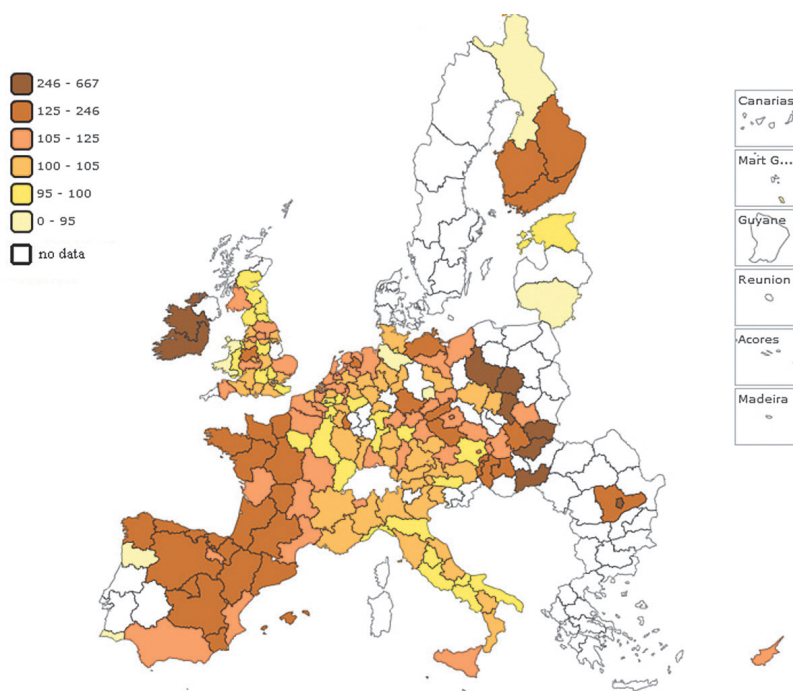


Figure 8. Dynamics of changes in length of highways in the analyzed period

Source: author's own study, based on Eurostat database.

¹ Due to the unavailability of data for some regions of the EU for the period 2000-2008, the dynamics of changes analysis was based on 232 regions of the EU, for which all variables describing the transport infrastructure were available. The regions excluded from the analysis are: 11 regions of Germany, 5 French regions, all regions of Greece and Portugal, Malta, Latvia and one Italian region.

Synthetic approach to regional cohesion of the European Union (Human Development Index)

The HDI ranks regions in three dimensions: “a long and healthy life”, “knowledge” and “decent standard of living”. For its measurement the following indices were used:

- life expectancy,
- mean years of schooling among people aged 25 and older,
- expected years of schooling for children starting the learning process,

Gross National Income per capita in U.S. dollars, calculated by purchasing power standards of the currency (\$ PPS).

Analysis of the regions in terms of the HDI level was completed for 267 regions. Four regions of France: Guadeloupe, Martinique, Guyane and Réunion, for which HDI data were not available were excluded from the ranking procedure. As a result, all regions were divided into four groups. Assuming that HDI is a synthetic measure, to distinguish the four groups of regions the basic parameters: arithmetic mean and standard deviation were used (A. Zeliaś, 2000)

$$\text{Group I: } x_i \in \langle \bar{x} + S_x; \max\{x_i\} \rangle$$

$$\text{Group II: } x_i \in \langle \bar{x}; \bar{x} + S_x \rangle$$

$$\text{Group III: } x_i \in \langle \bar{x} - S_x; \bar{x} \rangle$$

$$\text{Group IV: } x_i \in \langle \min\{x_i\}; \bar{x} + S_x \rangle$$

The division into groups of regions depending on the level of socio-economic development is shown in Table 1 and their spatial distribution on Figure 9.

Table 1. Types of socio-economic development level in the analyzed EU regions

Socio-economic development	Level of the indicator	No. of regions
Unusually high	<80,86; 100,00>	27
Typical, higher than the average	<60,44; 80,86)	142
Typical, lower than the average	<40,02; 60,44)	49
Unusually low	<0; 40,02)	49
Total		267

Source: author's own study, based on Eurostat database.

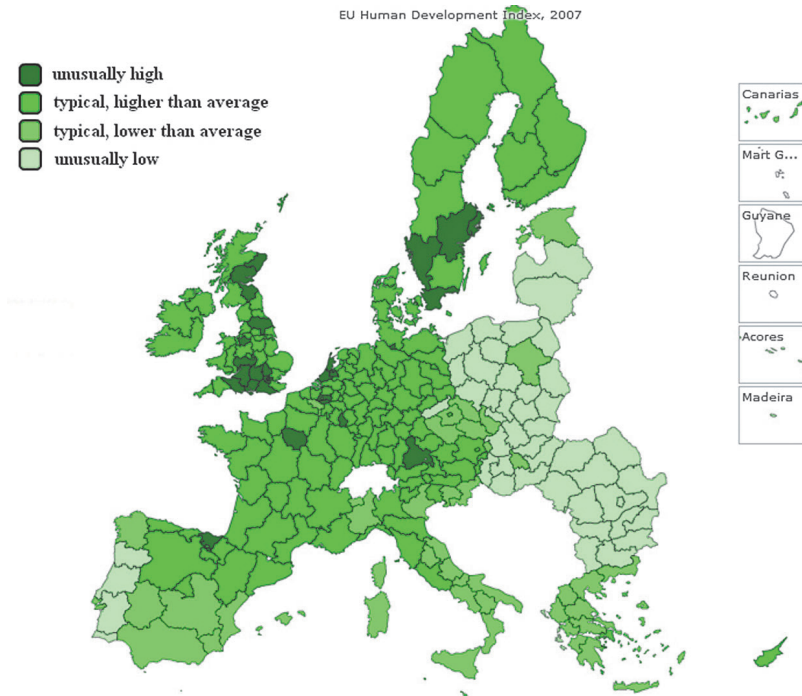


Figure 9. Levels of regional development by HDI
Source: author's own study, based on Eurostat database.

When compared with the other regions, 27 were of unusually high level of socio-economic development (Tab. 2). This group included Luxembourg, half of the regions of Sweden, 35% in the UK, 25% of the regions of the Netherlands, 18% of the regions of Belgium, 5% of the regions of Germany and one region in Spain and France each.

Table 2. EU regions with an unusually high level of socio-economic development

Country	Region	% of analyzed regions
Belgium	Prov. Vlaams-Brabant	18%
	Prov. Brabant Wallon	
Germany	Oberbayern	5%
	Hamburg	
Spain	País Vasco	5%
France	Île de France	5%
Luksembourg	Luxembourg	100%
Netherlands	Utrecht	25%
	Noord-Holland	
	Zuid-Holland	
Sweden	Stockholm	50%
	Östra Mellansverige	
	Sydsverige	
	Västsverige	
Great Britain	Cheshire	35%
	North Yorkshire	
	Herefordshire, Worcestershire and Warwickshire	
	Bedfordshire and Hertfordshire	
	Inner London	
	Outer London	
	Berkshire, Buckinghamshire and Oxfordshire	
	Surrey, East and West Sussex	
	Hampshire and Isle of Wight	
	Gloucestershire, Wiltshire and Bristol/Bath area	
	Dorset and Somerset	
	Eastern Scotland	
	North-Eastern Scotland	

Source: author's own study, based on Eurostat database.

Unusually low levels of socio-economic development were recorded in 49 EU regions (Tab. 3). This group included all regions of Bulgaria, Romania, Lithuania and Latvia. The regions with the lowest levels of HDI included 94% of the Polish regions (Mazowieckie Voivodeship was the only one excluded from the group) and 86% of regions in Hungary and the same percentage of regions in Portugal. In addition, among the least developed regions in terms of socio-economic development, 75% of the regions in Slovakia, 25% of Czech regions and one region of Greece were identified.

Table 3. EU regions with an unusually low level of socio-economic development

Country	Regions	% of analyzed regions
Bulgaria	Severozapaden	100%
	Severentsentralen	
	Severoiztochen	
	Yugoiztochen	
	Yugozapaden	
	Yuzhentsentralen	
Czech Republic	Severozápad	25%
	Moravskoslezsko	
Greece	IoniaNisia	8%
Hungary	Közép-Dunántúl	86%
	Nyugat-Dunántúl	
	Dél-Dunántúl	
	Észak-Magyarország	
	Észak-Alföld	
	Dél-Alföld	
Lithuania	Lietuva	100%
Latvia	Latvija	100%
Poland	łódzkie	94%
	Małopolskie	
	Śląskie	
	Lubelskie	
	Podkarpackie	
	Świętokrzyskie	
	Podlaskie	
	Wielkopolskie	
	Zachodniopomorskie	
	Lubuskie	
	Dolnośląskie	
	Opolskie	
	Kujawsko-Pomorskie	
	Warmińsko-Mazurskie	
Pomorskie		

Country	Regions	% of analyzed regions
Portugal	Norte	86%
	Algarve	
	Centro (PT)	
	Alentejo	
	Região Autónoma dos Açores (PT)	
	Região Autónoma da Madeira (PT)	
Romania	Nord-Vest	100%
	Centru	
	Nord-Est	
	Sud-Est	
	Sud – Muntenia	
	Bucuresti – Ilfov	
	Sud-Vest Oltenia	
	Vest	
Slovakia	Západné Slovensko	75%
	Stredné Slovensko	
	Východné Slovensko	

Source: author's own study, based on Eurostat database.

HDI ratio variation range is between 0 and 100. For the 267 analyzed regions the average level was 60.44. Most regions reached a level in the range of 60 to 80. Half of the regions' index did not exceed 67.75, which was indicated by the level of the median, and value of HDI ration for 25% of the regions did not exceed 46.92, whereas 25% of the regions with the highest levels of HDI had a value of at least 74.70.

Interdependences between the level of regional development and transport infrastructure

In the partitioning of regions in terms of HDI, four categories were identified. To determine the interdependence between HDI and variables describing the area of transport infrastructure k-means method was used. It enabled assigning the analyzed number of regions to a predetermined number of categories. In this case, the specified number of categories is 4, and k-means method allowed grouping the regions into four categories (clusters), so that in each category the regions were most similar to each other in terms of transport infrastructure². To the diagnostic variables for transport infrastructure, in addition to the length of highways in km per 1000 sq km, the length of roads in km per 1000 km² and the number of victims of road accidents per 1 million inhabitants (2007-2009) were included. The clusters will differ the most between each other in terms of transport infrastructure.

² Due to unavailability of data for all EU regions, the analysis was based on 232 regions of the EU, for which all variables describing the transport infrastructure were available. The regions excluded from the analysis are: 11 regions of Germany, 5 French regions, all regions of Greece and Portugal, Malta, Latvia and one Italian region.

Table 4 summarizes the cluster elements selected with the k-means method and division according to HDI.

Table 4. Comparison of the division of regions by transport infrastructure and HD level

Cluster	HDI				Total
	unusually low	typical, lower than average	typical, higher than average	unusually high	
1	0	0	7	5	12
2	0	2	28	5	35
3	3	24	90	12	129
4	36	9	11	0	56
Total	39	35	136	22	232

Source: own author's study, based on Eurostat database.

Vast majority of elements in the first cluster were the regions with an unusually high level of socio-economic development and typical however higher than the average level of socio-economic development. The second cluster included mainly regions with a typical level of socio-economic development but higher than the average level. Cluster number three included the highest number of regions. It grouped the ones highly diversified in terms of infrastructure. In the fourth cluster the regions of low socio-economic development were collected (Fig. 10).

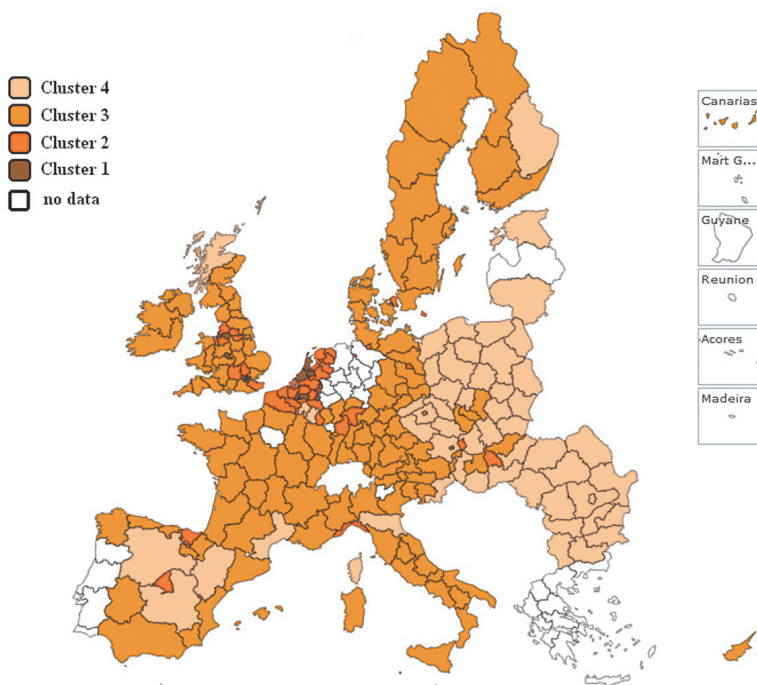


Figure 10. Clusters of regions similar in terms of transport infrastructure

Source: author's own study, based on Eurostat database.

Regions from the first cluster presented the highest levels of variables describing road infrastructure (road length and length of highways indicators) and the lowest rate of victims in road accidents. In other words, it could be assumed that the cluster consisted of the most developed regions in terms of transport infrastructure. The cluster regions included 31% of regions in the Netherlands, 18% of the Belgian regions, 14% of the British regions and one Austrian region.

Regions included in the second cluster were characterized by relatively high levels of length of roads and highways per 1000 sq km. However, the indicator values were slightly lower comparing to those in the first cluster. The number of victims in road accidents in the region was quite low, but higher than the average level in the first cluster. Therefore, it could be concluded that the regions in the second cluster were the territorial units with good transport infrastructure. These included 64% of the regions in Belgium, 62% of Dutch regions, 19% of the regions in UK and 18% of German regions. In addition, the cluster included two Spanish regions, Luxembourg and one region of Denmark, France, Hungary, Italy and Slovakia.

Cluster number three was the broadest category of regions with the levels of diagnostic variables close to the average levels of all regions in terms of transport infrastructure in the EU regions. Therefore, it could be concluded that the regions from the third cluster were characterized by a medium level of development of transport infrastructure. The group of regions with a medium level of transport infrastructure development consisted in the majority of regions of Austria (78%), Germany (82%), Spain (74%), Finland (60%), France (86%), Italy (90%) and United Kingdom (62%). In addition, all regions of Ireland and Sweden and half of the regions in Slovenia and Cyprus were included into the third cluster. The cluster covered also one Polish region (Śląskie Voivodeship) and 38% of the regions in Czech Republic and 29% of Hungarian regions.

The fourth cluster consists of the regions with the poorest condition of transport infrastructure. It is reflected by the average levels of all diagnostic variables. These regions depicted the lowest length of roads and highways rates, accompanied with the highest number of victims of road accidents rate. The fourth cluster consisted of all regions of Bulgaria and Romania, Estonia, Lithuania, and vast majority of regions in Poland, Slovakia, Czech Republic and Hungary. In addition, the regions of the least developed transport infrastructure include also two regions of Belgium, Spain, Finland, France, and one region in Austria, Italy, Slovenia and UK.

The clusters were partitioned using k-means method, whereas the groups were identified by HDI consisting in similar regions. This confirms the presence of interdependence between HDI level and development of transport infrastructure in the EU regions.

Conclusions

The results confirm a distinctively clear disparities and inequality of economic development in the European regional space between the regions of Central and Eastern Europe as well as of Northern and Western Europe. The regions were characterized by selected economic, social and spatial variables at NUTS 2 level. The highest growth dynamics is identified in the regions of the countries that joined the EU in 2007 and 2004.

The level of socio-economic development of the regions measured by HDI (Human Development Index) showed (with the exception of four regions of France: Guadeloupe, Martinique, Guyane and Réunion) specific differentiation for the 267 regions. The number of regions with unusually high

level of socio-economic development was 27 (HDI level above 80.86), i.e. Luxembourg, half of the regions in Sweden, 35% in the UK, 25% of the regions in the Netherlands, 18% of the regions of Belgium, 5% of the regions of Germany and one region of Spain and France each. Number of regions with unusually low level of socio-economic development amounted to 49 (HDI levels below 40.02). In the group with an unusually low level of socio-economic development there were all regions of Bulgaria, Romania, Lithuania and Latvia included. The regions with the lowest levels of HDI index consisted in 94% of Polish regions (with the exception of the Mazowieckie Voivodeship) and 86% of the regions of Hungary and the same percentage of the regions in Portugal, 75% of the Slovakian regions, 25% of Czech regions and one Greek region.

The analysis indicates the European regions with high level of spatial cohesion (accessibility) and validates the thesis about the presence of interdependence between the EU regional development and the variables describing transport infrastructure, such as length of highways in km per 1000 sq km, length of roads in km per 1000 sq km area and number of victims in road accidents per 1 million inhabitants. The results of analysis enrich the theory of development of regions of the European Union and can be used in preparation of sustainable development policy.

References

- Agenda Terytorialna Unii Europejskiej 2020*, 2011. www.vati.hu/territorialagenda/TA2020_PL.doc [1 October 2015].
- Gorzela G., 2007. *Polityka spójności Unii Europejskiej: od entuzjazmu do wątpliwości*. Opolskie Roczniki Ekonomiczne, vol. 17, Opole: Polskie Towarzystwo Ekonomiczne.
- Gorzela G., 2009. *Uwagi nt. dokumentu UE „Green Paper on Territorial Cohesion Turning territorial diversity into strength* [in:] A. Baucz, M. Łotocka, P. Żuber (eds.) *Spójność terytorialna wyzwaniem polityki rozwoju Unii Europejskiej*. Polski wkład w debatę, Warszawa: Ministerstwo Rozwoju Regionalnego.
- Grosse T.G., 2008. *Czy polityka spójności może być bardziej innowacyjna?* Samorząd Terytorialny, vol 6. INTERCO, 2011. Indicators of territorial cohesion.
- ESPON, https://www.espon.eu/export/sites/default/Documents/Projects/ScientificPlatform/Interco/INTERCO_DFR_Main-Report.pdf [1 October 2015].
- European Commission, 2014. *Inwestycje na rzecz wzrostu gospodarczego i zatrudnienia. Szósty raport na temat spójności gospodarczej, społecznej i terytorialnej*. http://ec.europa.eu/regional_policy/sources/docoffic/official/reports/cohesion6/6cr_pl.pdf, [1 October 2015].
- Proniewski M., 2012. *Rozwój regionów peryferyjnych w Unii Europejskiej*. Białystok: Uniwersytet w Białymstoku.
- Strahl D., 2003. *Spójność ekonomiczna regionu Dolnego Śląska, Vedecka Pojednani – Wissenschaftliche Abhandlungen*, Prace Naukowe, Liberec, vol. IX.
- Szlachta J., 2011a. *Polityka Spójności Unii Europejskiej po kryzysie* [in:] Z. Strzelecki (ed.) *Gospodarka regionalna Polski wobec globalnego kryzysu gospodarczego*, Warszawa: SGH.
- Szlachta J., 2011b. *Spójność terytorialna traktatowym wymiarem polityki strukturalnej Unii Europejskiej*. Prace i materiały instytutu rozwoju gospodarczego, Warszawa.
- Szlachta J., 2012. *Strategia Europa 2020 a europejska polityka spójności po 2013*. http://kolegia.sgh.waw.pl/pl/KAE/struktura/IRG/publikacje/Documents/pim88_9.pdf [1 October 2015].

- TERCO, 2012. *European Territorial Co-operation as a Factor of Growth, Jobs and Quality of Life, Main Report*. ESPON, http://www.esponterco.eu/media/raporty/terco_final_report_main_report.pdf [1 October 2015].
- Zaucha J., Komornicki T., 2010. *Spójność terytorialna, jako proces integrowania polityki rozwoju wobec terytorium*, Sopot: Instytut rozwoju http://www.instytut-rozwoju.org/WP/IR_WP2014_03.pdf [1 October 2015].
- Zielona księga w sprawie spójności terytorialnej*, 2008. Bruksela http://ec.europa.eu/regional_policy/archive/consultation/terco/paper_terco_pl.pdf [1 October 2015].

