Spatial Analysis of NUTS 2 Regions Based on Competitiveness Factors and Their Regional Variability

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Abstract

Globalisation makes international competitiveness a key concern in regional development. Bringing together different development factors which illustrate single aspects of competitiveness gives a first impression of the overall regional competitiveness of European regions and shows the diversity that exists within the EU territory. Specialisation within regional markets is often regarded as a development strategy to achieve international competitive advantage. Identification of suitable potentials and specialisation has to be built upon detailed local knowledge. From this point of view, the main aim of the paper is to introduce important factors of regional competitiveness within the EU28 NUTS 2 regions, and illustrating the diversity of regions and different aspects of development in reference period 2004-2012. These aspects have nature of input, i.e. sources of competitiveness and output, i.e. outcomes of a competitive society and economy. Identification of suitable potentials and specialisation has to be built upon detailed local knowledge. Territorial potential is analysed by looking at the socio-economic specialisations of regions, encompassing key factors of competitiveness using multivariate methods of Factor Analysis and then by Cluster Analysis, the EU28 NUTS 2 regions are classified to homogeneous units (clusters) according to the similarity of selected competitiveness factors and their spatial variability. Discussion of regional competitiveness focuses mainly on economic strength, labour market and innovation. These factors are aspects of a region's territorial capital and illustrate the potential to respond to challenges of the integrated market. Specialisation within regional markets is often regarded as a development strategy to achieve international competitive advantage.

Key words: Cluster analysis, competitiveness, development, EU, factor analysis, NUTS 2 region

JEL Classification: C38, R11, R15, Y10

1 Introduction

European Union (EU) is a heterogeneous unit with significant disparities between its Member States and mainly among their regions. The support of cohesion and balanced regional development together with increasing level of EU national and regional competitiveness belong to the temporary *EU's key development objectives*. The process of European integration is thus guided by striving for two different objectives: to foster economic competitiveness and to reduce national/regional differences. Nowadays enlarged EU present area with unbalanced territorial allocation of economic activities resulting in different living standard, what has a negative effect on balanced development across the whole EU and on the endowment for EU competitiveness.

Close affinity with spatial planning policy and developmental spatial perspective in the EU has the EU Cohesion Policy that is mostly known as discrete policy with a set of specific instruments or Funds purposing to reduce disparities (Bachtler, Mendez and Wishlade, 2013). Cohesion Policy has an important role in enhancing of regional competitiveness and prosperity. From the long-term perspectives, regional competitiveness requires paying attention not only to economic but also to social and environmental factors, in recent years especially to territorial characteristics of areas – *cohesion* and *competitiveness* are thus partly *complementary EU goals* (Molle, 2007). In the EU, emerging and re-emerging differentiating dimensions are combined; these dimensions are associated with the EU enlargement on the one hand and with the recent crisis impact of the other hand. This leads not only to transformation of economic stratification of society, but also to uneven manifestations and impacts of economic activities in European area. As a result of spatially selective effects of economic processes is then the newly forming spatial differentiation of the EU. The analysis of spatially located data is one of the basic concerns of the geographer and is becoming increasingly important also in many other fields. With spatial data we can meet in many other fields, e.g. economics and sociology where knowledge from spatial data analysis is often used in empirical analysis of regional disparities and territorial development; see e.g. (Soares, Margues and Monteiro, 2003; Melecký, 2012 or Hančlová, 2013). *Competitiveness measurement* and *evaluation* at any level of territorial development is associated with the lack of integrated approaches and methodologies in the EU. From this point of view, the *aim of this paper* is to identify the key factors, which contributed to territorial competitiveness among 272 NUTS 2 regions in the reference period 2004-2012 and to define structurally similar spatial NUTS 2 regions based on EU *Regional Competitiveness Index* (RCI) indicator database and approach. Sophisticated research methods that can contribute to competitiveness measurement and evaluation represent multivariate methods that are frequently used in this research area; see e.g. (Zivadinovic, Dumicic and Casni, 2009; Žižka, 2013)). Within this paper, the application of multivariate methods (factor analysis and cluster analysis) is introduced in the topic of competitiveness in EU28 NUTS 2 regions. This paper is based on the approach used in previous author's research paper (Melecký, 2013) that has been target on evaluation of factors of national competitiveness in the EU27 Member States and cluster comparison of evaluated EU countries by cluster analysis. The main contribution of presented paper is extended analysis of the factors of competitiveness at the regional level.

2 Theoretical Background of Competitiveness

In the EU, the process of achieving an increasing trend of performance and a higher level of competitiveness is significantly difficult by the heterogeneity of countries and regions (in many areas). The concept of competitiveness in the EU is specific regarding the inclusion of elements of European integration that goes beyond the purely economic parameters. The economy may be competitive but if the society and the environment suffer too much the country will face major difficulties, and vice versa. Therefore governments in the long run period cannot focus alone on the economic competitiveness of their country; instead they need an integrated approach to govern the country and focus on the broadest aspects affecting competitiveness and thus efficiency, as mentioned e.g. Staníčková (2013a, 2013b). Competitiveness in the level of regional performance is a major obstacle to the balanced and harmonious development of the regions, but also of the whole territory. Analysis of competitiveness brings the important information about

the key problematic issues in region (and thus in country) on the one side and its development and competitive potential on the other side. Contributions from cities, regions and larger territories are important for Europe's position in the world and thus for the achievement of the aims set out in European growth strategies aiming on competitiveness, i.e. the Lisbon strategy for period 2000-2010 and the Strategy Europe 2020 for period 2010-2020. These growth strategies were and still are aimed to make Europe the world's leading knowledge-based economy, based on the principle of sustainable development. But actions are needed at all levels of government – European, national and regional/local levels – if these ambitions are to be realized. Europe's global competitiveness depends on a multiplicity of actions that can optimize the potentials within its regions, cities and rural areas.

Increasing the competitiveness of Europe and its regions is one of the main aims of the EU. This involves focusing on growth and jobs, as well as growing the necessary preconditions for the future mainly in terms of a Knowledge Based Economy and Information Society. Only a certain type of regions appears to be really successful with regard to the EU strategies. However there are also examples of other types of areas which are performing well with regard to economic development. The key to success seems mainly to lie in the active use of territorial potentials for the development of economic functions across a wider area, and support through national policies. Territories have diverse potentials and challenges and entail the long term structures that shape living and working conditions now and for future generations. Territories matter for the competitiveness and cohesion of Europe, for sustainable development and for European citizens and businesses (ESPON, 2006). All territories possess development opportunities. However, to make sound policy decisions requires evidence, knowledge and understanding of the position of regions and cities both within Europe, and also globally.

2.1 Concept of Competitiveness

Competitiveness remains a concept that can be understood in different ways and levels despite widespread acceptance of its importance. The concept of competitiveness is distinguished at three different levels – *microeconomic, macroeconomic and regional*. There are some differences between these approaches. In original meaning the concept of competitiveness was applied only to companies and corporate strategies, this concept thus corresponds to *microeconomic approach* to competitiveness. Competitiveness of companies is derived from the main sources of competitiveness – the competitive advantage which companies gained through their methods of organization, production and effect on the markets in comparison to their rivals, and covers the company's ability to maintain its market position (Porter, 2003). The need for a theoretical *definition of competitiveness at macroeconomic level* emerged with the development of globalization process in the world economy as a result of increased competition between countries. Despite that, growth competitiveness of the territory belongs to the main priorities of countries' economic policies and competitiveness is monitored characteristic of national economies, there is not a standardized definition and understanding of *national competitiveness*. One of the most common interpretations understood national competitiveness as the ability to produce goods and services in the country that are able to successfully face international competition, and people can enjoy a growing and sustainable living standards (Krugman, 1994). In last few years the topic about *regional competitiveness* stands in the front of economic interest. Current economic fundamentals are threatened by the shifting of production activities to places with better conditions. Within governmental circles, interest has grown in the *regional foundations of national competitiveness*, and with developing new forms of regionally based

policy interventions to help improve the competitiveness of every region and major city, and hence the national economy as a whole. In the global economy regions are increasingly becoming the drivers of the economy *and regions thus play an increasingly important role in the economic development of states* (Melecký and Nevima, 2011).

2.2 Evaluation of Competitiveness

Competitiveness evaluation is also a main issue of economic research, which also lacks a mainstream approach, so there is space for alternative approaches. Evaluation of competitiveness in terms of differences between countries and regions should be measured through complex of economic, social and environmental criteria that can identify imbalance areas that cause main disparities. Currently not only quantitative but also qualitative development at the national level, and especially at the regional level, increase socio-economic attraction and create new opportunities that are fundamentals for subsequent overcoming disparities and increasing the competitiveness of the territory. Competitiveness is most commonly evaluated by *decomposition of aggregate macroeconomic indicators*. Competitiveness of countries is monitored by many institutions. To compare a level of competitiveness of countries it can be used the databases performed by *Institute for Management Development* (IMD) and *World Economic Forum* (WEF). Competitiveness of the European Union (EU) can be measured also by indicators of *EU' growth strategies* (Lisbon strategy – Structural indicators, Strategy Europe 2020 – Indicators of Europe 2020) or by *macro-econometric modeling* with creation of an econometric panel data model; see e.g. (Hančlová, 2013; Melecký and Nevima, 2011). Furthermore there is continuity between the approach of EU and WEF in *EU Country/Regional Competitiveness Index* (Annoni and Kozovska, 2010; Annoni and Dijkstra, 2013) that is used in following empirical analysis.

3 Empirical Analysis of Regional Competitiveness Factors Using Multivariate Methods

3.1 Fundamental Basis of Empirical Analysis

The empirical analysis, based on Factor analysis (FA) and Cluster analysis (CA), starts from building database of indicators that are part of a common approach of WEF and EU in the form of *Regional Competitiveness Index* (RCI) created by Annoni and Kozovska (2010) in 2010, and then updated by Annoni and Dijkstra (2013). This index shows the strengths and weaknesses of each of the 272 EU NUTS 2 regions. It covers a wide range of issues related to territorial competitiveness including innovation, quality of institutions, infrastructure (including digital networks) and measures of health and human capital. The RCI is based on eleven pillars describing both inputs and outputs of territorial competitiveness, grouped into three sets describing basic, efficiency and innovative factors of competitiveness. The terms '*inputs*' and '*outputs*' are meant to classify pillars into those which describe driving forces of competitiveness, also in terms of long-term potentiality, and those which are direct or indirect outcomes of a competitive society and economy.

The RCI data file consists of 66 indicators in 2010, and 73 indicators in 2013. All RCI indicators are not used in the paper, because they were not available for each evaluated region in specified reference period 2004-2012, which is divided in three milestones, i.e. year 2004 characterize the biggest enlargement in EU history, year 2008 is possible to consider as beginning of recent crisis

period and 2012 presents the last year of data availability of post crisis period. Data set of RCI indicators consists of 23 indicators – 6 for inputs and 17 for outputs. Only this set of indicators has been available for all 272 NUTS 2 regions in three reference years in database of the European Statistical Office, the World Bank, Euro barometer, the Organization for Economic Co-operation and Development and the European Cluster Observatory. Set of initial indicators and their labels relevant to FA and CA are listed in Table 1.

Tab. 1 RCI Indicators relevant to Factor and Cluster analysis

Dimension	Indicators
Inputs	(1) Motorway Transport - Length of Motorways (MTLM), (2) Air Transport of Freight (ATF), (3) Air Transport of Passengers (ATP), (4) Hospital Beds (HB), (5) Infant Mortality Rate (IMR), (6) Early Leavers from Education and Training (ELET)
Outputs	(1) Employment Rate 15 to 64 years (ER), (2) Long-term Unemployment Rate (LtUR), (3) Unemployment Rate (UR), (4) Male Employment (ME), (5) Female Employment (FE), (6) Male Unemployment (ME), (7) Female Unemployment (FU), (8) Gross Domestic Product (GDP), (9) Compensation of Employees (CoE), (10) Employment in Sophisticated Sectors (EISS), (11) Human Resources in Science and Technology - Core (HRSTcore), (12) Patent applications to the EPO (EPO), (13) Total R&D Expenditure (GERD), (14) Human Resources in Science and Technology (HRST), (15) High-tech Patent Applications (HTI), (16) ICT Patent Applications (ICT), (17) Biotechnology Patent Applications (BioT).

Source: Own elaboration based on RCI Approach (Annoni and Dijkstra, 2013), 2014

Calculation and classification of competitiveness factors in EU28 NUTS 2 regions has been based on research procedure displayed in Table 2. For elaboration of the practical part of this paper, the software *IBM SPSS Statistics 22* and the table processor *Microsoft Office Excel 13.*

Tab. 2 Procedure of regional competitiveness factors analysis

Pre-processing phase – Input data analysis
Collection of indicators » Data analysis of indicators » Groups of indicators for input and output
Factor analysis
Z-Score matrix » Correlation » Method of main components » Input factors » Output factors » Set of new composite indicators » Factor description
Cluster analysis
Hierarchical cluster analysis » Ward's method » Cluster description

Source: Own elaboration, 2014

3.2 Results of Regional Competitiveness Factors by Factor Analysis

FA conclusive only if the set of initial variables tied sufficiently strong mutual correlations. Based on Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and the Bartlett's Test, it is possible to say that initial database for years 2004-2008-2012 has been convenient for procedure of FA (see Table 3). Level of KMO is 0.769 indicating very good values of sample. This result also confirmed the Bartlett's sphericity test, the null hypothesis states that the various variables set depend on each other. Due to the resulting significance level of the test (significance), which is much lower than the limit value (0.05), this hypothesis may be rejected and the data declared applicable for FA.

Tab. 3 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**.769**
Bartlett's Test of Sphericity	Approx. Chi-Square	26074.291
	df	253
	Sig.	**.000**

Source: Own calculation and elaboration, 2014

The next step in FA is to determine the number of factors *k*. To determine the number of factors *k* has been used *Principal Component Analysis* (PCA), which is the most commonly used, and the number factors *k* is determined by the following criteria:

- Eigenvalue criterion = search *k* according to the number of eigenvalues of the correlation matrix is greater than one;
- Percent variance criterion = *k* is the number of factors that explain in the social sciences more than 60-70% of the variability of the original variables;
- Cattel index criterion (Scree plot) = search *k* according to the faults according to the curve.

The following Table 4 generated eigenvalues and percentage of variance explained for indicators. Table 4 shows that the fulfillment of the first and second criteria are valid in the case for *k = 6* in years 2004-2008-2012 and this result was confirmed also in Scree plot (see Figure 1). Six factors explains the 78.522 % of the original variance indicators.

Tab. 4 Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.487	36.901	36.901	5.702	24.790	24.790
2	3.362	14.619	51.520	3.760	16.346	41.136
3	2.142	9.315	60.835	3.025	13.152	54.288
4	1.600	6.958	67.793	2.291	9.962	64.250
5	1.440	6.261	74.054	1.718	7.471	71.721
6	**1.028**	4.468	78.522	1.564	6.801	**78.522**

Source: Own calculation and elaboration, 2014

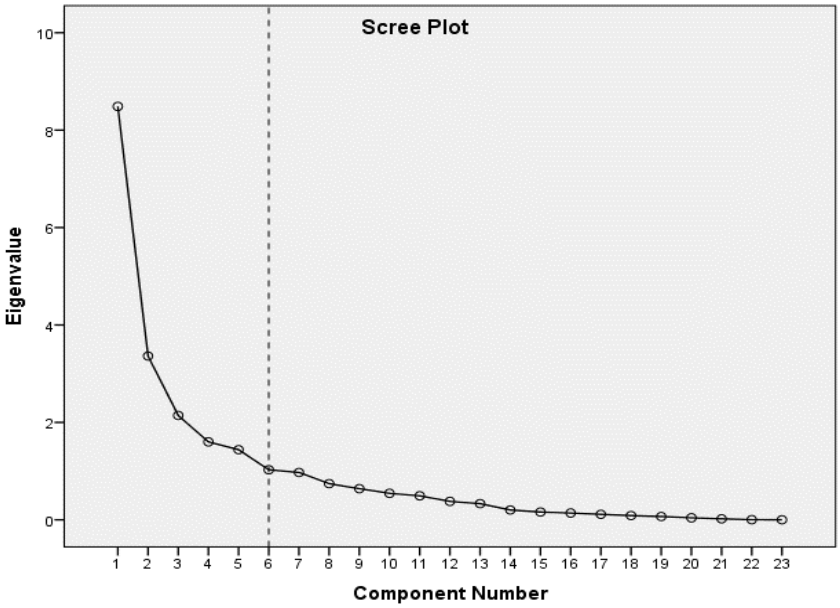

Fig. 1 Scree Plot of Cattel Index Criterion
Source: Own calculation and elaboration, 2014

When the number of factors is established, it is possible to determine the factor loadings. By application of PCA method and rotation method of normalized *Varimax* to set of indicators in years 2004-2008-2012 has been provided an estimate of the factor matrix, also called the matrix of factor loadings. Table 5 shows the factor loadings for each original indicators and factors. Factor loadings can be interpreted as correlation coefficients between the indicators and firmly specified number factors. The optimum is when each original indicator strongly positively or negatively correlated with one factor and with other factors in a minimum, which is met. Based on these values can be identify and name new factors. For the interpretation of factors, the relevant indicators are those whose factor loadings exceeded the value of 0.4 (Stevens, 2002). In Table 5, responsibility of the indicators to the relevant factor for years 2004-2008-2012 is indicated by gray background and there is six factors consist of 23 indicators. *Factor 1 – Labor Market Efficiency* consists of seven indicators related with labor market, i.e. UR, MU, LtUR, FU, ME, ER15to64 and FE. Part of *Factor 2 – Innovation* are five indicators describing level of innovation and patent application in an region, i.e. HTI, ICT, EPO, BioT and GERD. Four indicators like HRST, HRSTcore, IMR and GDP belong to *Factor 3 – Innovation, Market Size and Health*. *Factor 4 – Infrastructure* consists of two indicators related with infrastructure, i.e. ATP and ATF. Into *Factor 5 – Business Sophistication, Market Size and Infrastructure* belong three indicators EiSS, CoE and MTLM and these are related with quality of employment and infrastructure. Part of *Factor* 6 – *Health and Education* are two indicators, i.e. HB and ELET. Based on the values of factor loadings is possible to say that the most importance for performance of EU NUTS 2 regions have *Factor 1 – Labor Market Efficiency* and *Factor 2 – Innovation,* resp. included indicators in these factors. These results are not surprising because efficiency of labor market and thus human sources together with their quality and level of innovation and educated labor force have the highest effect on performance of NUTS 2 regions, especially nowadays when all countries aiming at knowledge and innovation based economy.

Tab. 5 Rotated Component Matrix

Factors	Indicators	Component					
		1	2	3	4	5	6
Factor 1 Labor Market Efficiency	Zscore(UR)	,968	-,097	-,011	-,037	-,018	-,101
	Zscore(MU)	,940	-,071	,016	-,005	-,032	-,016
	Zscore(LtUR)	,927	-,097	-,091	-,048	-,043	,014
	Zscore(FU)	,921	-,126	-,048	-,082	-,010	-,224
	Zscore(ME)	-,843	,184	,299	,008	,047	-,190
	Zscore(ER15to64)	-,807	,245	,411	,033	,002	,012
	Zscore(FE)	-,688	,262	,448	,052	-,033	,173
Factor 2 Innovation	Zscore(HTI)	-,128	,909	,145	,052	,115	,062
	Zscore(ICT)	-,170	,901	,109	,007	,183	,070
	Zscore(EPO)	-,276	,824	,202	,015	,249	,146
	Zscore(BioT)	-,071	,639	,322	,240	-,137	,032
	Zscore(GERD)	-,212	,592	,437	,042	,119	,159
Factor 3 Innovation, Market Size and Health	Zscore(HRST)	-,153	,311	,777	,239	,024	,239
	Zscore(HRSTcore)	-,114	,295	,773	,157	-,117	,080
	Zscore(IMR)	,145	-,055	-,645	,168	-,255	,161
	Zscore(GDP)	-,285	,405	,611	,207	,134	-,145
Factor 4 Infrastructure	Zscore(ATP)	-,039	,080	,074	,880	,210	-,064
	Zscore(ATF)	-,080	,083	,084	,861	-,075	,024
Factor 5 Business Sophistication, Market Size and Infrastructure	Zscore(EiSS)	-,024	,039	,015	,473	,758	,077
	Zscore(CoE)	-,041	,188	,259	,520	,697	-,002
	Zscore(MTLM)	-,016	,221	,009	-,226	,590	-,032
Factor 6 Health and Education	Zscore(HB)	-,018	,159	-,189	,000	,090	,799
	Zscore(ELET)	,140	-,079	-,282	,031	,086	-,787

Source: Own calculation and elaboration, 2014

The last step of FA is the calculation of factor score expressing the degree of effect of specific factors in the individual EU NUTS 2 regions. The values of factor scores for each NUTS 2 region are needed because factor scores are input variables for clustering EU NUTS 2 regions to homogenous group with the help of CA.

3.3 Regional Cluster Profile by Cluster Analysis

Due to the exploratory nature of the processed FA, hierarchical clustering method is used in agglomerative direction, i.e. Ward's method based on optimizing the homogeneity inside the clusters and minimizes scattering inside the clusters. As the degree of similarity Squares Euclidean Distance is selected. Based on a matrix of mutual distances or similarity measures between all EU NUTS 2 regions these regions begin at each step (iteration) gradually shape clusters. After each step must be matrix of distances recalculated. The whole process of clustering from separate clusters representing different regions to a summary one cluster aggregating all evaluated regions in period 2004-2008-2012, summarizing Table 6. One of the main criteria determining the number of clusters is based on an increase in the sum of squared deviations of all cluster points of its diameter, called sudden jump analysis. At the moment such an increase occurs, there is also a sudden increase of information loss, which is a sign that the clustering is no longer appropriate to continue. The number of clusters in this step should thus be

theoretically optimal. These sums for each iteration can be found in the following Table 4 (with respect to the extent of the paper only till the optimum stage), of which the most important are the coefficients providing an overview of the number of clusters that need to profile from a practical point of view, while the search for such optimal number of clusters in which has a coefficient biggest change, i.e. the optimal number of clusters for 272 EU NUTS 2 regions in years 2004-2008-2012 is *15 clusters*.

Tab. 6 Agglomeration Schedule

Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	256	528	,009	0	0	764
2	188	189	,017	0	0	321
3	238	240	,018	0	0	18
4	115	390	,023	0	0	41
5	148	149	,025	0	0	42
6	738	740	,025	0	0	122
7	158	161	,029	0	0	72
8	244	245	,030	0	0	169
9	510	512	,031	0	0	37
10	352	354	,032	0	0	113
11	784	787	,033	0	0	114
12	111	383	,033	0	0	605
13	460	461	,035	0	0	62
14	75	350	,037	0	0	28
15	107	114	**,047**	0	0	57

Source: Own calculation and elaboration, 2014

Graphical representation of the clustering process is called Dendrogram (tree diagrams), from which decay into clusters is particularly evident (Dendrogram is not displayed in the paper because of limited range of contribution) and transparently recorded sequential clustering of EU NUTS 2 regions in individual clusters, while highlighting the optimal number of clusters for the whole evaluated period 2004-2008-2012. The vertical axis of dendrogram entered 272 EU NUTS 2 regions Member States, the horizontal axis represents the number of lost information in the various stages of the process. Clustering should be stopped before the horizontal segments of dendrogram start significantly extended. With regard to the criteria of agglomeration schedule and dendrogram, the optimal number of clusters is *thus determined at 15 clusters* in period 2004-2008-2012. *Cluster 1, Cluster 2, Cluster 3* and *Cluster 4* are created from 14 EU NUTS 2 regions which belongs to the highest developed European regions. These regions have also the best values in determined factors of competitiveness. It is not surprising that these regions are from the old EU Member States (EU15 countries), resp. from ones of the best performed EU economies, i.e. Germany, Netherland, Finland and Sweden. *Cluster 5* consists of 16 EU NUTS 2 regions which belongs to the lowest developed European regions. Most of these regions are from the group of EU15 countries – predominantly Spain, Greece, Portugal, but also Belgium and Germany what confirms high level of disparities within the EU Member States. *Cluster 6* consist of 14 EU NUTS 2 regions which also belongs to the lowest developed European regions. These regions are from the group of new EU Member States (EU13 countries), i.e. Bulgaria, Romania, Hungary which are ones of the low developed European countries. In Cluster 6 are also some regions from Slovakia and Poland. *Cluster 7* consists of 191 EU NUTS 2 regions which belongs to the average developed European regions, both from the group of EU15 and EU13 countries.

With respect to the number of NUTS 2 regions which belong to old and new EU Member States, it is evident that most of the regions are part of EU15 countries. Both between group of EU15 and EU13 countries are huge disparities, also among regions within old and regions within new EU Member States are huge disparities in factors of competitiveness having impact on their grouping in clustering. *Cluster 8* consists of 27 EU NUTS 2 regions which belongs to the lowest developed European regions, and structure of this group is very similar like Cluster 5. Most of these regions are predominantly Portugal, Spain and Greece but they recorded better results in factors of competitiveness than regions in Cluster 5. *Cluster 9* consists only from two Italian regions which are also the ones of the lowest developed regions within EU15 countries. *Cluster 10, Cluster 11, Cluster 12, Cluster 13, Cluster 14* and *Cluster 15*, each of these clusters consist of only of one EU NUTS 2 region and these regions are from the group of old EU Member States. These results confirm especially the facts about huge disparities among EU15 countries.

4 Conclusions

Differences in regional disparities are often the result of different local assumptions for concrete economic activities defining a specific adaptability requirement in different areas. There exist differences in the ability of areas to absorb these requirements and to develop implementation environment for the economic activity. For this reason, it is useful to examine the spatial characteristics of competitiveness. Evaluation of competitiveness can be performed only if it is used existing concept of this term or selected mainstream. Because of the fact that there is no mainstream in competitiveness evaluation, we can find the space for alternative approach in this area. The paper presents the results of regional competitiveness analysis that brings together different selected competitiveness indicators illustrate single aspects of competitiveness gives a first impression of the overall competitiveness of all 272 EU NUTS 2 regions and shows the diversity that exists within the EU territory. Based on Factor and Cluster analysis have been found out that in evaluated NUTS 2 regions there is a distinct gap between economic, social and mainly territorial standards. Therefore, EU regions have tended to be naturally grouped into homogeneous clusters that have separated from the other clusters. The significant differences in composition of competitiveness factors were noticed between regions in old EU Member States on the one side and regions in new EU Member States on the other side. Therefore, the significant disparities have persisted between EU15 and EU12 countries, and also within these groups of countries.

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