

CLUSTERS INFLUENCE ON COMPETITIVENESS. EVIDENCES FROM EUROPEAN UNION COUNTRIES

*Diana Claudia SALA¹
Mădălina Dumitrița MATICIUC²
Valentin Partenie MUNTEANU³*

ABSTRACT

Lately, The European Union has established a series of regulations supporting the evolution of clusters as a pillar in the development of the regional economy in order to increase companies and nations competitiveness. Also, Recent developments show that rapid diffusion of information in the present innovative environment could drive longer-term growth. With a particular role in creating relations between the public and private sectors, clusters have become a capable tool of increasing firms productivity. The purpose of this paper is to identify the presence or absence of a correlation between the development level of clusters within the European Union states and the competitiveness level of these states, measured by the Global Competitiveness Index (GCI). The study's object are the countries of Central and Eastern Europe because we noticed that their level of innovation and productivity is significantly behind the countries located in Western Europe.

KEYWORDS: *competitiveness, cluster, innovation*

JEL CLASSIFICATION: *P52, R11, R58*

1. INTRODUCTION

Although the literature is widely debated in developed countries where clusters have proven their positive effects on the national competitiveness and where models of good practice were developed, we consider necessary the analysis on developing countries too. Perhaps it is expected that the impact of clusters in these countries is not as significant as in many of the states that joined the European Union earlier, but the new European Union members have recently introduced the concept of cluster and for all that we consider it is necessary to know which is their current status. Camison claimed that cluster brings many advantages to its members, advantages unavailable to those who are not part of the cluster (Camison, 2003). However, there are authors like O'Malley and van Egeraat (2000) who contradict Camison by claiming and defending that there are no evidences showing that the economic development of the region is in direct relationship with the development level of clusters in the region (O'Malley & van Egeraat, 2000). This was the point from where we start our research because we want to know whose side we want to be, Camison or O'Malley and van Egeraat. In the first part of the paper we used a qualitative research, in order to make a literature review over the topics of clustering, competitiveness and innovation, followed by a quantitative research to emphasize the main ideas encountered in the literature and also those proposed by this paper. Thus we analyzed the data provided by the World Economic Forum in the Global Competitiveness Report 2015/2016 which ranks countries in terms of their competitiveness scores.

¹ West University of Timișoara, Faculty of Economy and Business Administration, Romania, diana.sala@e-uvt.ro

² West University of Timișoara, Faculty of Economy and Business Administration, Romania, madalina.maticiuc@e-uvt.ro

³ West University of Timișoara, Faculty of Economy and Business Administration, Romania, valentin.munteanu@e-uvt.ro

2. CONCEPTUAL FRAMEWORK

Over the last decade, European Union has focused on spatial organization of businesses and innovation elaborating policies at regional and national level to support clusters. A cluster is a form of spatial organization which supported local, regional and even national economies consolidation. Porter was the first who defined clusters as „geographic concentration of interconnected companies, specialized suppliers, service providers, firms in related industries and associated institutions (for example universities, standards agencies and trade associations) in a particular field that compete but also cooperate” (Porter, 1998).

As revealed from this definition, the geographic proximity of the companies operating in various industries offers favorable conditions for creating synergy effect and increasing the companies' performance.

The same idea is also supported by Preissl and Solimene who defined clusters as a group of interdependent organizations which contribute to innovation in a particular sector or in a particular industry (Preissl & Solimene, 2003).

Later, Tan and his colleagues argue that relations between companies in the cluster is based not only on cooperation but also on competition, so there are developed cooperation relations, the competition between companies generating a further innovation within the cluster (Tan, Shao, & Li, 2013).

This competitive intensity was presented by Michael Porter who has seen competition within the cluster as a way of increasing the productivity of firms. Being in the same geographical region, the companies are forced to fight for resources, intensifying competition for the clustered companies: „Clusters are not unique (...) therein lies a paradox: the enduring competitive advantages in a global economy lie increasingly in local things-knowledge, relationships, motivation-that distant rivals cannot match” (Porter, 1998).

Clusters affect competitiveness by increasing firms' productivity which they encompass increasing innovation capacity by disseminating knowledge of the cluster actors and creating a fertile environment for new business creation by supporting continuous innovation. For firms in traditional sectors, it is no longer sufficient to base competitiveness on know-how. Innovation is an „interactive process in which firms interact both with customers and suppliers and with knowledge institutions” (Vinding, 2002).

There is theoretical evidence suggesting that crowding as a business cluster brings positive effects not only for the public sector but for private companies too, companies exhibiting outstanding performances after integration within clusters.

The challenges facing companies at the global level are represented on the one hand by the need to increase competitiveness on the strength of globalization and on the other hand by the usefulness of networking with other representatives from the public and private environment to benefit from synergy effects of cooperation. According to Mulder (2001), the international competitiveness is linked with their innovative activities and with the inter-sectorial dispersion of the advanced knowledge (Mulder, 2001).

Regardless of how the clusters are called in literature, they present a set of characteristics and a fundamental area of interest, geographic proximity and the many interconnections that link between them which lead to competitive advantage. Moreover, these innovative forms of spatial organization are supporting the development of the region in which are located. Competitiveness is a very highly debated topic both at the company level and at the regional level. If in the first case it reflects a company's ability to grow and be profitable in a market with fierce competition (Martin, 2004), in the second one, at the macroeconomic level, competitiveness definition raises many discussions. At European level, in The Sixth Periodic Report on the Regions (1999) “competitiveness is defined as the ability to produce goods and services which meet the test of international markets, while at the

same time maintaining high and sustainable levels of income or, more generally, the ability of (regions) to generate, while being exposed to external competition, relatively high income and employment levels'."

The Global Competitiveness Report of the World Economic Forum defines competitiveness as "the set of institutions, policies, and factors that determine the level of productivity of a country".

In the spatial context, competitiveness „ is determined by a complex set of factors which focuses on: making the national potential more creative and innovative, making connections at the local level by stimulating the emergence and the consolidation of clusters, using the innovation and research potential and improving connectivity and accessibility" (Botezatu, Peleanu, & Cojanu, 2009).

Becoming a so often used term, competitiveness came to be monitored by numerous agencies. Over time, there were two institutes that have produced reports in which national competitiveness is measured, using a set of target indicators, namely The World Economic Forum which annually published Global Competitiveness Report and calculates The Growth Competitiveness Index and International Institute for Management Development in Geneva which publishes Competitiveness Index in World Competitiveness Scoreboard.

Porter was one of those checked the relationship between clusters and competitiveness by identifying 60 export-oriented clusters in the USA that their labor productivity showed two times higher than those who did not have this orientation. As can be understood from Porter's analysis, he considers productivity as the sole source for competitiveness.

On the other hand, there are studies elaborated by O'Malley and van Egeraat (2000) reflecting the opposite, namely, that there are companies that do not belong to a cluster and all of them are really globally competitive.

According to Porter, clusters have a direct impact on company's productivity, these entities representing links between government and private businesses. Since 1998 Porter argued the inclusion of cluster policies in the public ones, providing a set of guidelines for these policies, emphasizing the idea that the emergence of clusters should be done naturally, and the local authorities should no longer oppose to regional specialization. Also, clusters should be seen as a tool that renews business by bringing added value from the knowledge transfer between its members, thus increasing the region's competitiveness.

From the perspective of its members, clusters are representatives of both the private and public sector. This is particularly important because of the dialogue between the two areas in so longer regarding the entire economy but at the cluster level, thus being able to discuss more concrete issues and the cluster competitiveness can be enhanced.

Following studies conducted by Delgado, he noticed that a famous cluster located in a specific region offers benefits not only for the industry but also for collaborators, whether they are situated downstream or upstream (Delgado, Porter, & Stern, 2016).

There are many debates on spatial agglomeration of business organizations and their competitive performance. The main advantage for a company within a cluster is not just its reputation. This arises in addition to an advantage for the local community as higher wages received by employees within the cluster and secondly by landowners who can rent the lands at higher prices. Thus, the benefits of clustering not only reflect on those who are part of the cluster, but on the region as a whole.

One of the clusters goals is to support the increase of regional and national competitiveness by encouraging companies inside it to be competitive. In this context, clusters have two very important features: cooperation and competition. More specifically, companies that are competing find a way through the cluster to cooperate by mutualizing various resources and fight on common market (Enright, 1996).

3. RESEARCH METHODOLOGY

Inside the European Union, the process of cluster creation is a dynamic one, involving the innovation system both at national and regional levels. New products and services bring high income which causes companies to invest significant amounts in the innovation process. This could be the reason for the close relation developed between the need of innovation in a competitive company, country or region.

In this context, in the first part of the paper we used a qualitative research, a literature review with reference to clusters, competitiveness and innovation using scientific articles in the field and reports from the European Commission. Thus we noticed different views of the authors on the relationship between the three concepts mentioned above.

The qualitative research is followed by a quantitative one to emphasize the main ideas encountered in the literature and also those proposed by this paper. So, the quantitative research is based on secondary data collected from the World Economic Forum's Global Competitiveness Report for the period 2015-2016 and from Innovation Union Scoreboard 2015.

In the empirical analysis, we compared the Global Competitiveness Index of all 28th European countries, the goal being to identify the state of competitiveness of these member states. Besides this, we have analysed the score for these countries in terms of one element from the eleventh pillar (Business sophistication) named State of cluster development and the twelfth pillar, called Innovation. Because we want to see a different approach, not just the World Economic Forum's one, we opted for bringing information in the analyse from Innovation Union Scoreboard 2015 regarding European Union member states' innovation performance.

We tried to verify if knowledge spread through nodes like research institutes, universities and firms causes a larger number of clusters in competitive and innovative regions than in areas with a lower degree of competitiveness and innovativeness. For this, we have identified in The Global Competitiveness Report 2015-2016 by the World Economic Forum information about the state of cluster development as one of the 114 indicators included in the Global Competitiveness Index analysis and capture concepts regarding productivity.

As shown in the methodology for calculating the Global Competitiveness Index, the full question from the Executive Opinion Survey data regarding State of cluster development is: „in your country, how widespread are well-developed and deep clusters (geographic concentrations of firms, suppliers, producers of related products and services, and specialized institutions in a particular field) and the answers were from 1 = nonexistent to 7 = widespread in many fields” (Schwab & Sala-i-Martin, 2015).

Thus, for each European Union member country we selected the indicator and rank of that country from a total of 140 countries surveyed in the report, and from the scoreboard we selected the rank for all the 28th member states mentioned. The results of the analysis are presented below.

4. RESULTS AND DISCUSSION

Using data from Global Competitiveness Report 2015-2016 we first analyzed the state of cluster development for all 28 European Union member countries. Remembering, from the first part of the paper, the characteristics of clusters and their impact on companies and nation competitiveness, we identified the score obtained by each country on this indicator inside the report of World Economic Forum. Looking at the score obtained by each country, we can see that cluster development in the western countries of Europe is seen more pregnant then in the east part of the continent. In the same time we can say that state of cluster development in the developed countries is significantly better than in the developing ones.

The top positions are occupied by 13 of the 15 European Union states that joined the European Union by 2004. Malta is the state which is intercalated in the rankings, displacing Spain from the 14th place on 15th one, while Greece is occupying the last position of the ranking, 28th place. The top rankings are Germany, Italy and the United Kingdom for EU 15 and for EU 28 are Malta, Cyprus and the Czech Republic.

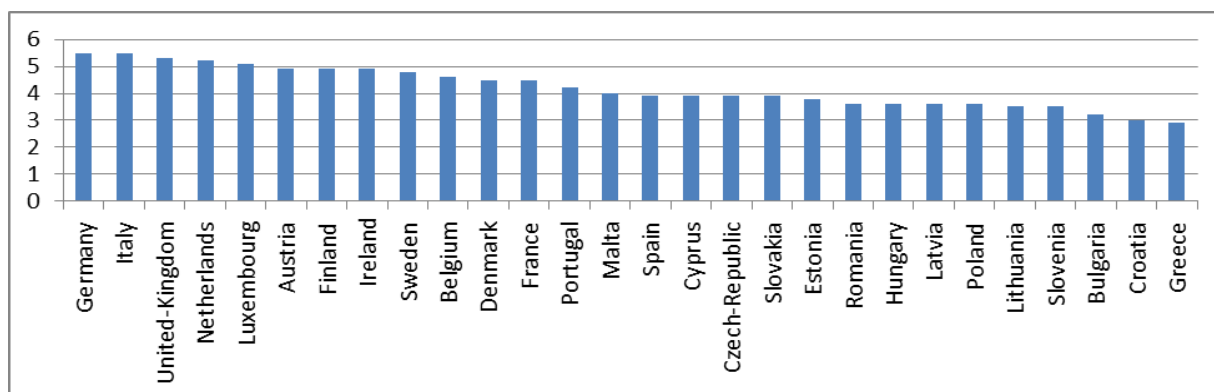


Figure 1. State of cluster development in 28 European Union countries

Source: adapted from The Global Competitiveness Report 2015–2016 (Schwab & Sala-i-Martin, 2015)

The last positions of the ranking, except Greece we have just mentioned, in ascending order of score are Croatia, Bulgaria and Slovenia. Romania ranks 20th in the ranking and 6th among the 13 countries that recently joined the European Union, since 2004.

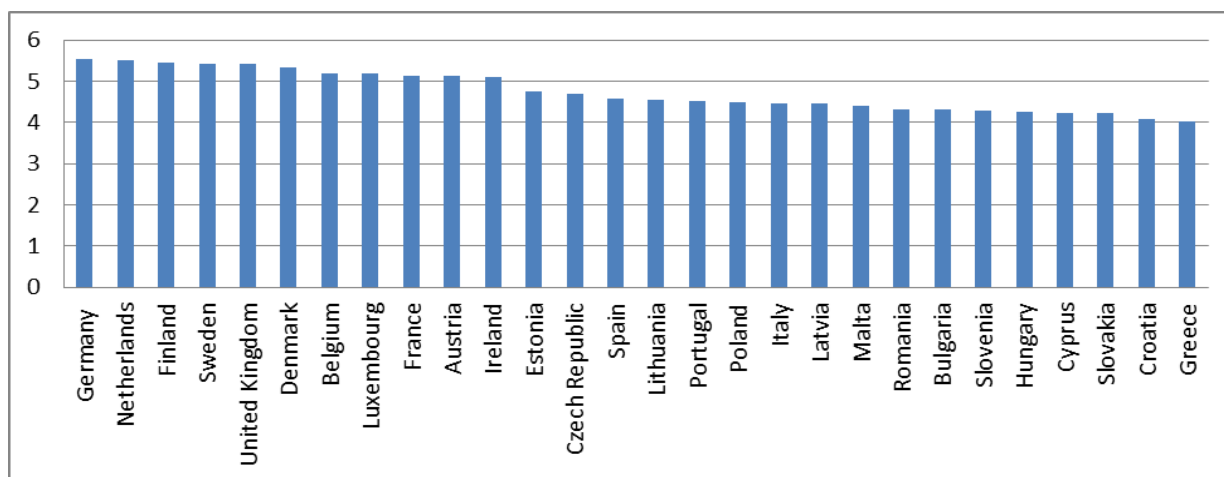


Figure 2. Global Competitiveness Index in 28 European Union Countries

Source: adapted from The Global Competitiveness Report 2015–2016 (Schwab & Sala-i-Martin, 2015)

Analyzing the Global Competitiveness Index, we can see EU15 group retains top positions, once again Germany is occupying the first position in the ranking, but this time from a different perspective, not State of cluster development. Italy, which occupied in previously ranking second position, now reached 18th place. Last place ranking is again occupied by Greece, Romania occupying 21st place in the ranking. It can be concluded when considering the Global Competitiveness Index scores that the Central-East European Countries achieved the lowest scores.

As we may note, except Italy and Portugal, the top countries on the State of cluster development are also the in the top of Global Competitiveness Index. The East European Countries are ranked in the middle and bottom half of the index.

Looking at Figure 3, we can see the results from the Innobarometer 2004 and 2006 surveys. They offer the evidence that clustered companies are more innovative than non-cluster ones. It is worth mentioning that the data from Innobarometer refers only to EU 25. The companies inside a cluster are much more likely to introduce new or significantly improved products, services and production technology, to conduct market research, to contract out research to other firms or institutes or to apply for patents.

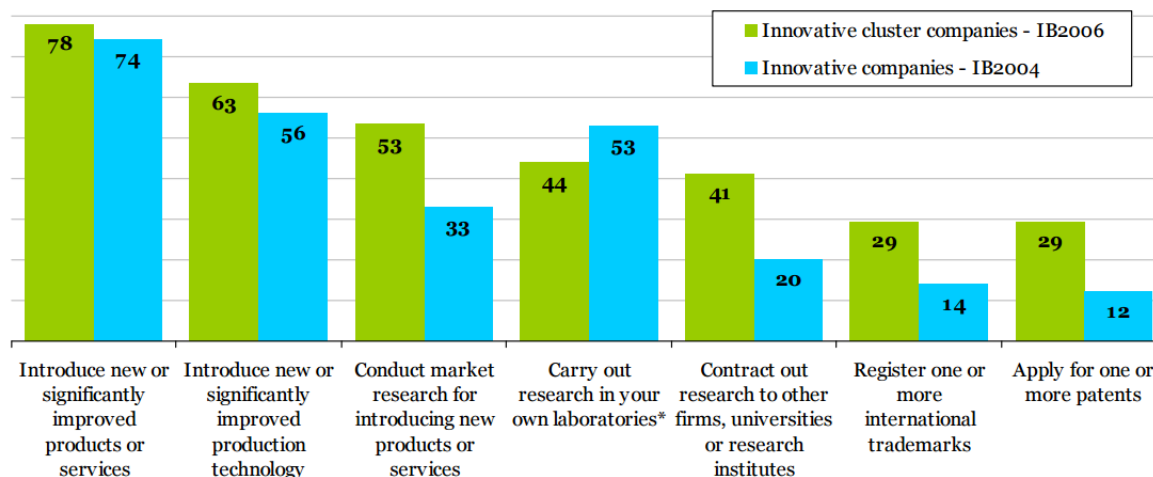


Figure 3. Innovation is higher in clusters than out of them

Source: (European Commission, 2006 Innobarometer on cluster's role in facilitating innovation in Europe, 2006)

There are evidences that show how „regional competitiveness and innovation seem to emerge from innovative complexes of firms and organizations” like clusters (European Commission, Identification of Knowledge-driven Clusters in the EU 2012).

Spurring innovation can help the growth of productivity and competitiveness (Atkinson, 2013). Concerning innovation pillar in the Global Competitiveness Report we can see that the top is again occupied by the EU15, with exceptions for Italy, Spain and Greece, but this time, Greece is not in the last position, Croatia and Bulgaria achieving lower scores. In this field, Romania occupies just the 25th place.

Interesting is when we analyze the 28 Member States of the European Union by innovation disposing rankings from two sources: European Union Scoreboard 2015 and Global Competitiveness Report 2015-2016 in Table 1.

As it can be seen, even if in both ranks, the top is occupied by the states part of the EU 15, we can see some differences regarding the more innovative and less innovative countries. In the Innovation Union Scoreboard 2015, the most innovative country is Sweden, followed by Denmark, Finland and Germany (European Commission, Innovation Union Scoreboard, 2015).

In the Global Competitiveness Report, the most innovative country from EU 28 is Finland, a difference of two positions compared with the ranks in Innovation Union Scoreboard. Romania occupies the last position in the Innovation Union Scoreboard, and in the Global Competitiveness Report 25th position. For both reports, the last positions are occupied by the new intrants in the European Union.

Even if the methodologies of the two documents used in the analysis do not cover the same trajectory, both are focused on innovation analysis and the results appear to be similar.

Table 1. Rank of EU Member States' innovation performance by two sources: Innovation Union Scoreboard 2015 and Global Competitiveness Index 2015-2016

Country	Innovation Union Scoreboard 2015 (Rank/28)	Country	GCR 2015-2016 12th pillar: Innovation (Rank/140)
Sweden	1	Finland	2
Denmark	2	Germany	6
Finland	3	Sweden	7
Germany	4	Netherlands	8
Netherlands	5	Denmark	10
Luxembourg	6	United Kingdom	12
United Kingdom	7	Luxembourg	15
Ireland	8	Belgium	16
Belgium	9	Austria	17
France	10	France	18
Austria	11	Ireland	21
Slovenia	12	Portugal	28
Estonia	13	Estonia	29
Czech Republic	14	Italy	32
Cyprus	15	Slovenia	33
Italy	16	Czech Republic	35
Portugal	17	Lithuania	36
Malta	18	Spain	37
Spain	19	Cyprus	44
Hungary	20	Malta	49
Greece	21	Hungary	51
Slovakia	22	Latvia	62
Croatia	23	Poland	64
Poland	24	Slovakia	66
Lithuania	25	Romania	75
Latvia	26	Greece	77
Bulgaria	27	Croatia	92
Romania	28	Bulgaria	94

Source: by authors using data from: Innovation Union Scoreboard 2015 and Global Competitiveness Index 2015-2016

5. CONCLUSIONS

As stated in the beginning, we based our research on the idea that the competitiveness of a country is affected by the state of cluster development.

Throughout our study, we demonstrate that EU 15 countries are more competitive and innovative than the recently joined countries.

The competitiveness of a country requires an effort made not only in the private but also in the public sector. In a globally competitive environment most likely to succeed are the competitive companies and often, the competitiveness is given by the company's ability to innovate.

Romania needs to create a sustained programme for cluster development to create a perfect environment for innovation. It is necessary a more rigorous understanding of clusters because the past efforts have been imperfect.

The paper is mainly based on results of The Global Competitiveness Report 2015-2016. We assume the available data delivered by the above-mentioned source is really limited. Even if strong conclusions can not be drawn without a further analysis we have to admit that the impact of clusters on a country competitiveness and innovation can not be easily demonstrated.

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