

Paweł Grzelak, Mariusz Maciejczak, Sebastian Jarzębowski
Warsaw University of Life Sciences – SGGW

Clusters as Instruments for Economic Development – Literature Evidences¹

Introduction

Today, the competitiveness is at the centre of political attention for many regions and countries, including the European Union (EU) and its Member States. The Lisbon process and new basis of strategic documents adopted by European Commission for the new financial frames 2014-2020 placed cohesion policy, innovation and competitiveness as the main goals of the policy of the EU.

In general the implementation of the Community Strategic Guidelines 2007-2013 for Cohesion Policy in Support of Growth and Jobs and the Competitiveness and Innovation framework Programme aim at creating strong connection between the SMEs and the research and technological institutions including creation of clusters. It should boost European productivity, innovation capacity and sustainable growth [16].

Conceptual framework

Michael Porter has proposed the conceptual idea in which today's global economy is characterized by what he refers to as cluster. He suggests that the immediate business environment outside a company is significantly important in how cluster participants create competitive advantage [19].

Porter explained the cluster as geographically close groups of interconnected companies and associated institutions in a particular field, linked by common technologies and skills. They normally exist within a geographic area where ease of communication, logistics and personal interaction is possible. Clusters are normally concentrated in regions and sometimes in a single town [19].

There are many definitions of cluster but it is good to mention that clusters are not a static phenomenon. After the formation, clusters grow. They grow significantly especially when local institutions and local competition are willing to support their development [16].

Evolution of clusters

Ketels suggested that clusters are important instruments which can enable higher levels of productivity, innovation and growth. They develop over time. The roots of clusters can be different. Some of them could have developed because they are placed on the major trading route or river. Another clusters developed because of the existence of initial institution such as universities or specific industrial companies [1].

The idea of the cluster is to increase the level of productivity and innovation among the participants of the cluster. It is possible taking into account that cluster constituents gain advantage from the economic benefits of positive externalities [7]. There are many significant positive externalities of clusters like access to specialized human resources and suppliers, better access to knowledge and the innovations and the learnings from the close relations between cluster participants [1].

Skokan argues that there are some differences between cluster and cluster initiatives. Cluster initiatives can be classified as an efforts organized by governments or enterprise to increase the growth and competitiveness of cluster within a region. In other words Cluster Initiatives are actions taken by some actors like government or enterprise to create, strengthen or increase the competitiveness of existing clusters [18].

¹ Research granted by National Science Centre from the funds for science in years 2011-2013 as a scientific project no 2011/01/B/HS4/02612 „Stopień integracji w łańcuchu dostaw a efektywność przedsiębiorstw przetwórstwa rolno-spożywczego”.

Types of clusters

There are many typologies of clusters depending on the criteria assumed. Ketels classifies them according to the type of products and service they produce, the locational dynamics they are subject to, their stage of development or the environment that surrounds them. There are the following types of clusters:

- a) *Type of product.* Clusters can be classified depend on what they provide/produce. Clusters can be in automotive industry, in financial services, in tourism and many more. There are many examples like financial cluster in New York and London or media cluster in Hollywood.
- b) *Type of locational dynamics that cluster are subject to.* Clusters can be classified by the limitations which determine the locations of the clusters. There are two main limits: customers and resources. First group is related to the customers that can be found on the specific location. These clusters can be found in the sense like a part of city. The location of other clusters can be determined by the specific natural resources. They exist across the space according to the presence of natural resources. There is also another type of clusters which are free to choose their location. These clusters serve markets in many regions. The fact that they exist is a key part of the attractiveness of the location.
- c) *The level of the development of the clusters.* The stage of the development depends on several dimensions. First is related to the quality of the external environment in which the clusters exist. Most of the literature suggests that in weaker economies or in less developed regions clusters are weaker. Second, the level of the development of clusters depends on the mobilization of the potential of business environment which was caused by the clusters [1].

In the literature it is argued that clusters are the important instruments because they generate many economic benefits. These benefits can be classified in three groups. First clusters allow for the higher level of efficiency. It is related to the level of specialization of the assets and suppliers in the cluster. Second, according to the idea of the cluster, their participants are in close relationships with research institutions. It allows achieving higher levels of innovation. Third, there is higher level of business formation in clusters. For example start-ups have to find external suppliers. They can be found in clusters. It lowers not only the costs of existence of start-ups but it also reduces the cost of failure.

The benefits of clusters are important not only for their participants but also for public policy. Clusters in long term influence on the level of prosperity in a region. The literature gives many examples of the positive effects of clusters for the companies as well for the regions. There are papers entries about clusters from countries from all over the world.

Clusters and economic performance – literature evidences

The peer literature has found many benefits of the existence of the clusters for participating companies as well as for the region. There are also many examples of barrier of cluster development.

Studies of the Polish Ministry of Economic Affairs highlighted many positive facts of clusters. Active cluster can support small and medium enterprises in improving their competitive position. Participants of the cluster can develop faster and have better access to the market (also for export). The level of innovation is also higher so companies within cluster benefit from the significant added value and higher productivity. The development of clusters influences in positive way also for the local communities and the regions [10].

At the same time there are many barriers which slow clusters' development in Poland. The main barrier is low tendency of Polish companies to cooperate not only with each other but also the lack of cooperation between private companies, research institutes and business environment. Moreover there is a poorly understood cultural domination of aggressive market competition. It lowers the tendency for cooperation. Companies should understand that there are many opportunities for joint development which can improve the competitive position of the individual [11].

There are several actions which foster the development of clusters:

- Support the access to finance;
- Development of technical infrastructure for the cluster;
- Creation of technology centers and incubators;

- Align the education system to the needs of the cluster;
- The use of tax preferences;
- Measures to promote a cluster of public funds;
- Identification and formalization of communication channels such as Web pages, newsletters;
- Creation of the organizational units for the clusters in the local government offices.

Moreover clusters contribute to a greater inflow of Foreign Direct Investments (FDI) and to convince foreign investors to the national economy.

Polish Ministry of Economic Affairs also suggests that there should dominate bottom-up approach in building the cluster structures. It is because the local companies dominate and they are the most integrated with the local economy. Government should only help and support clusters by development appropriate institutional infrastructure around the clusters [9].

Cluster development can be achieved by the involvement of all relevant institutions in the active cluster-wide dialogue and by effective co-ordination of roles, activities and responsibilities within cluster [4].

Polish Agency for Enterprise Development suggest that better cooperation between the participants of the cluster improve the level of the innovations in the areas of organization, marketing or product innovations. At the same time there should be improvements in the area of cooperation between the private and business sector [15].

Wawro focused on the importance of the information management within the cluster. He suggests that good transfer of innovation can for example verify and evaluate new ideas. Then it is easier to finance and manage new investment. It also reduces the level of risk of the new investments [20].

Literature also focuses on the other positive factor of the idea of cluster. Thanks to the good informal relations between the participants (it fasters the flow of the information and knowledge) of the cluster, the companies are able to achieve better economic results [5].

Accordingly Holub-Iwan and Małachowska suggests that clusters can influence in positive way not only for existing companies. Clusters influence also on the formation of new companies and their faster development. Furthermore he focused on barriers to the development of clusters in Poland. One of the main barrier is the lack of funds and small budgets of clusters. Next barrier was related with the lack of understanding of the ideal of establishing a clusters and cluster initiatives. There are three major factors which can influence on the development of polish clusters. First, there should be easier access to preferential funds. Second, participants of the cluster need to undertake joint marketing activities and advertising. Finally clusters should have significant assistance of the local government [6].

Nowak in his study incorporated the need to support the idea of cluster because it increases the investment attractiveness of the region. Thanks to this the local government more and more often support the development of the clusters in their region [13].

Other study pointed out three benefits of the clusters for the cluster participants. First clusters improve the productivity of these companies. Second they stimulate and support the innovation level of the economic entities. Third, clusters influence on the formation of new enterprises. It influences also on the creation of new jobs. Additionally, clusters generate specific externalities and influence on other local or regional economic sectors. It improves the international competitive position of the region [14].

One of the idea of the cluster is to decrease the distance between the science and business. Sölvell suggest that clusters are significant solution for the lack of trust between the public and the private sector. Participants of the clusters can achieve better results also because of closer relations and better informal communications [7].

Delgado suggests that industries within strong clusters are characterized by higher employment growth [2]. Additionally there is higher growth of wages. At the same time clusters have significant influence on the economy in the specific region. Presence of strong clusters influence on the region by the increase of opportunities in other industries and clusters. Clusters play also a significant role in the path of regional economic development [3]. Regional economic development can be achieved also by the impact of clusters on enhancing the performance of start-ups, reducing the costs of starting a new business and helping in firm's development.

The impact of the cluster on the economy at large is also analyzed. It is argued that clusters can help the private and the public sector in adaptation of a new approach of economic policy making. The new

approach of economic policy making can be characterized by the better cooperation and joint action along many set of players [1].

Most of the literature about clusters focus on the innovation area too. Clusters are significant instruments in the new approach of economic policy because of the benefits they generate especially in the area of innovations. Ravn suggests that clusters in itself constitutes a system influencing the innovation process and innovation performance of the participants of the cluster [17].

Researcher also focuses on other important mechanism of clusters. Skokan suggests that clusters improve competitiveness on the market [16]. Other literature set highlights the fact that clusters can contribute to alleviating rural poverty. Creation of the employment and development of rural areas influence on bringing rural-urban migration flows closer towards equilibrium [8]. Additionally cluster can have significant impact on the increasing job opportunities for women and improving balance of trade in the less developed countries.

Conclusions

Clustering and networking initiatives can be one of the key factor for strengthening the regional and global economy. Clusters are sometimes considered as a hope for improving regional development. This is why fostering clustering is today important tool of industrial and regional policy in many countries in the world

Existence of strong cluster in the region is associated with the development of this region. The development can be related with grow of the existing industries or creation of new industries. There can be also higher employment growth connected with the growth in wages, number of establishments and patenting.

Clusters can have also significant impact on increasing the investment attractiveness of the region.

There are several actions which foster the development of clusters:

- Support the access to finance;
- Development of technical infrastructure for the cluster;
- Creation of technology centers and incubators;
- Align the education system to the needs of the cluster;
- The use of tax preferences;
- Measures to promote a cluster of public funds;
- Identification and formalization of communication channels such as Web pages, newsletters;
- Creation of the organizational units for the clusters in the local government offices.

Clusters decrease the distance between the science and business. They are significant solution for the problem of lack of trust between the public and the private sector. Participants of the clusters can achieve better economic results also because of closer relations and better informal communications. Furthermore better cooperation between the participants of the cluster improves the level of the innovations in the areas of organization, marketing or product innovations. Finally clusters give the competitive advantage on the market.

Policies that support the development of clusters and the infrastructure of clusters are important tools for regional development. Cluster and cluster initiatives can be one of the most important elements in the institutional toolbox for the development of economy at large in 21st century.

Klastry jako Instrumenty Wsparcia Rozwoju Gospodarczego – przegląd literatury

Streszczenie

W ciągu ostatnich dziesięcioleci idea klastra zyskała dużą popularność na całym świecie. Strategia rozwoju klastrów może wpłynąć znacząco na wzmocnienie gospodarki nie tylko w danym regionie, ale także w skali globalnej. Klastry mają długotrwały wpływ na poziom dobrobytu w danym regionie. W literaturze znaleźć możemy wiele przykładów pozytywnych efektów działania klastrów. W artykule

przedstawiono aspekty teoretyczne idei klastra oraz przegląd dotychczasowych badań na temat korzyści i barier w ich rozwoju

Abstract

Over the past decades, cluster development has gained popularity as a strategy to strengthen regional economies and to boost competitiveness in a global economy. Clusters in long term influence on the level of prosperity in a region. Literature gives many examples of the positive effects of clusters for the companies as well for the regions. There are many empirical evidences about clusters role from countries from all over the world. This paper presents the short literature evidence about the benefits and barriers of development of cluster. It will first explore the theoretical aspects related to the cluster. Then, various studies and research related to the clusters will be presented.

Bibliography

- [1]. Christian H. Ketels M.: *The Development of the cluster concept – present experiences and further developments*, NRW conference on clusters, Duisburg, Germany, December 2003.
- [2]. Delgado M., Porter M. E. Stern S., *Clusters and entrepreneurship*, CES 10-31, 2010.
- [3]. Delgado M., Porter M. E., Stern S.: *Clusters, Convergence, and Economic Performance*, US Census Bureau Center for Economic Studies Paper No. CES-WP-10-34, 2010.
- [4]. *Development of a National Clustering Policy: Clustering for Innovation and Entrepreneurship – A Roadmap for Mersin Agrifood Cluster*, Turkey, 2011
- [5]. ECORYS: *Rozwój klastrów w regionie dolnośląskim*, 2009.
- [6]. Hołub-Iwan J., Małachowska M.: *Rozwój klastrów w Polsce – Raport z badań*, Szczecińska Fundacja Talent-Promocja-Postęp, 2008.
- [7]. Ketels C., Sölvell O.: *Innovation Clusters in the 10 New Member States of The European Union*, Europe INNOVA paper N° 1, 2007.
- [8]. Korea Rural Economic Institute: *Agro-Industry Sector and Agro-Enterprise Cluster Development in Selected Transition Economies*, 2005.
- [9]. Ministerstwo Gospodarki, Departament Rozwoju Gospodarki, *Kierunki i polityka rozwoju klastrów w Polsce*, Ministerstwo Gospodarki, 2009.
- [10]. Ministerstwo Gospodarki, Departament Rozwoju Gospodarki, *Inicjatywy na rzecz internacjonalizacji klastrów – rozwój międzynarodowych sieci współpracy*, 2011
- [11]. Ministerstwo Gospodarki, Departament Rozwoju Gospodarki, *Polityka rozwoju klastrów – kształtowanie polityki klastrowej w Polsce*, 2011.
- [12]. MYCCI The Chamber: *National Strategy for Cluster Development*, Bulgaria 2003/004–937.02.03, 2006.
- [13]. Nowak A. Z.: *Klasy w Strategii Rozwoju Konkurencyjności na Mazowszu*, Wyd. WN WZ UN, wydanie I, 2009.
- [14]. Oleksiuk A.: *Konkurencyjność Regionów a Parki Technologiczne i Klasy Przemysłowe*, Oficyna Wydawnicza Branta, 2009.

- [15]. PARP: *Benchmarking klastrów w Polsce*, Polska Agencja Rozwoju Przedsiębiorczości, 2010.
- [16]. Porter, M. E.: *Clusters and the New Economics of Competition*, *Harvard Business Review*, November-December, 1998.
- [17]. Ravn L., Petersen J. W.: *Cluster Development in Hungary - A study of the possibilities for the automotive industry and the wood and furniture industry to enhance regional sustainable development*, Department of Environment, Technology and Social Studies, Roskilde University, 2005.
- [18]. Skokan K.: *Financing cluster initiatives*, MPRA Paper No. 12373, 2005.
- [19]. Witt T.D.: *Summary Brief A Case Analysis of Porter's Cluster Theory in the Amish Furniture Industry*, Florida State University, 2002.
- [20]. Wawro J.: *Innowacyjność w sieciach przedsiębiorstw informatycznych*, Raporty Wschodniego Klastra IT. Raport nr 1, 2010.