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Cluster Approach in the Field of Characteristics of the Industrial Parks

[1]Jafarova Rumella Telman ,[2]Quliyeva Cahan Niftali

[1]Doctor of philosophy on Economy, senior lecturer at the Economic Theory and Marketing Department, Azerbaycan University of Architecture and Construction

[2]lecturer at the Economic Theory and Marketing Department, Azerbaycan University of Architecture and Construction

Abstract Industrial parks, being one of the innovative-production forms of economic organization, are widely used on a world scale in order to maintain and accelerate the development of industry in the country. Each industrial park in its turn has an appropriate specialization depending on the economic activities of placed manufactures. Taking this into account, the article is devoted to investigation of the cluster approach, which characterizes the industry specialization of industrial parks. With this purpose in the paper were reflected by examining the essence of clusters in general and methods for identifying clusters in the region's economy. Also in the article were shown the advantages and disadvantages of creation of industrial parks based on the methods of revealing of the cluster approach. As a result was shown the influence which is reflected in the economic processes at creation industrial parks based on the application of the cluster approach.

Keywords *: cluster, "Cost-Output" tables, "Localization coefficient", expert survey method, snowball method*

IntroductionUsing a cluster approach is a specific feature of creating industrial parks. Within this approach, the investor is offered an industrial site aimed at the development of concrete production.

Industrial clusters, which allow to discover and realize the opportunities of the region based on the development of competitive export production, are one of the more efficient forms of production organization in the market economy [1].

1. The nature of clusters

According to the definition of Porter, who introduced the concept of cluster to science for the first time, clusters are geographical concentration of interconnected companies and enterprises in a specific field . They cover many related areas and other organizations that are important for competition. Clusters are specialized resource suppliers such as components, machinery and services, specialized infrastructure suppliers, universities, standard-setting agencies, think tanks, government and other institutions such as professional training of suppliers, as well as trades that provide specialized training, education, information, research and technical suppor, they include their associations [5, p. 78]. The three components listed below are necessary for cluster customization:

- the first component is the existence of close geographic concentration of participants;

- the second component is the joint activity of the participants, which presupposes the existence of a common product, resource or technology;

- and the third is the component of horizontal and vertical interactions between companies acting as both partners and competitors. As a result, a synergistic effect of the cluster is created.

2. Clustering methodology

Existing methods for identifying clusters in the region's economy can be grouped into two types:

 based on the analysis of official state statistics;

 based on indirect data and expert evaluation analysis.

Based on the analysis of international experience, the frequently used statistical methods for detecting clusters include the determination of interrelated groups of fields and important cluster groups with the help of "Expenditure Release" tables (inter-field balance).

A widely used method for detecting clusters is the analysis of "Cost-Output" tables, which act as a group of interrelated fields as a proxy variable for the cluster. Here, as a group of interrelated areas, closely related types of activities are understood through the purchase- sale (vertical) relations of the region. The essence of the method is to estimate the volume of sales and transportation of products between companies of two different areas, for example, A and B. This method has the following features:

- A receives directly or indirectly from B;

- A sells directly or indirectly to B;

- A and B buy the same set of products from other areas;

- A and B sell the same set of products to other areas.

As a result, the main areas of the region are revealed and the interrelationships between them are analyzed. However, only the movement of goods flows is taken into account here and it is compiled for relatively aggregate areas. In addition, it does not show the role of institutional structures and does not allow to detect narrowly specialized clusters [4, p. 732-733].

This cluster detection methodology has been applied in Finland, Norway, the entire United States and some states, and industrial complexes have been identified for Germany and France. The second most common method of detecting clusters is the assignment of cluster groups.

This method has been implemented in the USA, Canada, Sweden and the EU. The main essence of this methodology consists in the calculation of employment in cluster groups for regions, which envisage a set of commercial types of activity located together. Each type of activity of the cluster group, which has a tendency to co-locate, has its own code that separates the cluster group from traditional statistical groups for the classification of types of economic activity. In addition, the composition of practically every cluster group includes both the production of goods and the provision of services, which in turn are strictly limited in the classification of economic activities. Given that cluster groups may exist in all regions , quantifying the number of workers in cluster groups will not be sufficient to detect clusters. In this regard, it is necessary to select important cluster groups of the region that confirm the existence of the cluster. A significant cluster group is a cluster group in a region that meets the specified significance criteria. These are indicators of "localization coefficient", "size" of cluster group and "focus" of cluster group.

If the "Coefficient of Localization" is greater than 1, then this cluster group dominates the economy of the region (relative to the regional structure of the country) and is thus important. If a cluster group satisfies at least one condition, then it is considered significant. Accordingly, the cluster group that is important in satisfying all three conditions is maximally strong. The calculation of the localization coefficient is focused on the fields. Therefore, it is impossible to assess the presence of all elements of the cluster and the degree of their interaction through such a calculation. This reduces the efficiency of its application. Subsequently, Porter's methodology was completed and implemented in the EU with the European Cluster Observatory to detect clusters and map the cartogram. The European Cluster Observatory has introduced changes to the methodology and established new criteria for identifying significant cluster groups. The following criteria have been set as threshold values characterizing important cluster groups in the region:

● "localization coefficient" ≥ 2;

● the region must be among the 10% of the leading regions in terms of "Size" of the considered cluster group;

● the region should be among the 10% of the leading regions of the considered cluster group "Focus". Compliance with at least one of the criteria means that in the region

cluster group is significant. Compliance on all criteria adds three "stars" to the cluster group, which determine its strength.

In addition, the criterion of not giving a star to the cluster group, which provides less than 1000 employees in the region [3].

Application of quantitative methods as a whole is possible at the national level. Qualitative data are used for narrowly focused cluster research.

Qualitative methods often used in the detection of clusters include the expert survey method. The method is implemented either by sending specific questions to experts or conducting a personal interview. Leaders in the field, state bodies with information on the state of the economy, as well as regions, and representatives of various organizations act as experts. This method is characterized by detailing the cluster at the level of the main companies and all participants, assessing the degree of interaction between them, and detecting breaks in the cluster. In this case, it is necessary to take into account the expertise and experience of the expert, and there is also a risk of receiving a subjective opinion. A special type of this method is the snowball method. The method starts with conducting a survey about the perception of experts about important clusters. The respondents are then asked to recommend individuals who have more information on the clusters. The snowball continues to move until there are no more unasked experts and the moment comes to move the viewed cluster to the map. As a result, data are collected from statistical services on the main economic indicators of the cluster. First of all, it is necessary to select the cluster where the circle with the first experts is assigned. In this regard, the authority of experts is very important. Obstacles to the application of this method can be reluctance to share knowledge, distrust of representatives of government bodies, business and educational institutions [4, p. 735-736].It should be noted that each method has its own advantages and disadvantages.Disadvantages of the methods based on the analysis of state statistics are the similarity, uniformity, aggregation and averageness of statistical data. The advantages of the methods based on the analysis of state statistics include the breadth of the research, which assumes the possibility of data on types of activities and regions, the relative objectivity of the data and the unambiguity of the interpretation of the results, the possibility of confirming the results, the ability to reconcile them in time and space (as well as internationally). Disadvantages of methods based on indirect data and expert evaluation analysis are availability of data, validation of results, and breadth of research. The advantages of the methods based on indirect information and expert evaluation analysis include meaningful and detailed detection of the cluster in the region. Since each method has its own advantages and disadvantages, it is necessary to use or design surrogates similar to the main criteria of the cluster, or to combine both quantitative and qualitative approaches to obtain a comprehensive result and the most accurate studies. The use of statistical methods due to the necessity of working with statistical information available for these other goals, as well as the impracticability of its change for the implementation of certain research issues, finds its greatest application [2].

The result

Thus, the creation of industrial parks based on the cluster approach has the following advantages: due to the existence of a common scientific base and the exchange of information, new combinations are created in the competitive struggle, a competitive advantage is created through the minimization of costs aimed at the application of specialization and innovation, as well as the presence of small enterprises for the development of small and medium-sized enterprises. is important.In addition, the methods for detecting clusters in the economy are shown, their advantages and disadvantages are listed, and in this regard, the effectiveness of adapting the methods from the point of view of practicality in order to obtain complex results is revealed.

Summary

Industrial parks, as one of the innovation-production organizational forms of farming, are widely used worldwide in order to support and accelerate the development of industry in the country.

Each industrial park, in turn, has appropriate specialization depending on the types of economic activity of the located productions. For this purpose, the article is devoted to the study of the cluster approach that characterizes the sectoral specialization of industrial parks. In general, the essence of clusters and the methods of detecting clusters in the economy of the region are reflected in the article. The article also shows the advantages and disadvantages of creating industrial parks based on the detection methods of the cluster approach. As a result, the effect reflected in the economic processes during the creation of industrial parks based on the application of the cluster approach was shown.

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