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Inter-regional Clusters: The Theoretical Aspect of the Study

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Abstract: This study provides an overview of information-analytical theories of cluster development. The authors show the Russian concept of interregional clusters. It was concluded that the inter-regional clusters should become a place where are circulating human resources, organizations and technologies which undoubtedly, will allow to raise competitiveness of the Russian economy on national and international levels.

Key words: Cluster, cluster formation conditions, inter-regional clusters, innovative development, regional development

INTRODUCTION

The process of creation of economic clusters captures an increasing number of countries and regions of the world. Cluster is a factor in the competitiveness of individual enterprises and territories contribute to the establishment of constructive relations between enterprises, financial, educational and research institutions and government bodies. Clustering stimulates the processes of unification of knowledge, the emergence of new scientific-technical activities, to reduce costs and increase quality, support education, the science of the universities.

Attention to the phenomenon of clusters is because the approach to the consideration of interactions between agents of the market from the point of view of localization of economic relations often helps to explain the distortion of the results of economic activities, compared with expectations based on interpretation of classical theoretical concepts. The argument is economic organizations are not impersonal market consisting of many participants. They form the localized interaction with quite certain agents. Moreover interactions of participants of trades are not reduced to the absolute observance of the law of supply and demand and happen on a more informal basis. The cluster approach should be considered when conducting any research of applied character, involving the problems of development of regions and industries.

The relevance of the cluster approach is also underlined by the presence of a huge number of publications. However, the theoretical framework is remains a lot of white spots. This is especially true for cases when their economic phenomena by external features differ from the classical description. This circumstance leads us again to draw attention to the existing lines of research clusters in the literature.

SEMANTICS CLUSTER

A cluster is a group of the same or similar objects together. In this meaning the term cluster is convenient for use when referring to any cluster of objects. The essence of statistical clustering is to handle multidimensional data and the distribution of objects on a relatively homogeneous groups. In the information technology cluster is considered as a unit of data storage, as well as a group of computers connected to high-speed communication channels and representing from the point of view of the user single hardware resource. There is the galactic cluster in astronomy. In the economy of the cluster is considered as a form of inter-organizational cooperation. For identifying clusters in the last value uses the term «economic cluster». In the present study, these interpretations are also adhered.

In practice identifying the clusters are not easy (if they have not received the official status), it is difficult to establish where the cluster begins and where it ends. The scope of a cluster can range from a city, district or state to several adjacent to each other. Determination of the boundaries of the cluster-the problem is relative: It is a creative process, based on understanding the

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complementarity and coherence of enterprises and institutions, the most important in terms of competition in a certain industry (Porter, 2000).

As tools used to identify clusters, currently used: Expert interviews, the study of the coefficients (of the factors of concentration of employment), the analysis of the matrix of inter-branch balance, network analysis of interactions of participants, analysis of the regional structure of export and other statistical indicators. Most of these are quantitative research methods and in the absence of specialized information base in modern Russia cannot be fully used. Because of the limitations of the available data clusters often equated with industries, information on which can be easily found in statistical databases. If the residents cluster belong to different industries, some of them cannot be determined. Existing classification schemes industry also very imperfect. As Griliches (1990), noted sector of the economy, as they are represented in the state statistics, in fact, may be nothing more than a "Mirage". The main tools to identify clusters are still expert interviews and the analysis of available statistical indicators according to the known residents known clusters.

Preconditions for the development of cluster theory: The phenomenon of concentration of enterprises within the same economic region (the so-called Metropolitan area) has attracted the attention of researchers in the 21st century. There are three types of concentration: Pre-industrial (workshops and concentration of handicraft industry), industrial (territorial-industrial complex, production sites of transnational corporations and other) and post-industrial (networks, clusters).

Marshall (1993), who in his «Principles of Economics» has identified the causes and benefits localization specialized production in some districts (cities). It can substantially increase the efficiency of this or that type of activity in comparison with single enterprise due to: Create an atmosphere conducive hereditary transfer of skills, competencies and technology development; application of dedicated machines; the occurrence of auxiliary productions; market availability of specialized labor force; stimulate the development of other spheres of employment, allowing to reduce the negative impact of depression in a particular industry.

In the middle of 20th century the interconnectedness of regional space, economic agents and innovation were highlighted in the work of Perroux (1950), "Economic space: Theory and applications" in which the author draws attention to regional development with its concept of "Growth poles". Its basis is the effect of domination proposed by Perroux (1950), showing that for the understanding of economic growth need to focus on the role of the driving sectors", i.e., those industries that dominate due to their size, large market forces or the role of the leader in innovation. Driving the industry (or even private companies) are the poles of growth which attract, focus and send a variety of economic resources, as they provide the most effective use of them. Thus, under the growth poles understood logically placed and dynamic sectors or enterprises, generating a chain reaction occurrence and growth of industrial centers.

Later Boudeville (1968) showed that as growth poles can be seen not only the totality of enterprises of leading industries and specific territories (settlements points), performing in the economy of the country or region function of the source of innovation and progress. The pole of growth can be interpreted as the geographical agglomeration of economic activity or as a set of cities that have complex emerging industries. This theory was put in the basis of regional programs of many countries. Growth poles are created in order to boost economic activities in underdeveloped peripheral, problem areas, "Poles of growth" concentrated sent new investments instead of spraying them throughout the area. Thus, you create new industries are more likely to provide sinter savings benefits from the use of shared infrastructure, expansion of sales markets.

In the seventies of the 20th century is highly relevant from the point of view of the spatial organization of the economy was the theory of industrial complexes. The effort to build exerted by Strcit (1969) and Czamanski and de Ablas (1979) and others in particular Czamanski (1977) defines industrial complexes as the "Group of industries flows and with similar models localization".

In the Soviet history spatial structuring received understanding thanks to the concept of Territorial Production Complexes (TPC), under which a compactly situated on the territory of one region enterprises of industrial sphere and institutions of non-productive sphere generate mutual positive externalities. However, with the change of ownership balanced system of the socialist economy, including the TPC, has collapsed. The absence of strict plans and distributed between producers sectors of consumption demanded some form of formation of the system of mutually beneficial agreements in the framework established by the state priorities and rules.

Development of the cluster approach by Porter (1998): A key role in the development concept of Marshall (1993) about concentration of specialized industries in selected areas belongs to Porter (1998). In his study, he showed a close correlation between the cluster partnership and

competitiveness of firms and industries. The relationship between triad of external economies and porterhouse "Diamond of competitiveness" was presented in the study of Markov (2005).

Porter (1998) under the cluster, understands the group of geographically neighbouring interconnected companies and related organizations operating in a particular field, characterized by common activities and mutually complement each other. He focused on the following properties of clusters:

- In geographical localization, the scope of a cluster can range from a single city or region to the whole country or even several countries (essentially that the geographical boundaries of the cluster often do not coincide with administrative and political boundaries)
- The relationship between enterprises cluster is a special form a network of interconnected companies and a deeper development of relations testifies to the degree of development of the cluster itself
- Technological interdependence of industries in the cluster are different enterprises, technologically interrelated
- Competition between members of the cluster

Porter (1998) opposed the cluster approach views about the need for economic diversification, proves the necessity of the development of concentration of specialized firms in the limited spatial framework. Clusters successfully combine competition and cooperation and act as an internal force of development of the regional economy. The success of the cluster and its members is determined by four factors:

- The context for the firm strategy and rivalry (in other words, favorable investment climate and the specific institutional environment of the firm)
- Conditions for production factors (resources activity)
- State of demand (the requirements of consumers on available markets for the products sold)
- Related and supporting industries (developed competition among suppliers and other related companies)

In other words, the presence of a cluster allows all participants to get more mutual benefit. The benefit may:

- The reduction of different kinds of transaction and production costs through economies of scale and logistics
- The density of economic entities in a particular area which increases the concentration of resources and level of innovation of production (the main factor which is partly circulation of ideas)
- Migration of knowledge dissemination
- The emergence of technological partnerships, when several interacting companies (even competitors) coordinate R and D, product development, basic technologies which then brought by each enterprise in a specific end products

The idea of Porter was developed in the works of many economists. Bergman and Fezer (1999) exploring the existing views, there are the following directions of development of the cluster theory (1) External externalities, (2) Innovative environment, (3) Cooperative competition and (4) Preceding development path (path dependence).

The first group can be attributed to the study of Krugman (1996), who put forward the concept of cumulative causation. It reflects a bi-directional process: Organizations want to stay in the most comprehensive economic space and the space is concentrated in places of the greatest congestion of organizations. The expansion of the activity of the leading industry and its component suppliers will minimize the cost of all participants. Other external effects is the improvement of the educational base, increased specialization, the development of specific competences and rutin, etc.

The second group reflects the concept of the learning economy and development of innovation environment. For example, Camagni (1991) stated that the formation of the innovation environment is connected with development of informal interactions in a limited geographical area which increase local innovation through synergistic and collective learning processes. Innovative environment generates new knowledge, processes and products, or new technical and production combination (Maillat, 1998).

Kostiainen (2002) defines innovation environment as certain integrity relations, manifested in a specific geographical area with high standard of living which forms a network outside its limits and increments the unity of the production system, the economic agents and industrial culture, generating local collective learning and acting as a mechanism for mitigating the potential risks of the innovation process.

Vagizova (2009) emphasized the innovative character and allocated four forms of occurrence of cluster capital structural capital are non-financial assets of participants; cognitive capital-common values, codes, language, interaction; cross-cutting capital-financial assets, trust,

norms, obligations, identification and monitoring; innovative capital-generation of results, innovative interaction and development of the gross regional product of the territory, where he established.

The third group combines studies in which the cluster is the basis for enhancing competitive advantage through the creation of additional connections and the increase in the domestic economies of scale. He is seen as a means of opposing the external pressure. Haken (1991), marks the emergence of organizations of cooperative effect, manifested in the formation of the spatial, temporal and functional structures of systems of different nature, or aggregated process units with new, integrative, complementary properties.

The fourth group reflects studies in which the cluster acts as the result of historical evolution industries. It determines the direction and character of the adoption of technologies. Arthur (1989) has shown that the development of the cluster effect as initial conditions (for example, the resource base) and random events. The previous way of development imposes the certain restrictions and is the reason that, at first glance, inefficient solutions can dominate and to ensure the growing effects.

INTERREGIONAL CLUSTERS: THE RUSSIAN CONCEPT OF CREATION OF DEVELOPMENT

Historically the cluster approach was based on the position that the mandatory condition for the functioning of the cluster necessary territorial proximity and the concentration of its participants. So, for example, Valdaytsev and Motilov (2005) highlighted the features of the modern cluster, clearly indicated: Common interests-the same or related field of activity of participants, the common market or sphere of activity; the concentration-location, convenient for regular contacts; interaction-interdependence with a large variety of formal and informal relations.

At the same time, current realities which are characterized by rapid growth of information technologies, erasing territorial and political borders, improvements in transport and market infrastructure dictate the need to change that position. Neither territorial proximity, nor the mutual orientation of local markets already is optional features that allow you to create positive externalities. This force us for a new look at the concept of Porter and to review the classical theory of cluster formation.

Belonging to a particular industry is not a relevant factor for the creation of the cluster, because information production eliminates the previous forms of division of labour associated with rigid industrial technologies and not allowing flexibility to adapt production processes in the production of necessary goods. In addition, as rightly noted by Zelenskaya (2011), subjected to availability fast (almost immediate) and almost free transmission of information becomes no matter what physical distance are the residents cluster which indicates the possibility of excluding from the concept of the cluster mandatory territorial characteristic.

Geographical boundaries of modern cluster primarily reflect economic reality and not necessarily coincide with the administrative and political borders. These trends were noted and other scientists. So, for example, Martin and Sunley (2003) said about the cluster as a construct that does not have clear boundaries in terms of relations between companies and sectors, information systems and geographical coverage. Thus, one can argue about the possibility of interregional cluster formations.

In our view, participants in interregional cluster must be of the company, representing basic (profiling for regions) sector or industry that require additional impetus for development, industry suppliers and industry-consumers of their product and manufacturers of corresponding equipment and services, first of all education research and high-tech. Given that today is quite difficult to identify the specific region (especially peripheral) where the named organization existed, had adequate level of development and organically would interact among themselves, as a rule, they are spatially distributed between regions, this feature modern regional economy determines the interregional character of the cluster.

The lack of a territorial binding allows us to interpret the cluster as a form of networking and we find a reflection of these ideas in study of Sheresheva (2010). It examines the modern cluster as a kind of strategic networks, namely “Strategic inter-organizational network of sectoral or cross-sectoral nature, combining resources and core competencies not only companies but also other organizations” (Sheresheva, 2010). The network is, in turn, is one of the mechanisms of coordination. Building the idea, Sheresheva (2010) speaks of the pyramidal structure of the cluster: First level form the leading companies that export products and/or services outside the region, on the second level, companies and organizations that make up the so-called ecosystem and supplying components and other services to key companies and finally, the third level is the socio-economic infrastructure which includes various organizations, providing a Central company of the human, financial resources, elements of the technological infrastructure, as well as creating conditions for the development of the cluster.

Thus, summarizing the above, one can conclude that the cluster is a set of related relations, coordination and common activities of companies and organizations which borders (largely virtual) are determined by the geography of participants, providing synergy and external effects and the necessary market infrastructure.

In fact, the geographical proximity in time served as the basis for the establishment of formal and informal cooperation. As to establish effective communication with poorly developed means of communication could only among adjacent participants. Now geographical proximity optional. Information technologies allow to establish communication with the participants in any point of the planet. However, this raises new questions:

- What is the basis of formation of interregional cluster (informal contacts, complementarity technologies, the level of mutual trust)?
- What role is played here the regional authorities?

To answer them additional research is needed, as foreign practice and the possibility of its transfer to the Russian soil and the quality of the business climate and structure of the business portfolio of the regional economy. The fact that foreign experience of cluster policy basically has two models-dirigiste and liberal (Sheresheva, 2010). The first characteristic of countries that implement active "continental" policy development of clusters (Japan, Korea, Singapore, Sweden, France, etc.), where at the level of the Federation and of the regions is carried out a complex of measures from the selection of the priority clusters and financing of projects for development of strategies and programs of their development up to the target of creating the key factors of success of their activities. The basic principle of the second model (USA, UK, Australia and others) is based on the postulate that a cluster is a market organism and the role of government is to remove barriers to its natural development and in some cases-in financing and maintenance of pilot projects.

It seems that the model for the creation of regional clusters should be a kind of combination named the world's models. This means that the process of creating a two-track. On the one hand to create the necessary self-organization based on established explicit or latent ties formal and informal nature between the parties and on the other side of the initiative and support of the authorities, business communities, able to provide a synergistic effect.

Based on the above we can conclude that the inter-regional clusters should become a place where are circulating human resources, organizations and technologies which undoubtedly, will allow to raise competitiveness of the Russian economy on the international and national levels.

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