

## Clustering Within the Economy of Rostov Region (Russia): The Factor of Large Business

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### Abstract

*Economic clustering becomes the important factor of regional economic development. The practice of clusterisation in various countries demonstrates the leading role of large enterprises within this process. These are large enterprises to accumulate regional tacit and codified knowledge, as well as to become the centers of production, finance and regional business culture, which provide cluster strategy and are able to create both innovation and guaranty of stability. The role of large enterprises within the cluster can be various, but its character influences cluster informational, financial and resource metabolism, so that the unique structure and specifics of the cluster seems to be the result and consequence of the leading enterprises' characteristics. Traditional classification of clusters into "Scottish" and "Italian" patterns with additional division into "Historical know-how", "High-tech" and "Knowledge service" does not reflect the specifics of the differences in central enterprises' role. Through the means of system analysis and classification we provide the classification aimed to uncover the mechanisms of the formation and development of the clusters according to the specifics of the leading firms. As is shown in the article with the example of Rostov region through the method of statistic observation, the South of Russia demonstrate the broad variety of existing and forming economic clusters, which belong to various categories of the given classification. So that the process of regional management aimed to support cluster development is to provide the permanent monitoring of the large enterprises activity and the characteristics, which are notable for the potential or existing cluster. The most universal (according to their role within clusters) large enterprises are located in the sphere of agriculture within the region and are potentially to become the strategy makers in the accordance with the regional administrative course of economic development.*

**Keywords:** cluster, regional economy, large enterprise, Rostov region, South of Russia.

## 1. Introduction

### 1.1 The relevance of the problem

Economic clusters are increasingly viewed to be the specific form of economic relationships between firms which can enforce them with the new competitive advantages that does not appear without the clustering effect. In such meaning "clusters can be considered as a competitive tool for networking which not only simplifies achieving regional development strategies but helps (enables) companies to achieve competitiveness in international marketplaces" (Felzensztein, 2001). The theoretical basis of cluster approach in the area of regional economy is provided in works by M. Lorencen, P. Maskell, M. Porter, R. Rosenfeld and other scholars. But the nature and the specifics of such competitive advantages for the various types of clusters as well as the process of their formation are still not studied enough.

The issues of the participation of large enterprises in cluster are not enough studied at the moment. Being the pivot of cluster, large enterprises seem to be the "condensation centers" and generators of synergetic effect of clustering. Systems of governmental support aimed to help clustering process within the region, first of all, should incorporate cluster monitoring based on analysis of large enterprises' activity. That is why it is important to form the classification of large enterprises according to their role in the process of clustering as well as the methodology of its identification and support. Consequently, the research in the sphere of large enterprises within the regional clustering seems to be urgent.

## 2. Methodological Framework

### 2.1 The objectives of the research

The objective of the study is the role of large enterprise within the process of regional clustering in the economy of Southern Russia. The study is aimed to find out the factors of large enterprises to be the generators of clustering; to provide (in accordance with these factors) the extensive classifications of large enterprises within regional clusters; to view the most important data that characterize the dynamics of large enterprises of the Rostov region (South of Russia); to classify the regional enterprises according to the given theoretical pattern and give the recommendations for the governmental regional economic policy in the order to support existing and forming clusters' development.

### 2.2 The theoretical and methodological framework

As the process of regional clustering belongs to the research field of regional economy, the study is based upon the theoretical and methodological approaches by Russian and foreign scientists in the area of regional economy and regional management specificity of clustering. According to the role of large enterprises in the clustering being the subject of the research, the empirical evidence involved in the article is based on the industry publications and the information that characterize the development of regional enterprises given in scientific articles in the refereed journals.

The research methods include the dialectical and system analysis, the methods of abstraction and comparison, the method of statistical observations, classification and taxonomy. The usage of system analysis is connected with the nature of regional cluster to be complex and dynamic system. The other methods chosen are aimed to provide the extended classification (including some taxonomic levels) which is able to make the process of clustering more clear in the aspect of influence of the leading enterprise. The variety of the existing and forming clusters within the region studied needs the usage of the comparative analysis based on the statistic observation.

## 3. Results

### 3.1 Classification of economic clusters: theoretical approaches

The traditional typology of clusters is connected with the "Scottish" and "Italian" patterns of clustering which are the two alternatives at the scale vector 'centralization and the leading role of large enterprise – decentralization and the equal-sized participation in cluster'. The prevalence of the "Scottish" pattern in the world practice seems to be more and more obvious and this fact is based upon the reliable background.

Every cluster presents the unique case of integration between economic actors; so many alternative types of classification are possible. One of them based on the principle of vertical – horizontal integration of enterprises. It is also expected - particularly in the German model of organizational networks - that interconnected businesses must interact and have firm actions within at least two separate levels of the organizations concerned (Kurniawan Y., Abdullah W. M., Som H. Md., Parasuraman B., 2013).

The role of large enterprise as the central participant of an economic cluster is decisive in the most number of cases. This tendency can be caused by various reasons (of groups of reasons) which could be classified as follows:

- Large enterprises are characterized by the sufficient level of financial, organizational and competitive stability to cover the risks of the formation of new business contacts and joint projects than small business actors which are often unable to accumulate the financial resources enough to provide such projects.
- The economies of scale achieved in the framework of the activities of large enterprises, allows them to allocate funds in the amount reaching the minimum threshold for the institutionalization of the cluster and organizational design of the integrative forms of interaction within the cluster.
- As usual, the maintenance of large-scale production involves cooperation with multiple suppliers, contractors, infrastructure and marketing system actors, that allows large enterprises to diversify transactional risks and, at the same time, creates a competitive environment at each level, where there are several participants of the emerging cluster.
- Large-scale production has the potential to separate its structural blocks into independent organizational units that leads to the increase in the number of economic entities while maintaining close links with the primary production.
- The entities of a large enterprise typically are more experienced in the functioning of the regional market, as a

consequence, they are to be the centers of "tacit knowledge" (Cowan R., Dominique F., 1997).

The leading role of the large enterprise caused by various factors (or the combinations of factors) connected with the particular specifics of the production and regional business environment can result in various types of cluster formations. Being the self-organizing process, clustering is led by external factors. In the terms of chaos theory changes of such factors are to be the shifts of initial conditions; they cause the change in the phase attractor of the random deterministic space of regional enterprises. Among such factors there are the level of regional and international market competition, the specifics of business culture and the level of trust within the interaction between firms, as well as transactional costs and the quality of infrastructure.

The main three vectors of clustering are the set of external factors to cause the self-organizing clustering process as well as innovation-driven and investment-driven growth of the regional enterprise (Philip J. Wijers, 2003). The leading role of the large enterprises as the accumulators of knowledge is the background to find out such types of clusters as:

- High-tech clusters;
- Historic know-how-based clusters;
- Knowledge services clusters (Kurniawan Y., Abdullah W. M., Som H. Md., Parasuraman B., 2013).

High-tech clusters are "high technology-oriented, well adapted to the knowledge economy, and typically have as a core renowned universities and research centers like Silicon Valley. Historic know-how-based clusters are based on more traditional activities that maintain their advantage in know-how over the years, and for some of them, over the centuries. They are often industry specific. For example: London as financial center" (Kurniawan Y., Abdullah W. M., Som H. Md., Parasuraman B., 2013).

The given classifications are connected with the specifics of internal processes of the cluster and its historical evolution. But they do not uncover the specific role of the cluster core which is the leading enterprise or the group of enterprises. So the existing classifications should be added by the classification of the large enterprises' role within the cluster to find out the important processes of the intra-cluster metabolism.

### 3.2 *The role of large enterprises within the cluster structure, knowledge, productive and financial processes*

The leading role of the knowledge within the cluster is combined with the social and employment issues. "It is also desirable for cluster businesses to provide both budget efficiency and social efficiency assessments while implementing investment projects" (Gubaidullina T.N., Nugumanova L.F., Antonova N.V., 2015). The tacit knowledge connected not only with the productive know-how but also with the social specifics and business culture of the region makes large enterprises both accumulators of tacit or codified knowledge, as well as codifiers of knowledge (in the case when the "unwritten" rules within the regional business culture become official statutes of business ethics and the rules of the cluster interactions in order to reach the higher level of social efficiency).

Moreover, the leading enterprise often becomes the keeper of the strategic initiative, as well as governmental administrative structures aimed to help regional economic development. "Despite the fact that naturally born clusters exist for centuries and their formation is driven primarily by market factors, there has been prevailing in the recent decades, a positive view of the controlled and driven development of clusters in developed countries" (Abrahám J., Herget J., 2013). It means that large enterprises are able to become the bearers of the 'cluster consciousness' and the generators of the cluster strategy.

So the role of large enterprise as the causer of the initial conditions' shift to start the clustering process in the regional business environment can be various. Its typology can include such roles as:

- According to the tacit/codified knowledge position:
  - "accumulator of tacit knowledge" (in such case the large enterprise is the source of technological and procedural tacit knowledge for the environment of small enterprises that are led by it in the process of cluster integration);
  - "accumulator of codified knowledge" (in such case the large enterprise is the leading point of growth in the sphere of technology and innovation, as well as the communicative and informational center of the cluster);
  - "codifier of knowledge" (this situation is possible when the large enterprise provides new codified systems of information that previously could not be codified by the large number of regional small enterprises: it can be both innovational technologies and systems of local standardization, as well as codes of ethics and cluster strategies, if they were not acknowledged, formalized and put into documentation).
- According to the creation and implementation of innovations:
  - "generator of innovations" which is able to create new ideas and technologies but is not interested in their

- full implementation in production within its organizational structure;
- "consumer of innovations" which accumulate new ideas and technologies from all the environment of small firms and implement them in its production. competitor within oligopoly of large firms which form the score of cluster;
- According to the competitive market position:
  - competitor within oligopoly market of large firms which form the score of cluster;
  - creator and coordinator of the market for the small and middle-sized firms that belong to another link in the chain of added value (providers', subcontractors', resellers' markets, etc.).
- According to the cluster development strategy:
  - the stakeholder interested in further deeper integration with its cluster contractors, up to their vertical and horizontal integration into the organizational structure of the large firm;
  - the stakeholder interested in creation of new firms through the giving independent status to its own departments and subsidiaries;
  - the stakeholder interested in development of independent firms grouping to implement the common production and market strategy (in such type of strategic position cluster can be planed as the common start-up project).
- According to the financial position in the cluster:
  - "financial guarantor" for the common risks of financial stability within the cluster (in such case the financial guaranties given by the large enterprise are to be provided according to the aim of the stability of the main production in general);
  - "investor" which views its clustering contractors' growth to be its own or joint investment projects;
  - "venture manager" which is able to provide small firms with the possibility of participation in high-risked projects;
  - "donator" which views itself to be the financial leader of the cluster and is able to provide donations for the organizational, social, educational and other needs, aiming to create the good social climate in the region of location.

All these roles can be combined in various proportions that leads to various types and strategies of clustering. But whatever strategy of clustering is to be realized in the regional economy, the obvious fact is that the central large enterprise would be the one to provide the key decisions according to its own interests and specifics.

Structurally large enterprises are often viewed to be the centers and drivers of cluster development. But also they can be the conservators and saviors of internal cluster traditions and regional business culture. In this meaning regional clusters can be viewed in the dichotomy with transnational corporations as the stakeholders which are interested to transfer its own transnational culture into every regional specific environment without deep adaptation to its peculiarities. In the case of transboundary clustering the participation of international partners could be presented by both small and large enterprises. As well its participation could be embodied in the form of shares within the regional company.

### 3.3 *South of Russia as the area of economic clusterisation*

Just all of the forms of large enterprises' participation in cluster are presented in the economy of Southern Russia. The review of existing and potential clusters can show us the leading role of large enterprises. Rostov region is one of the most important and developed regions of the Southern Russia with the population of 4,2 million. The level of economic development of the region is higher then the most regions of the South of Russia. It can be shown through the main economic indicators. Rostov region at the moment is 15<sup>th</sup> in the rating of its share in the GDP or Russia. The GRP or the region is about 632 billion RUR (\$11,5 billion). The most part of the population and enterprises are located in 18 cities of the region; there are also 390 rural settlements where are located important agricultural and some industrial clusters and protocluster groups of enterprises.

The historical role of the region as the agricultural and industrial area is connected with the climate and soil resources to be the main competitive advantage. At the same time, the region increases its positions as the center of transport service and logistics that is determined by the geographical position as the border region, which has the access to the Azov Sea as well as the Don river basin. Various types of transportation means in the close connection with each other and with the production process within the region create the basis for the development of infrastructure, which is to be the important link in the cluster structure. Several decades of higher educational establishments are located in the region but the interaction between education, science and business is at the moment only at the stage of its formation.

Rostov region as one of the highly-developed regions of Southern Russia is to become the aria for intensive

clustering in the next decade, according to the last trends and experts' forecasts. The agricultural and engineering meaning of the region is still embodied in the number of large enterprises in these industries. During the last decade the most part of economic clusters appeared in Rostov region in agricultural sphere. While federal policy of Russia is concentrated on creating clusters in different spheres where there the level of interaction between firms is not high enough, self-organized clustering demonstrate the higher effectiveness and competitiveness.

One of the most successful clusters is located in Oktyabrsky district of Rostov region. It is formed among the "Eurodon" company providing turkey meat and complementing goods. Thus, in the structure of the cluster there is a central enterprise, the production of which is built on a modular system, as well as several others of his suppliers and infrastructure. The cluster is important for the economy of the region; it provides about 1700 working places in rural area and provides the regional and national markets with high-quality goods. The creation of the cluster was provided by the group of companies led by "Eurodon". So in this case we can indicate the new phenomenon: start-up cluster. Clustering at the beginning stage of business development is effective in the case of high entering barriers at the market when only the group of companies connected with common production line and strategy is able to enter the competitive environment. As a result of such strategy, "Eurodon" is now one of the leaders at the national market.

The creation of the cluster took about 3-5 years. During this period "Eurodon" as the central large enterprise has been playing the financial role of "investor". The total investment in construction amounted to 45.6 million euros; just all the projects within the cluster have been viewing to be the central company's investment projects that are provided with the use of other organizations of the cluster. The total estimated cost of the investment project on the organization of the cluster amounted to 16.3 billion rubles. The role of "financial guarantor" was transmitted to the State Corporation "Bank for Development and Foreign Economic Affairs (Vnesheconombank)".

The whole process was carefully planned by the central company in stages and timeline: the first stage of cluster self-organization took place in the period from 2006 to 2008. (at this stage was reached the production volume of 12 thousand tons per year), the second phase (2008-2010) was associated with further expansion of production and increasing capacity to 31.2 thousand tons per year, the third phase (2010-2012) assumed increase the quality and level of intra-cluster infrastructure, as well as the most large-scale growth of production volumes, the fourth phase (2012-2014) assumes a further increase of this indicator. The growth and development of the cluster is carried out in three main directions:

- the increase of production capacity, which is produced without difficulty by the use of the modular principle of the organization of production;
- the strengthening of market positions, market diversification, the expansion of the product range and the launch of new brands;
- the growth of new links of the production chain, included in the structure of the cluster.

Thus, the central enterprise of the cluster tends to become the stakeholder interested in creation of new firms through the giving independent status to its own departments and subsidiaries as well as through giving new firms the free space within the cluster. In the last 3 years "Ursdon" and "Donstar" companies with the additional productive lines of turkey eggs and duck meat, appeared in the cluster by "Eurodon". The word part "Don" drawing from the geographical name as the mention of regional brand presences in all the titles of the companies that indicates the common cluster strategy. Thus, the "Eurodon" company can be identified as "codifier of knowledge" (and also, "accumulator of codified knowledge" in the sphere of regional agricultural technologies) as well as the creator and coordinator of the market for the small and middle-sized firms. But, as we can see from this example, the central company is not interested in including other productive lines in its own structure.

Another model of regional clustering is presented by "RZ Agro" Group forming 2 agricultural clusters in Rostov region, 1 cluster in neighbor Krasnodar region and now is to create new cluster in Stavropol region. The extensive policy of the central enterprise uses various instruments of including regional companies in its structure. So, this enterprise can be viewed as the stakeholder interested in further deeper integration with its cluster contractors.

Such policy is combined with the implementation of the common strategy, corporative culture and the code of ethics that is documented for all the participants of the cluster. It is important to note that "RZ Agro" Group is headquartered in Moscow (not in the regions of cluster dislocation) and includes the group of international investors in its board. Thus the leading enterprise of the cluster tends to be the accumulator of codified knowledge in the both spheres of ethics and technologies. It does not codify the regional tacit knowledge but tries to change the regional business environment without aggressive external interruption into regional culture and traditions (in such case the forming corporative culture is to be adapted to the regional traditions and mentality). In the sphere of finance "RZ Agro" Group tends to take the role of "investor". According to its marketing position in can be classified as competitor within oligopoly market of large firms which form the score of the whole agricultural cluster of the Rostov region.

The potential cluster within the agricultural sphere can be based on "Amilco" company located in Millerovo (Rostov region) and producing biotechnological production. The group of complementing Russian and international companies are to be invited to the region of location to form the future cluster of biotechnologies. In this case "Amilco" company tends to become the "accumulator of both tacit and codified knowledge" using technologies provided by Russian companies and international partners. It probably will become the creator and coordinator of the market for providers and resellers. The linking strategy of collaborations with other firms indicates that this company probably will be the stakeholder interested in development of independent firms grouping to implement the common production and market strategy.

#### **4. Conclusion and Recommendations**

The given examples illustrate the regional practice of clustering with the leading role of big companies, which tend to become the scores of intraregional and international cooperation. Indicating the main trends of the strategy and dynamics of these firms is important for the forecast of clustering development of the region in the whole. That is why the administrative practice of governmental support to forming and developing economic clusters at the moment needs the special system of the monitoring of large enterprises dynamics.

Beside the main economic indicators of their development it is important to identify them to be accumulators of tacit or codified knowledge, financial guarantees for the small partner enterprises, leaders of the regional self-organizing processes and bearers of strategy, regional economic consciousness and initiative. Such system of identification and monitoring aimed to find out clusterogenic trends needs further theoretical research and development in practice.

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