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## Support institutions for regional industrial clusters

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### Abstract

The article analyzes the problem of formation of the creation of industrial clusters based on infrastructure and institutional aspects on the basis of international and Russian experience, as well as research on the genesis of industrial clusters. Based on the analysis the authors formulate an opinion on the role of government regulation in general and the use of industrial policies in particular. Also they come to the conclusion about the spectrum applicable to the regulation of state support to the formation of industrial clusters, depending on the form of its realization.

For the formation of the industrial "anchor" cluster it is necessary to establish special conditions, such as to restrict exports of rare resources. These clusters, for example, may include the production of high-tech measuring equipment by limiting the export of helium, or the formation of a cluster of diamonds production by limiting the export of rough diamonds. So, in modern conditions, foreign manufacturers are more competitive, but the Russian Federation has the key resources for the development of production.

The experience of the countries of South-East Asia indicates that the choice of the field of industry may depend on government decisions. However, the possibility of using regulatory tools are substantially dependent on the shape of their implementation and key resources needed for its development and they are implemented through the creation of appropriate institutional and infrastructural environment.

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### Keywords

Industrial clusters, real economy sector, national economy, regional economics, systems analysis.

## Introduction

According to most general ideas, the difference of the industrial cluster from the separate industrial association is that the same type of product or service manufacturers compete with each other, creating innovative products of higher-quality that help improve the competitiveness of a given region or country in general.

A considerable amount of research has shown that the development of any kind of production is carried out more efficiently if the cluster approach is used to its organization. Therefore, at present, the development of industrial clusters according to the various policy documents is one of the priority directions of development of the real sector of the economy and a significant element of business strategies of large companies. At the same time, in the modern theory and practice the issue of assessing the impact of government regulation on the formation of industrial clusters remains unresolved.

A significant number of existing clusters has been formed “spontaneously” without purposeful influence of state regulation. Such associations often have a long history of development associated with the consistent implementation of some distinctive competitive advantage, such as geographical location or access to rare raw materials. In particular, according to several studies the oldest industrial clusters are over 300 years old (for example, the production of wines in France). Therefore, when analyzing the practice of formation of industrial clusters great attention should be paid to those whose genesis occurred in the conditions when the decision on their establishment was taken by policymakers, for example, in South-East Asia and Japan.

## Main part

The purpose of this article is to examine possibilities of state regulation and its influence on the formation of industrial clusters through the generalization of research results in international and Russian practice.

The development of industrial clusters in South-East Asia has begun since the 1960s in Japan, when the Government made the transition from the support of all sectors at the same time to the selective industrial policy. At the same time, according to A. Hattori’s research, after the recession of 1973 it became apparent that it was necessary not only to carry out a policy of selective support, but also a coherent policy of stimulation certain sectors of the economy that could have the greatest impact on the volume of the issue.

In order to implement this principle Japan adopted the program of development of industrial clusters based on these principles in 1983. After the crisis of liquidity in the debt capital markets at the beginning of the 1980s the Government of Japan has proposed the new program, which included the re-orientation of different clusters.

Subsequently, as it is shown on the basis of quantitative indicators in A. Shihoro’s studies, due to implemented in the 1990s local development programs of certain types of economic activity (innovative mostly, for example, a cluster of Fukuoka semiconductors), the substantial progress in the development of the economy in general has been made for the first 10 years of implementation of the cluster principle.

In particular, the obtained quantitative results of the econometric estimation showed that officially registered clusters actively developed only in the conditions of application of measures of state support, financing of staff training was found particularly effective.

In addition, the empirical analysis in A. Shihoro’s works demonstrated that the presence of

successful industrial clusters in the national economy increased the influence of the state on foreign economic activity. However, this effect, first noted in the OECD countries, spread to other countries.

The results of scientific research in the field of cluster organization of production have influenced the government regulation methodology realized recently. Currently, many countries support the idea that the creation of industrial clusters is the foundation of an industrial policy aimed to improve the competitiveness and increase chances of survival in the conditions of globalization.

Thus, at the present time on the basis of generalization of international experience it is recognized that the state can become the initiator of creation of industrial clusters based on existing industries.

The scientific literature on the study of the cluster as geographically separated certain centers of economic activity which appeared by chance contains a considerable number of works, many of which were included in the regulations of various countries. Based on the ideas proposed in Alfred Marshall's work "Principles of Political Economy" (1890), the existence of a cluster was defined as the coordination of activities connected with positive externalities of regional externalities (external effects). In future, while studying the phenomenon of cluster formation, researchers started to consider the impact of formal and informal rules (institutional environment), which can influence the effectiveness of its development. At the moment modern economic science has the proven fact that the unequal distribution of resources, factors of production, particularly in economic activity are defining features of the world economy, despite the significant cost reduction in the field of transport and communications.

A significant number of studies of the phenomenon of the creation and development of industrial clusters in various sectors stated that all industries are geographically concentrated. Despite the fact that the results of some works received retraction later, the effect of the cluster approach to the organization of industrial production was further confirmed by the release of valuation models at the macroeconomic level.

According to the modern theory forms of the industrial cluster may significantly vary. For example, the most common forms of the cluster typology is the division of clusters into 4 categories proposed by J. R. Markussen:

- a cluster according to A. Marshall is an association of small businesses that are in the ownership in the region, develop by strengthening trade relations;
- hub model; it is a combination of many small firms with one or some large firms, which determine the conditions of their work;
- "satellite platform"; it is an association of agro-industrial enterprises and large processing facilities;
- model of "anchor"; it is based on creating innovative products by limiting the exchange relations between the public sector and suppliers.

Besides, each of the cluster models has its own characteristics with respect to state regulation tools used to support their development and the prevailing basic industries.

So, clusters in the "classical" understanding of A. Marshall are largely the result of historical and economic conditions. They are characterized by the presence of several local manufacturers engaged in the competition, while the state provides support only at the level of implementation of export support programs. The examples of such clusters are the Italian shoe manufacturing, chocolate production in Switzerland and Belgium, production of tea in Sri Lanka, production of women's clothing in the Brest region of Belarus, etc.

The use of state regulation of the formation of such clusters is problematic. It is largely influenced by the random nature of factors, which include also a concentration of certain types of industries,

determining the structure of the industry since the Soviet times. That is, the possibility of creating a cluster based on the latter factor, as a rule, can not be realized due to the substantial transformation of both national and world economy in the period since 1990, expressed in loss of process advantages of competitive at that time of production of food industry, including the significant increase in raw material costs.

The situation is different in the case of possible models for organizing the hub cluster. Thus, supporting the formation of this type of infrastructure cluster using direct subsidies, tools, public-private partnerships or tax breaks make it possible to create an industrial cluster of manufacturing. For example, the industrial power of Sibur Holding due to the creation of the ethylene product pipeline became the basis for the formation of clusters of petrochemical industry in a number of regions of the Volga Federal District.

Creating the “satellite platform” cluster in the conditions of modern Russian economy is possible through the application of antitrust measures by creating conditions for the development of competition, including specific regulations in terms of the separation of activities. On related markets with the production of the company-“satellite”, independent market participants appear and work, including the field of research and development in a competitive environment, which leads to an increase in production efficiency. For example, the provisions prescribing the separation of activities are specified in the regulations governing the management of airport infrastructure (separation of ground handling services and air transport) and power generation (separating the activities of generation and transmission capacity and service companies).

## Conclusion

For the formation of the industrial “anchor” cluster it is necessary to establish special conditions, such as to restrict exports of rare resources. These clusters, for example, may include the production of high-tech measuring equipment by limiting the export of helium, or the formation of a cluster of diamonds production by limiting the export of rough diamonds. So, in modern conditions, foreign manufacturers are more competitive, but the Russian Federation has the key resources for the development of production.

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#### **Аннотация**

В статье рассмотрена проблема генезиса и эволюции научных основ создания инновационный в сфере сельского хозяйства и пищевой промышленности на основе международного опыта, а также научных исследований, посвященных формированию промышленных кластеров. В результате были определены ключевые особенности формирования инновационных агропромышленных кластеров, получены эмпирические доказательства неравномерного распределения ресурсов, факторов производства и размещения производительных сил. На основе проведенного анализа формулируется заключение о роли государственного регулирования в целом и применения мер промышленной политики, в частности, для формирования институциональных условий создания инновационных агропромышленных кластеров.

Для формирования промышленного “якорного” кластера необходимо установить особые условия, например, ограничить экспорт редких ресурсов. Эти кластеры, например, могут включать производство высокотехнологичного измерительного оборудования путем ограничения экспорта гелия или формирование кластера по производству алмазов путем ограничения экспорта необработанных алмазов. Итак, в современных условиях зарубежные производители более конкурентоспособны, но у Российской Федерации есть ключевые ресурсы для развития производства.

Опыт стран Юго-Восточной Азии показывает, что выбор отрасли промышленности может зависеть от решений правительства. Однако возможности использования

инструментов регулирования существенно зависят от формы их реализации и ключевых ресурсов, необходимых для ее развития, и реализуются они через создание соответствующей институциональной и инфраструктурной среды.

#### Для цитирования в научных исследованиях

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#### Ключевые слова

Промышленные кластеры, реальный сектор экономики, национальная экономика, региональная экономика, системный анализ

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