ECONOMIC DEVELOPMENT OF RUSSIAN REGIONS ON THE BASIS OF INNOVATIVE CLUSTERS

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ABSTRACT

The basic indicators of science development at the regional level are allocated; results of scientific development of the Volga federal district are presented. The key indicators of innovative activity development as a basis of strategic development of territories are systematized. Priority directions of clustering of economic space of the Russian regions are defined. The formation of the following clusters on the territory of the Republic is substantiated: innovative cluster of forest management, forest processing and reforestation; innovative agro biotechnological cluster; innovative cluster of instrument-making; electronics and information technologies.

Keywords: Innovative Clusters, Strategic Development, Innovative Transformation, Regional Economy, Transformation Scheme.

INTRODUCTION

The current conditions of the Russian economy are characterized by increasing external threats caused by global technological challenges and high turbulence of the political system. The risks of maintaining the technological lag of the Russian industry are increased by dependence on energy exports and the presence of unresolved structural problems of sectorial and spatial development (Kochetkov et al., 2017). In modern Russian conditions, the development of innovative enterprises remains a key area of initiation of new economic growth points in high-tech industries. The problems of practical implementation of the innovative approach to the modernization of regional economic systems are actualized by the need for accelerated implementation of the policy of import substitution and increase in the production of high-tech products (Boush et al., 2016). The insufficient number of successful cluster initiatives is due to the low demand for innovations from industrial enterprises, the underdeveloped institutions of technology transfer and the interaction of the main subjects of innovation processes (Dzhindzholia et al., 2015). Improving the management efficiency of the processes of innovative transformation of the economy solves the problems of infrastructure and investment support of innovative processes (Moser, 2016; Kormishkin et al., 2016). The optimal solution of these problems is proposed based on the existing innovation clusters and individual large enterprises (Gimadeeva, 2015; Pachura, 2015).

METHODOLOGY

The concept of the innovation cluster and the corresponding methodological tools are proposed as a theoretical and methodological basis for the structural optimization of innovative

processes in the aspect of the spatial development of the Russian Federation. Methodological approach of the study focuses on the basic organizational model of cluster (Sölvell, 2009), the model of cluster and regional specialization (Feser, 1998; Porter, 2003; Pisano & Shih, 2012), the institutional model of the cluster (Ketels et al., 2012). As a criterion of specialization of the regional economic system in certain types of economic activity, it is proposed to use the localization coefficient of production. It is proposed to use Localization coefficient (K_L) as the base criterion of specialization of the regional economy on certain types of economic activity. Localization coefficient (K_L) for certain types of economic activity in the region is the ratio of the proportion of economic activity in the economic structure of the region to the specific gravity of economic activity within the national economic system. Localization coefficient (K_L) is calculated by the following formula:

$$K_L=(S_R/Q_R)/(S_N/Q_N)$$

Where, S_R-total production in the framework of economic activity in the region.
Q_R-the volume of gross output in the region.
S_N-total production in the framework of activities in the country.
Q_N-the volume of gross production in the country.

The methodological advantages of Localization coefficient (K_L) thought make it possible to simulate the changes in the structure of the inter-sectorial interactions among the economic agents of the cluster. The advantage of using these indicators is the possibility of cluster development models in order to select the optimal strategy for clustering the economy for each particular territory, as well as differentiation of clusters from territorial production complexes and quasi-clusters.

Main directions of clustering as a basis for region's innovative development. On the basis of the findings, the task was set to search for promising areas of development of the Volga Federal district in order to ensure sustainable economic growth based on the implementation of innovative and technological potential and, as a result, aimed at increasing the quality of life of the population. From the point of view of sectorial specialization, the economic system of the Volga Federal district has an "*industrial-agricultural*" profile, which, accordingly, affects the structure of the gross regional product.

In order to improve the objectivity of the potential areas of clustering of the economy, we consider the values of the production localization coefficient for enlarged types of economic activity in the context of the Volga Federal district. Table 1 presents the values of the production localization coefficient for the subjects of the Volga Federal district.

Table 1
VALUES OF THE PRODUCTION LOCALIZATION COEFFICIENT FOR THE SUBJECTS OF THE VOLGA FEDERAL DISTRICT

Subjects of Russian Federation	Agriculture, Hunting and Forestry	Fishing, Fish Farming	Extraction of Minerals	Manufacturing Activity	Electricity, Gas and Water Production and Distribution	Hotels and Restaurant
Volga federal district	1.45	0.00	1.15	1.40	0.95	1.00
Republic Bashkortostan	1.55	0.00	0.26	2.08	0.62	1.00
Republic Mari El	3.50	0.00	0.01	1.42	1.15	1.18

Table 1
VALUES OF THE PRODUCTION LOCALIZATION COEFFICIENT FOR THE SUBJECTS OF THE VOLGA FEDERAL DISTRICT

Republic Mordovia	2.45	0.00	0.00	1.29	1.21	0.82
Republic Tatarstan	1.21	0.00	1.90	1.04	0.72	0.91
Udmurt Republic	1.67	0.00	2.33	1.03	0.49	1.00
Chuvash Republic	1.98	0.00	0.02	1.41	1.36	1.18
Perm region	0.62	0.00	1.58	1.74	0.77	0.91
Kirov region	1.79	0.00	0.04	1.41	0.90	1.45
Nizhny Novgorod region	0.83	0.00	0.01	1.70	1.03	1.09
Orenburg region	1.74	0.00	3.80	0.67	1.03	0.82
Penza region	2.43	0.00	0.01	1.21	0.82	1.18
Samara region	1.12	0.00	1.24	1.44	1.15	1.00
Saratov region	2.95	0.00	0.26	1.12	2.26	1.00
Ulyanovsk region	1.62	0.00	0.26	1.27	1.15	0.64

Table 2
VALUES OF THE LOCALIZATION COEFFICIENT OF INDUSTRIAL PRODUCTION FOR THE REGIONS OF THE VOLGA FEDERAL DISTRICT

Subjects of Russian Federation	Manufacture of Food Products, Including Beverages and Tobacco	Textile, Garment Manufacturing, Leather and Footwear Manufacturing	Wood Processing, Manufacture of Wood Products	Pulp and Paper Industry Publishing and Printing Activities	Coke and Petroleum Products Production, Chemical Production	Manufacture of Other Non-Metallic Mineral Products	Metallurgical Production and Production of Finished Metal Products	Manufacture of Machinery, Vehicles and Equipment	Manufacture of Electrical Equipment, Electronic and Optical Equipment
Volga federal district	0.75	0.80	0.77	0.67	1.23	0.93	0.57	1.34	1.12
Republic Bashkortostan	0.45	0.60	0.46	0.33	1.99	1.02	0.31	0.79	0.33
Republic Mari El	1.71	1.00	1.85	2.15	0.50	1.02	0.49	0.79	3.44
Republic Mordovia	2.52	0.90	1.15	0.26	0.11	3.88	0.26	0.61	3.09
Republic Tatarstan	0.65	0.40	0.38	0.44	1.54	0.60	0.31	1.54	0.70
Udmurt Republic	1.15	0.90	1.69	0.63	0.10	0.79	0.73	1.34	2.44
Chuvash Republic	1.18	3.30	1.31	0.56	0.40	1.55	0.34	1.44	4.18
Perm region	0.33	0.80	1.08	1.48	1.85	0.50	0.34	0.78	0.91
Kirov region	1.05	2.80	6.08	0.70	0.84	0.64	0.68	0.69	1.61
Nizhny Novgorod region	0.52	0.80	0.54	0.93	1.10	0.76	1.07	1.46	0.88
Orenburg region	0.65	0.60	0.38	0.30	1.18	1.19	1.93	0.46	0.26
Penza region	2.37	0.70	1.31	2.37	0.10	1.29	0.43	0.93	2.47
Samara region	0.61	0.40	0.08	0.15	0.87	0.76	0.55	2.61	1.07

| Saratov region | 1.69 | 0.90 | 0.08 | 0.37 | 0.82 | 2.07 | 0.53 | 0.79 | 1.65 |
| Ulyanovsk region | 1.27 | 1.20 | 2.23 | 0.44 | 0.06 | 2.00 | 0.49 | 2.29 | 2.82 |

The economic system of the regions has the potential for clustering in the following areas: "*agriculture, hunting and forestry*", "*manufacturing industries*", "*domestic tourism*" on the basis of the values for localization of production within the enlarged types of economic activities. Accordingly, the urgency of modernization of production in the Volga Federal district within the framework of the innovative scenario of economic growth increases. We also consider the values of the production localization coefficient for the above types of industrial production in the context of the Volga Federal district. Table 2 presents the values of the localization coefficient of industrial production for the regions of the Volga Federal district.

Thus, on the basis of the carried-out analysis and the main limitations, prerequisites and imperatives of generation of the *"fourth wave"* of clustering of the Russian economy allocated at the previous stages of the dissertation research three priority directions of clustering of economic space of the Volga Federal district are defined: formation of an innovative clusters of forest management, timber processing and reforestation; formation of an innovative agro biotechnological clusters; formation of an innovative clusters of instrumentation, electronics and information technologies.

CONCLUSION

Thus, the innovative cluster of instrumentation, electronics and information technologies of the Volga Federal district is considered as a scientific and technological core of the conglomerate of potential clusters of Russian regions. The innovative cluster of forest management, forest processing and reforestation and the innovative agro biotechnological cluster form the centre of integration of the conglomerate of clusters into the Innovative multicluster of nature management. It was concluded that the composition of innovative clusters in addition to the large and medium-sized enterprises are involved subjects of innovative small businesses, universities, organizations of secondary professional and additional education, research organizations, regional bodies of state power and local self-government bodies, financial-credit organizations.

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