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Management of Innovative Process in the Economy at the Regional Level

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Abstract: The study determines the presence of three elements in the regional economy as a basic factor of functioning of regional innovative system. These elements are: institutions as the environment, investments as financial capacity, infrastructure as a necessary element of the system of innovation. It's proved that taken together, these components create the preconditions for the formation and functioning of innovative process in the region. The study gives the definition of the innovation process. It also analyzes the dynamics of the level of innovation-active enterprises in the Belgorod region which is characterized as an abrupt. The study also determines the causes of fluctuations in these dynamics. It researches the structure of sources of financing of scientific activity in the region and defines that even in the absence of significant cost of some level of innovativeness of enterprises in the region is maintained. It proposes development to take into account the current scientific developments in the system of Russian Academy of Sciences when forming developing strategies of regional.

Key words: Innovations, innovation process, regional innovation system, infrastructure, issues of innovation economic development of the region

INTRODUCTION

The domestic economy has faced challenges and problems for solving of which there are no mechanisms, algorithms and obvious answers.Various aspects of the economic crisis became clearly manifested. There are well-known sanctions lying on the surface however, the difficulties of the economy are connected not only with them. Deeper in the economic system there are structural deformations, the overcoming of which requires the creation of a new industrial base. But a system approach to the solution of fundamental problems of socio-economic development of the region is the most important. This has been actively developed by domestic economists in recent years. In this regard, Vladyka and Logvinenko (2013) writes: "it is a question of forming a new regional innovation system that can provide internal impulses to the technological modernization and industrial growth not only of the region but the national economy as a whole". Supporting a systematic approach, Vaganova (2012) comes from the fact that the most important element of modernization of the regional economy is innovation which allows to create advanced industrial and technological base.

In conditions of modern crisis in the domestic economy it is required to summing up the results concerning the quality of applied methods and approaches for efficient management of innovative processes at the regional level. The timing of the reforms, application and testing of methods and approaches to modernization of economy allow to consider the findings sufficiently verified (Vladika *et al*., 2014). And yet for understanding the problems of low development of regional innovation systems it is necessary "..to run the analysis of backward and forward linkages of the economic system at the following levels: technological structures, socio-economic relations and economic and legal institutions, civilizational and socio-cultural invariants and trends" (Vaganova *et al*., 2015).

MAIN PART

The basic factor of economic development of the regions is innovations and their implementation which in fact has incorporated questions consisting of the following elements: institutions as the environment, investments as financial capacity, infrastructure as a necessary element of the system of innovation. Interrelated components create the preconditions for the formation and functioning of innovative process in the region, by which we mean a coherent system of processes of transformation of theoretical innovations in the application ones, based on compliance with the principles of interaction between the creators of

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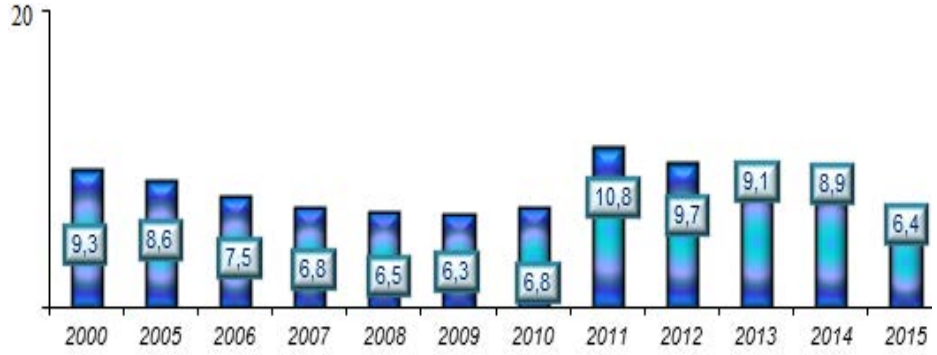

Fig. 1: The level of innovation activity of organizations engaged in technological innovations in the Belgorod region

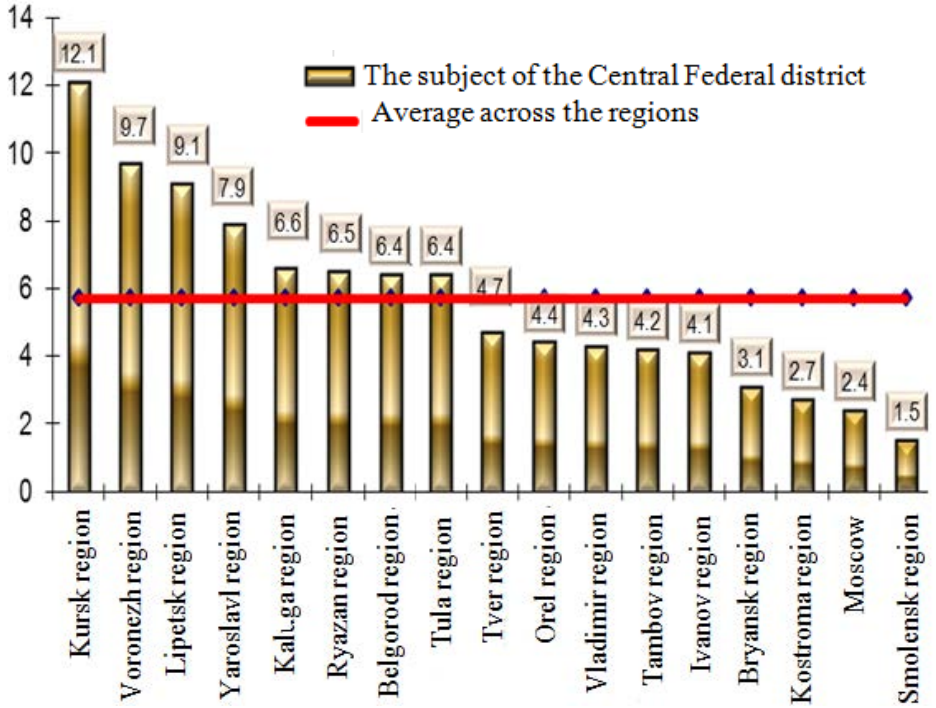

Fig. 2: The level of innovation activity of enterprises in the regions of Central Federal district in 2015 (%) indicators of innovation activity: HSE (2015)

innovations, resource owners and consumers of innovations concerning their manufacture, use and provide the necessary resources for the effective functioning of this process in a certain area (Moskovkin and Sizyongo, 2015).

The innovation process and its renewal may not carry a systematic nature, because the new technology allows to make a profit without improving the return from each unit of resource used in the long run. This circumstance is of interest for analysis from the point of view as a result of methods of state influence on regional economy and preconditions for further development of the regional innovation system. Let us consider some aspects of innovative development in the Belgorod region. In Fig. 1, after 2000, the number of innovatively active enterprises in the region in 2015 is reducing, the increase was only observed in 2011 (from 6.8-10.8) but then the trend of innovative activity of enterprises in the region becomes negative.

The observed dynamics of the level of innovatively active enterprises in the Belgorod region remains uneven which reflects not only a slight pace but also unsustainable trend (Vaganova *et al*., 2015). Even less uniform and stable pattern is observed for regions of the Central Federal District (CFD) (Fig. 2): high level of innovation activity of enterprises in 2015 was observed in

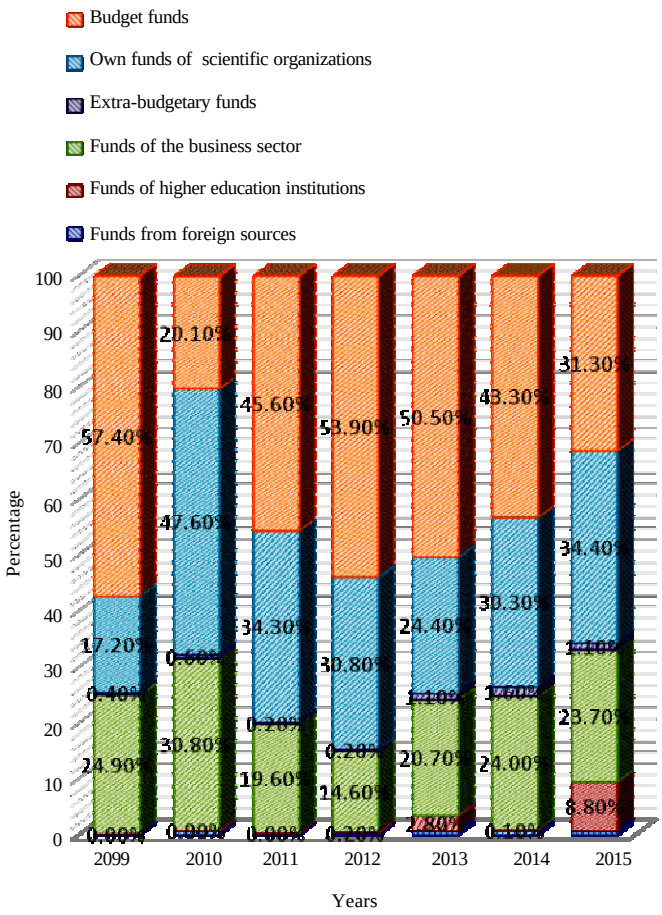

Fig. 3: The Structure of domestic expenditure on research and development by source of funds (percentage of total) innovation clusters in the economy of the Belgorod region

Kursk, Voronezh and Lipetsk regions which in 2005 significantly lagged behind the rest (Gorshkov, 2009). Such dynamics can not be called an indicator of sustainable development. It is typical for economies in transition, when the institutional conditions are only just emerging; business entities do not have a clear position and guidelines in economic development; influence of different kinds of risks which can not be insured (Fig. 3).

The main reasons for the fluctuation dynamics of innovativeness of regional enterprises include the lack of demand for innovations from the industry and entrepreneurs. According to the Belgorod statistical compendium of "scientific and innovative development of Belgorod region in 2013" the situation in the structure of innovative technologies for the types of activities is reflected the following way.

In organizations of industrial production which carried out technological innovations during the reporting year, the volume of shipped innovative goods, works, services amounted to 17090.5 million rubles which is 1.8 times higher than in 2012. Their share in total volume of shipped goods, performed works and services by own forces of organizations of the industry was 8.1%, compared to 5.9% in 2012 (Indicators of innovative activity, 2015).

The volume of shipped goods, works, services of industrial production organizations, engaged in technological innovation in 2013, 65.6% of the organizations belonged to the "manufacturing industries" of which the lion's share (48.5%) the organization of metallurgical production and production of finished metal products" innovation cluster of the economy of the Belgorod region.

By the volume of shipped innovative products in average per organization leaders among organizations of the sphere of industrial production are the enterprises of mining (5831.1 million), metallurgical production and production of finished metal products (1088.3 million rubles), the production of food products, beverages and tobacco (of 362.9 million rubles), production of other non-metallic mineral products (233.9 sq million rubles), that is those economic activities that have a high level of

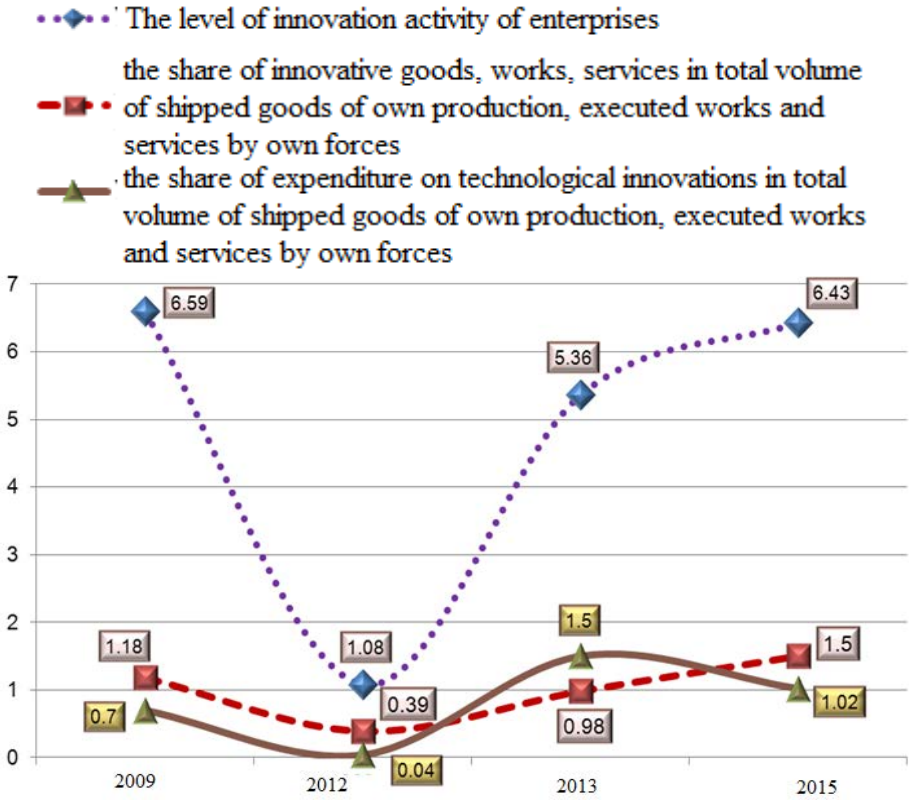

Fig. 4: The main indicators of innovation activity of enterprises

concentration of production and a high share of state participation. Averagely, among organizations of industrial production engaged in technological innovation in 2013, there is 474.7 million per organization (Titov and Vaganova, 2015) (Fig. 4).

Analyzing the data, we conclude that entrepreneurs are unable to set a high level of innovative activity and find other sources of growth to increase profits. So for example in the Belgorod region they increase mining, manufacturing of finished metallurgical products and production of food. Most of these companies operate on funds and capacities created in Soviet times, without a serious technological renewal of the relevant investments and innovations that may gradually lead to the exhaustion of the potential of the production base and the absence of objective preconditions for the development of the regional economy. Therefore, activation of the state programmes in these sectors is vital. Thus, the problems of management of innovative process at the regional level become national.

According to Russian scientists, there is an urgent need to increase domestic development, capable to replace foreign one at a higher level (Gorshkov, 2009). And this requires not only the actors-innovators, offering innovations to the market but also the appropriate environment in which innovation can "replicate". During the administrative-command economy this environment has shaped and supported by the Academy of Sciences of the USSR. Functions included the identification and recruitment of scientific personnel, bringing them to the level of the highest qualification scientific and embedding of resource in the system of social production (Biglova, 2015). Of course, not all developments have been applied and implemented. About 16% of the developments of that time are relevant today and so maintaining the innovative environment at the regional level which may be new technologies of the sixth technological structure is a crucial question in the state management system (Biryukov *et al*., 2015). Up to date, we can state fact that the system that was operating 20 years ago has undergone significant changes (Liudmila *et al*., 2014). The financing scheme has been completely transformed. The scheme has significantly reduced funding from public sources, significantly increased the proportion of external sources, including international, extra-budgetary sources and private enterprises and organizations.

But despite changes in the structure of sources of financing scientific activity and criticism of the state's

participation in the activities of scientific organizations, it seems reasonable to leave the state a leading role in the development of priority areas and the direct impact on regional policies. It should be noted that even in the absence of significant costs some level of innovativeness of enterprises in the region remains although, as noted above remains uneven (Fig. 4). This speaks to a mandatory minimum of innovation which is extremely necessary for theexistence of the regional innovation system (Halecker and Hartmann, 2013).

CONCLUSION

Thus, the development of regional innovation systems is unstable, non-linear with high risks. The degree of development of regional infrastructure doesn't meet the requirements of the dynamic development. It seems a rational requirement to make different strategies of innovative development of the region the list of new developed but not implemented technologies available to the Russian Academy of Sciences (Belousov and Shelukhina, 2013). This measure is expected to be launched when developing conceptual documents on the regional level. And vertical applications require documents, matching inter-regional cooperation and the interests of the subjects of the innovation process when implementing the latest technology that is poorly developed in modern economy by Saebi and Foss (2015).

In modern conditions economic policy needs to be systemic, both at the federal and at the regional level. The foundation of successful development of the national economy is based on the successful and efficient functioning of regional innovation systems (Huhtala *et al*., 2014). The concept of development of national economy is inseparably linked with the concept of development of regions. Regional innovation systems are an integral part of the national innovation system and a necessary condition of its existence have a similar structure of the interacting elements and innovation processes and at the same time take account of regional features and innovation potential of the region. The promotion of activities of regional enterprises in the sphere of innovation is the guarantee of effective functioning of regional innovation systems as well as the necessary condition for the development of the national economy (Salikov *et al*., 2013).

It can be concluded that Russia has a sufficient potential for the formation of effective national economy, however, there are a number of factors hindering its development. The formation of regional innovation systems is a long and expensive process, consisting of a set of large-scale and targeted projects and programmes. Competent use of mechanisms and instruments of influence on innovative activity of regional enterprises will generate successful innovation system at the regional and national level that will ensure sustainable development of domestic economy, strengthening its competitiveness and promote economic security of the country.

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