REGIONAL INNOVATION SYSTEMS: COMPETITIVE REGULATION AND FINANCIAL DIMENSIONS

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ABSTRACT

Current national economic development directly depends on regional business life. The problem is that in most cases, regional economy of developing countries is not industrially advanced or attractive to investors. Thus, the purpose of this research is to consider the aspects of regional competitive regulation. The authors put an emphasis on the fact that there should be first the information transparency increased and a favorable investment environment created. Recommendations on the industry-specific progress can be useful for creation of regional development programs.

Keywords: Energy Intensity of Production, Innovation-Driven Economic Development, Investment Activity, Extra-Budgetary Funds, Deficit, Equity, Project Financing.

JEL Classification: R11, R12, O38

INTRODUCTION

In the context of globalization, economic activity is successful if oriented on path-breaking. The experience of developed countries such as Germany, France, Great Britain and Japan demonstrates that introduction and development of regional innovation systems factor in the national economic development in general, and the effect is significant (Boso et al., 2016).

Currently, emerging advanced technological developments and innovations are an economic security guarantor (The 2030 National Development Strategy of the Republic of Tajikistan; Dobrovolskaya, 2012; Vorobiev & Abdureshitova, 2015). The world economic development has set out on the innovations path. It is characterized by a the transition from a resource economy to a knowledge-based one, driven by a scientific and technological progress, qualitatively new level of education and an increase in the economic systems management efficiency (Sadykov, 2015; Boso et al., 2016; Shkurkin et al., 2016).

Current Tajikistan economy should be evidently modernized. At the moment, Tajikistan lags behind other developed countries in the level of technological development for more than 50 years–less than 15% of total output accrue to the knowledge-based industries.

Much attention is currently paid to the research on the accelerated economic development management (national and regional cases) (Parr, 2014; Shah et al., 2016; Fleischmann et al., 2017). Limited natural and production resources and a decrease in investment activity have
predetermined the search for new opportunities for the competitive advantages formation (Kolmakov et al., 2015: 2017).

The accelerated economic development is characterized by the capacity for maintaining the economic stability and improving the quality of life, as well as for providing a plan for further development with the regard to certain changes in the external and internal conditions and factors affecting the national/regional economy (Pushpangadan & Nair, 2016; Milburn et al., 2016). However, regional economic development cannot be accelerated by means of economic or management methods only, since generally, the rate of the above changes cannot be often determined (Pinder, 2017; Kemeny & Storper, 2015; Higgins & Savoie, 2017).

In the Republic of Tajikistan, modern regional economy has a number of specific features due to an unbalanced development of market economy and the lack of a well-functioning program budgeting mechanism. This leads to the regional development differentiation, characterized by an imperfect budget revenue structure and expenditure pattern, as well as by significant inter-regional differences in the quality of life estimates.

At the same time, regional strategic development concepts and programs are focused on the accelerated regional economic development, economic growth and security, as well as on improving the quality of life, the existing infrastructure and management in all production and non-productive areas (A Scientific Center can be Established in the Republic of Tajikistan to Introduce Innovations into Production; Valinurova, 2011; Kuznetsov, 2012).

Implementing the Regional Development Strategy Plan allows fully realizing whether the goal of accelerating the regional economic development was achieved or not, as the Plan takes into account all the necessary components and provides for the quantitative and qualitative monitoring. The quantitative and qualitative indicators narrow down the state contribution towards the regulation.

The republican authorities pay great attention to the availability of short-term, medium-term and long-term strategic plans, as well as to the processes of increasing the regional investment attractiveness, the number of business entities, local product and services markets. They also allocate the priority sectors for financial support (The Law of the Republic of Tajikistan on Investments, 2007).

Regional innovation activity success largely depends on the process organization and financial support methods (Pietrzak et al., 2014; Beugelsdijk et al., 2017: 2018). The financing sources may be the State, enterprises, financial and industrial groups, the small knowledge-based business, investment and innovation funds, local governments, private individuals, etc. All of them participate in the economic process and contribute to the innovation development in one way or another (Giaoutzi et al., 2016; Edwards, 2017; Mikhailovich et al., 2017).

The principles of financing should be established with a regard to the multiple number of financing sources. They should also contribute to the rapid and effective introduction of innovations, their commercialization and an increase in the returns on investments (Vachugov, 2013).

Thus, the purpose of this research is to consider the regional economic development methods and sources. This article also provides details on the procedure of planning and making decisions on financing regional innovation projects. These details can be addressed when planning project implementation.
DATa, ANALYSIS AND RESULTS

In the Republic of Tajikistan, innovation activity problem has arisen at the beginning of the economy reorientation. Many entrepreneurs have gotten a real chance to raise their business to a higher level. High innovation potential has contributed to such a demand for innovations that an innovation market was formed. Despite this situation, however, current regional innovation and investment environment is far from the ideal one. The insufficient central funding and the lack of capital base and/or strategic thinking are not currently filled by the private capital flow.

There are three organizational forms of financing for innovation (Table 1):

1. Deficit financing.
2. Equity financing.
3. Project financing.

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<th>Table 1</th>
<th>ORGANIZATIONAL FORMS OF FINANCING FOR REGIONAL INNOVATION ACTIVITY</th>
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Deficit financing is a method of national economic regulation, used by the countries with developed market economy. It is that government expenditures exceed the revenues due to the budgetary deficit. Deficit financing temporarily expands the government take, thereby temporarily causing the economic growth. However, budgetary deficit entails the growth of public debt, strengthens the inflationary processes, reduces the actual demand, and thereby, narrows the economic growth opportunities.

Equity financing is available to closed and open joint stock companies. It allows accumulating large financial resources by placing shares (borrowing money from share buyers for an indefinite period) for the purpose of implementing specific innovation projects (Zenchenko, 2011).

Thus, securities issue allows replacing the investment loan with marketable debt securities. This allows optimizing the structure of financial resources, invested in the innovation project.

The following indicators are used to determine the nominal issue amount:

1. Fund level required for implementing the innovation project.
2. Expected gain and dividend rate on shares.
3. Cash level that the issuer expects to receive by placing shares.

Project financing is an important and relatively new form of financing. Traditionally, project financing is understood as a long-term project lending. It has many varieties that have penetrated into the innovation sector through the innovation investments. At first, projects investments were partially used to develop and adopt the knowledge-based innovations. Then, innovation investments were used for secondary purposes as a part of the core investment projects. However, innovation investments efficiency, innovation complexity and the need to orient the national/regional economic development on innovations have led to the emergence of a new type of project financing (Kadochnikov, 2011).

In the case of project financing, trade and innovative banks are the main lenders-investors, but the list could be expanded by the government agencies, foreign companies, enterprises, international financial institutions and business entities. This form of financing is characterized by organizational complexity, limited information when choosing the specific innovative projects and increased commercial risk. This form of financing has the following specific features: clear and legal “guarantees” on the part of government agencies and international financial institutions, and “risks” well-allocated between the lenders-investors, developers and guarantors of.

A distinctive feature is that only those innovation projects are financed that will contribute to a constant flow of financial resources and debt repayment. The latter requires a comprehensive and qualified examination. Debts are repaid at the expense of prime source-revenues received from project implementation. In some cases, they can be set off by means of the secondary sources guarantor’s assets or subsidies. The list of project financing features may include the coordination of project implementation procedures with the money lenders (banks, special-purpose innovation investment funds and international financial institutions).

Innovation project financing is characterized by the innovation portfolio formation and application. Innovation portfolio usually contains different projects that vary in terms of scope (large, medium and small), complexity, significance, implementation terms and areas. Such differentiation allows minimizing the related technical and commercial risks, and increasing the project efficiency. There are the specific types of project financing applied for innovations that differ in debt repayment methods, repayment abilities of project participants, etc (Marupov, 2013).

In any case, the option, when revenues from the project are the only source of debt repayment, should be considered as the most effective project financing option. Project financing has a number of advantages and disadvantages. The advantages list includes: earmarking, business risk allocation, and guarantees on the part of the government and financial institutions. Disadvantages list includes the following: sufficiently high project risks, dependence on the innovation climate and gaps in the legislation. If certain principles are followed and requirements are taken into account, project financing can be attributed to the effective forms of financing for innovation at certain conditions.

In the Republic of Tajikistan, “innovation financing scheme” involves two main types of investment sources:

1. State funds available for investment (budgetary funds, extra-budgetary funds, public borrowing, stock, state-owned property).

2. Investments, including financial resources hold by the business entities, non-government organizations, individuals, etc.

There are two forms of innovation financing: direct and indirect.
Direct Sources of Financing Includes:

1. Budgetary (state and local) funds.
2. Extra-budgetary funds (special-purpose funds).
3. Equity funds of enterprises (associations).
4. Loans.
5. Innovation investments.
6. Special funds.
7. International credits for venture organizations developing innovations.

This list may also include other sources (for example, insurance funds that will be reoriented into the venture funds, special charitable contributions, etc.) (A scientific center can be established on the Republic of Tajikistan to introduce innovations into production).

Indirect Sources of Financial Includes:

1. Tax allowances and discounts.
2. Tax credits.
3. Credit facilities (credits are allocated for those enterprises that are potential innovation consumers).
4. Financial sanctions for non-fulfilling the contracts.
5. Scientific equipment leasing.
6. Customs facilities.
7. Depreciation allowances.

This list may also include the international scientific-technical cooperation protectionism, innovation projects designed by innovators and introduced into the integrated state scientific, technical and innovation programs; certain privileges for scientific organizations, intended for plant repairing, etc.

Based on the management level, innovation financing sources are divided into national, sectorial, local and institutional (enterprises, research and production complexes) ones.

At the national level, innovation financing sources list includes the central government budget, extra-budgetary funds, special-purpose funds, borrowed funds (foreign and internal debt bonds, borrowed money, and certificates), and credits.

At the sectoral level, innovation financing sources list includes the sector-specific and cross-sector extra-budgetary funds, funds raised on stock sales, special purpose receipts, public budget and financial loans, and finances received from international cooperation (Belyaev & Zakharova, 2015).

At the local level, innovation financing sources list may include the local budget, local special-purpose extra-budgetary funds, the central government budget, cross-sector extra-budgetary funds, loans and innovation investments.

At the institutional level (enterprises, organizations, associations), innovation financing sources list includes the capital base, budgetary funds, extra-budgetary funds, loans, funds hold by different financial industrial groups, research and production complexes and corporations.
(small affiliated companies). The list also includes the foreign financial resources (joint ventures case), funds raised on stock sales, credit facilities and leasing on favorable terms.

At the level of R&D institutions and research-and-production complexes, innovation financing sources list includes the capital base, budgetary funds, extra-budgetary funds, loans, partly amortized allowances, favorable leasing, special-purpose funds, and grants allocated for scientists and scientific institutions. In some cases, innovation projects are financed by the customers themselves.

The regional economic development process entails the continuous financial reserve renewal and growth, gross regional product growth, manpower replacement and production relations reproduction. Such a process is carried out by means of economic levers, commodity-money, financial and credit relations. The region functions as any other socio-economic system regional policy is targeted at constant development, and, therefore, at the reproduction on an expanded scale. In this regard, an important role is given to financial relations and resources. The finances possessed by all the regional business subjects are related through the financial interaction. The latter also contributes to the formation of regional financial resources (Kuznetsov, 2012).

In regional economy, finances play many roles, but they can be reduced to three main areas: financial support for expanded production; financial regulation of socio-economic processes; financial incentives for the effective economic resource exploitation. The point at these areas is that the active resource exploitation contributes to the regional economic development.

Financial support for the regional economic development covers two main areas for investing in the real sector: fixed asset renewal and technological innovations development and application costs.

The financial support system is proposed to be improved in two directions: financial support control system improvement for regional economic development and for preparing the real economy sector enterprises to interact with the financial support system.

In the first case, financial support control system improvement is a process of state regulation mechanism development for regulating the financial resource exploitation. At this point, the control should be carried out also over the financial relations between the subjects of both systems the financial support system itself and the system of real sector functioning.

The existing proposal for improving the financial support system provides for certain actions to be carried out. These actions can be carried out into two stages: preparatory and principal.

The preparatory stage provides for preparing the enterprises to interact with different elements of the financial support system. At the preparatory stage, the following actions should be carried out:

1. Preparing enterprises for getting the public support and for dealing with the credit institutions (business and strategic planning).
2. Institutionalizing the responsibility centers by creating the additional government agencies responsible for the control over the investment project financing and implementation. Responsibility centers can also be institutionalized by assigning the control function to the existing government agencies.
3. Developing the regulatory legal acts, regulating the responsibility centers and other enterprises/organizations supporting the regional economic development.

In general, this stage can be described as a number of qualitative improvements planned for creating an environment suitable for investing in the regional economic development. In this
regard, an important place will be assigned to management improvement. One should involve all those modern management technologies that are used in developed countries.

The principal stage provides for creating an adequate financial system, intended for financing certain actions and investment projects that will contribute to the strategic economic development (Fasenko et al., 2014).

In modern environment, innovation component is a key factor of regional development, as it determines not only the nature of regional performance, but also the opportunities for achieving the strategic goals of regional development. The high-quality regional management will contribute to the required efficient innovation-driven trend of the regional socio-economic system development, based on the appropriate model development and implementation.

In the Republic of Tajikistan, there has been currently established a Research Center for Innovation Technologies under the Academy of Sciences. Its task is to improve the research results for the purpose of national production development. Its staff members are solving the pressing problems of the regional energy sector and nature management.

The key research areas are those, based on which the Tajikistan economy is built primarily, the energy production (from hydropower to solar batteries). Another research area covers the climate change consequence, in particular the annual reduction in clean fresh water reserves.

**DISCUSSION**

Emomali Rahmon, the President of the Republic of Tajikistan, has noted that “the financial support for science should be revised as the Center is created, if its performance is planned to be efficient. The stake should be placed on the younger generation of researchers, who will continue to research within the framework of state strategies and programs. Attention should be paid to the education of young creative researchers” (Valinurova, 2011; Decree No. 755, 2012).

There is no such a country that would be capable of developing innovation technologies without serious investments in research and logistics, even if the highly-qualified scientists are available.

Currently, science and education are taking the lead in Tajikistan budget allocations list-24.35%.

Our model of regional innovation-driven economic development will contribute to the regional manufacturing complex modernization; budget revenue growth and efficient transfer of research and experimental results into the production. It will also contribute to the fundamentally new highly-profitable facilities, based on the latest technological waves; environmental safety improvement; lower resource dependence and energy intensity of production.

At the moment, the Republic of Tajikistan is going to implement the following innovation projects by 2020:


7. Molecular Genetic Methods Improvement for the Chronic Viral Liver Diseases and Hepatocellular Carcinoma Diagnosis and Treatment (2011-2020).


The Innovation-Driven Development Strategy of the Republic of Tajikistan until 2020 was designed in accordance with Articles 8 and 17 of the Law of the Republic of Tajikistan on “Innovation Activities”. The strategy is to solve problems in the field of innovation development; it defines objectives, priorities and tools of government innovation policy. Aside from that, the document sets long-term development targets for innovative entities, and benchmarks for financing fundamental/applied science and supporting the commercialization of innovations (Belyaev & Zakharova, 2015).

The adopted 2030 National Development Strategy of the Republic of Tajikistan provides for creating grounds for the national/regional innovation-driven economic development based on the education reforms and modern personnel training. This scenario can be put into effect by developing innovative approaches to solving economic and social issues, strengthening the institutional framework for development, improving the legal system and strengthening the property rights protection. This will entail the growth of national private and foreign direct investment. This will also lead to the rational use of new integration opportunities, as well as to the national transit infrastructure development, economic diversification and a significant increase in exports. According to this scenario, there can be the following sources of economic growth: effective human capital use, possibilities of a new transit infrastructure and economic corridors, export-oriented and import-substituting development, high added-value exports expansion, organic farming development. This list also includes the renewable and clean energy sources, developed as a basis of “green economy”, as well as the integrated water resources management mechanism improvement and all-round tourist development.

CONCLUSION

Based on the above aspects, we can conclude that theoretical and practical issues of choosing a model for accelerated regional economic development are relevant, as the model
should meet the requirements of modern economy and should be oriented towards the effective utilization of available financial resources.

At the moment, its major problems list includes the disrupted relations between the main participants of the innovation-driven process (developers and consumers), informational blackness and, therefore, a low motivation for developing and/or financing different innovations.

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