

# STUDY OF PARAMETERS CHARACTERIZING FORMATION OF BUSINESS ENVIRONMENT IN THE NORTHERN REGIONS IN THE CONTEXT OF INNOVATION-DRIVEN ECONOMY

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## ABSTRACT

*This article deals with the study of the business environment condition in the Northern regions of Russia in the context of innovation-driven economy. For this purpose, the following indicators were analysed: demographics of organizations, average per capita income, the status of fixed assets, the level of information and communication technologies utilization, the internal costs for research and development, the amount of investments in fixed assets, as well as technology and technical service's exports and imports. In consequence of the research, the methodological tools were developed for comprehensive assessment of the development level of entrepreneurial environment of the Northern regions in the context of innovation-driven economy. The proposed methodological guidelines can be used by regional authorities to analyse the business environment condition in the region, assess the effectiveness of state support measures of the entrepreneurial sector and choose priority areas of entrepreneurship development in the context of innovation-driven economy.*

**Keywords:** Entrepreneurial Environment, Innovation-Driven Economy, Parametric Analysis.

## INTRODUCTION

Today, the entrepreneurship is developing at a significant pace. Modern entrepreneurs are characterized by a high level of socio-economic responsibility entrusted to them by society. Thus, in addition to the traditional tasks of improving the welfare of citizens, reducing unemployment, paying tax deductions, entrepreneurs in an innovation-driven economy solve the problems related to the development of socio-cultural sphere, the creation of new products, the introduction of innovative technologies, as well as the conduction of research and development. Thus, entrepreneurship becomes a driver that determines the level of socio-economic development of a particular territory. This assertion is particularly applicable to the Northern regions of Russia.

In accordance with the Strategy of innovative development of the Russian Federation for the period up to 2020, a special role in the context of innovation-driven economy is assigned to the Northern regions of Russia due to the fact that they possess significant resource potential. These concerns the Khanty-Mansiysk Autonomous District-Yugra, Yamalo-Nenets Autonomous District, Chukotka Autonomous District, Nenets Autonomous District, Murmansk Region, Arkhangelsk Region, Sakhalin Region, Magadan Region, Irkutsk Region, Kamchatka Territory,

Krasnoyarsk Territory, Khabarovsk Territory, Republic of Tuva, Republic of Komi, Republic of Karelia and the Republic of Sakha (Yakutia).

The main problems complicating the enhancement of the entrepreneurial activities in these regions are related to severe climate, uneven socio-economic development, low transport accessibility, low population density, considerable remoteness from economic centres and low infrastructure development. Despite the existing difficulties in the Northern regions in terms of entrepreneurship development, the innovation-driven economy causes the emergence of new external and internal challenges, such as accelerating the development of technology, searching for alternative energy sources, creating innovative products and reducing the environmental pollution. Taking this into account, the existing unresolved problems of entrepreneurship enhancement in the Northern regions are also subject to global challenges, to which the Northern regions must provide an effective response.

Under innovation-driven economy the authors of the study understand the complex of social relations regulated by the innovation environment, the basic elements of which are innovations, scientific development and information technologies. The authors of the present article come to the conclusion that the most important challenges for the Northern regions in the context of innovation-driven economy are the development of the receptivity of the entrepreneurial sector to innovation, as well as the promotion of research and development at small and medium-sized enterprises.

## LITERATURE REVIEW

The entrepreneurial sphere in modern conditions of innovation-driven economy is studied by many domestic and foreign scientists. This is due to the fact that the policy documents of many countries and regions pay close attention to entrepreneurship. The implementation of economic modernization cannot be carried out without providing extensive opportunities for entrepreneurs to do business and open new niches.

Today, the assessment of regions and countries in terms of the level of entrepreneurial activity development is becoming increasingly important for domestic researchers. Researchers Peikov et al. (2017) explore quantitative aspect of the assessment of the regional business environment functioning. To assess the development level of business environment, these authors chose four indicators: investment in fixed capital, turnover of the organizations, number of enterprises and organizations and the balanced financial result (Peikov et al., 2017). Some authors focus on the development of methods for assessing the effectiveness of the state regulation of entrepreneurship in the regional business environment. So, for example, Malikov and Zaynashev (2017) analyse the following indicators characterizing the current business environment status: the average time needed to register legal entities, the average number of relevant administrative procedures, the average number of inspections conducted by officials, the average number of additional documents requested, the proportion of companies that have faced corruption and others (Malikov and Zaynashev, 2017). Some researchers, when formulating the methodology for assessing the level of business environment development, use multicriteria parametric estimation of a variety of factors. Parametric estimation includes consideration of factors, such as for example, the level of basic training of entrepreneurs, experience in core activity, knowledge of the problems associated with the business environment development in the territory, knowledge of the basics of doing business, knowledge of the specifics of the comfortable business environment, educational self-assessment and others.

Foreign researchers raise a lot of topical issues. For example, research is being carried out on the factors that determine the level of success of women in business (Amrita et al., 2018). The family business attracts a lot of attention of foreign scientists as well. The researchers analyse factors affecting the efficiency of family businesses (Shen et al., 2017) and give recommendations for managing the family business (Hughes et al., 2017).

Some foreign authors study the state of rural entrepreneurship and note that rural enterprises, having a small size, are characterized by a low level of productivity and orientation to the domestic market (Pato and Teixeira, 2018). Other foreign authors point to the need to develop venture capital through activities carried out within the framework of the state policy of a particular country. Thus, Lee and Jung illustrated the need for state support for start-ups and the venture capital industry as exemplified by Korea (Lee and Jung, 2017). Business models of small companies are also the research object of foreign scientists. Some authors make an attempt to classify general and innovative business models and come up to the conclusion that the readiness of companies to experiment and develop is associated with innovations implemented at the enterprise (Brannon and Wiklund, 2016).

According to the authors of the present article, despite the existing research and development, the problem of comprehensive assessment of the development level of the entrepreneurial environment in the Northern regions of Russia in the context of innovation-driven economy deserves more attention. The authors have hypothesized that the Northern regions of Russia are characterized by a significant interregional gap in the development level of the business environment. This situation adversely affects the level of socio-economic development of the Northern regions and requires drawing up recommendations to reduce the impact of adverse factors on the state of the innovation-driven economy.

## METHODS

The research object of this study is the entrepreneurial environment of the Northern regions of Russia. The purpose of the study is developing methodological tools for assessing the level of the entrepreneurial environment development in the Northern regions in the context of innovation-driven economy and its approbation.

In accordance with the set goal, it is necessary to solve step-by-step the following tasks:

1. Carrying out research, selecting and substantiating the parameters that characterize the innovative business environment.
2. Selecting and grouping statistical indicators characterizing each chosen parameter on the basis of official data of Russian Federal State Statistics Service.
3. Investigating the time history of statistical indicators for three years and calculating the arithmetic mean for each group of indicators.
4. Carrying out comparison of each statistical indicator with the calculated average, conducting the analysis of the indicator's dynamics for the considered period and assigning the corresponding score.
5. Assigning the appropriate rank to each Northern region according to the development level of the entrepreneurial environment, using the above ranking method.

In the framework of the present work, the following research methods were used:

1. Statistical methods were used when grouping statistical indicators that characterize a particular parameter of the business environment in the given Northern region, as well as calculating the arithmetic mean for each group of indicators.
2. Ranking method was used based on quantitative and qualitative parameters when ordering and grouping Northern regions by the development level of the business environment.

3. Scoring method was used to overcome the difficulties encountered in assessing dissimilar indicators, with each indicator assigned a maximum, average and minimum number of scores based on the analysis of its dynamics during the period under review.

The openly accessible materials from a statistical compendium on the social and economic situation in the regions published on the official website of the Russian Federal State Statistics Service were used in the study. The study was based on the indicators for such sections as: "4. *Standard of living of the population*", "11. *National wealth*", "12. *Investments*", "13. *Enterprises and organizations*", "21. *Information and communication technologies*", "22. *Science and innovation*", "25. *Foreign economic activity*". The dynamic in the indicators from 2014 to 2016 was studied.

## RESULT

According to the authors of the present study, the evaluation of the business environment in the Northern regions in the context of innovation-driven economy can be carried out based on parameters characterizing the following aspects:

1. The 1<sup>st</sup> parameter-Demography of organizations (the difference between the number of registered and liquidated organizations).
2. The 2<sup>nd</sup> parameter-Average per capita income of the population.
3. The 3<sup>rd</sup> parameter-Condition of fixed assets (value of fixed assets and depreciation).
4. The 4<sup>th</sup> parameter-The use of information and communication technologies in organizations (as well as special software).
5. The 5<sup>th</sup> parameter-An innovative component (the number of organizations performing research and development; internal expenses for research and development).
6. The 6<sup>th</sup> parameter-Investment climate (investment in fixed capital; foreign direct investments).
7. The 7<sup>th</sup> parameter-International business activity (foreign trade with non-CIS countries; export and import of technologies and technical services).

When assessing the indicators characterizing each parameter of the innovative business environment, the following was revealed.

With respect to the 1<sup>st</sup> parameter "*Demography of organizations*" we revealed upward trend in the Republic of Sakha (Yakutia), the Nenets Autonomous District, Chukotka Autonomous District and Murmansk Region. In these regions, the number of registered organizations exceeds the number of liquidated organizations by 2-6 units annually. The rest of the Northern regions are characterized by the downward trend of the concerned indicator, i.e., the decline in the number of organizations involved in business (the maximum annual decrease of organizations equal to 450 units was noted in the Republic of Karelia).

When estimating 2<sup>nd</sup> parameter "*Average per capita income of the population*", it is necessary to note the following. Sustainable growth of the average per capita income of the population on average by 1-3% annually was observed in the Yamalo-Nenets Autonomous District, Chukotka Autonomous District, Krasnoyarsk Territory, Khabarovsk Territory, Magadan Region and the Republic of Sakha (Yakutia). The decline of the parameter from 2 to 8% was noted in the Khanty-Mansi Autonomous District-Yugra, Nenets Autonomous District, Murmansk Region, Arkhangelsk Region, Irkutsk Region, Republic of Tyva and the Republic of Komi. Despite the tendency of reducing the average per capita income of the population, practically in all Northern regions there was an increase in the average monthly nominal wage of employees of the organizations.

The 3<sup>rd</sup> parameter "*Condition of fixed assets*" includes indicators "*Value of fixed assets*" and "*Depreciation rate of fixed assets*". Analysing the value of fixed assets, it should be noted that all Northern regions, except for Sakhalin Region, are characterized by annual increase in the value of fixed assets. In the Sakhalin Region, the decrease in the value of fixed assets accounted for 4.5% annually. However, when estimating the depreciation of fixed assets, then with respect to this indicator, a negative trend was revealed in the Chukotka Autonomous District (the degree of depreciation increased by 5.8%), Sakhalin Region (by 3.7%), Tyva Republic (by 3.5%), Khabarovsk Territory (by 2.9%) and the Khanty-Mansiysk Autonomous District (by 2.3%). The positive trend was noted only in the Yamalo-Nenets Autonomous District, Nenets Autonomous District, Republic of Komi and the Republic of Sakha (Yakutia).

When assessing the 4<sup>th</sup> parameter "*The use of information and telecommunication technologies in organizations*", the authors of the present study took into account the indicators such as "*The number of organizations that have websites*" and "*The number of organizations that use special software*". In the Northern regions of Russia, from 34 to 59.9% of organizations have their websites. As for using special software, from 74.7 to 92.4% of the organizations, registered in the Northern regions, use special software in the course of their activities, that favourably affects the quality of works carried out and services provided.

According to the authors, the most significant in the context of innovation-driven economy is the 5<sup>th</sup> parameter "*Innovation component*", characterized by indicators "*The number of organizations that perform research and development*" and "*The amount of internal costs for research and development*". The decrease in the number of organizations performing research and development was noted in Arkhangelsk Region, Sakhalin Region and Irkutsk Region. For the rest of the Northern regions, the number of organizations engaged in scientific research does not change annually. Despite this, the amount of internal costs for research and development in the last three years has been decreasing in most Northern regions (Khanty-Mansiysk Autonomous District, Yamalo-Nenets Autonomous District, Nenets Autonomous District, Murmansk Region, Kamchatka Territory, Krasnoyarsk Territory, Sakhalin Region, Magadan Region, Irkutsk Region, Komi Republic and the Republic of Karelia). The increase in the amount of internal costs for the implementation of organizations' scientific research was noted only in the Khabarovsk Territory and the Republic of Sakha (Yakutia).

When analysing the 6<sup>th</sup> parameter "*Investment climate*", significant are indicators such as "*Investment in fixed capital*" and "*Foreign direct investment*". The growth of investment in fixed capital was noted in the Khanty-Mansi Autonomous District, Yamalo-Nenets Autonomous District, Murmansk Region, Sakhalin Region, Irkutsk Region, Arkhangelsk Region, Kamchatka Territory, Krasnoyarsk Territory, Khabarovsk Territory, Komi Republic, Republic of Karelia and the Republic of Sakha (Yakutia). With respect to the indicator "*Foreign direct investment*", the leading positions are occupied by the Arkhangelsk Region, Krasnoyarsk Territory, Khabarovsk Territory, Republic of Tyva, Republic of Karelia and the Republic of Sakha (Yakutia). The rest of the Northern regions are characterized by a significant decrease in the amount of foreign direct investment which is ranged from 16.2 to 66.7%.

Analysis of the 7<sup>th</sup> parameter, namely "*International business activity*" includes the assessment of indicators such as "*Foreign trade with non-CIS countries*" and "*Export and import of technologies and technical services*". Northern regions of Russia such as the Khanty-Mansi Autonomous District-Yugra, Yamalo-Nenets Autonomous District, Murmansk Region, Arkhangelsk Region, Irkutsk Region, Republic of Komi, Republic of Karelia and the Republic of Sakha (Yakutia) are characterized by well-established trade relations with both non-CIS and CIS

countries. When analysing "*Export and import of technologies and technical services*", negative trends have been revealed: the export of technology and technical services is quite insignificant, whereas Northern regions import technology and technical services on a significant scale. These trends allow concluding that currently in the Northern regions of Russia, there are no qualitatively novel competitive technologies and technical services, which could be exported abroad.

Based on the results of parametric analysis of 7 components (demography of organizations, per capita income of the population, the state of fixed assets, the use of information and communication technologies, the innovative component, the investment climate and the foreign economic activity), the authors ranked the Northern regions of Russia by the development level of the business environment.

## DISCUSSION

It is suggested carrying out grouping of the Northern regions of Russia by the development level of the entrepreneurial environment in the context of innovation-driven economy in the following way:

1. The 1<sup>st</sup> and 2<sup>nd</sup> grades include regions with favourable innovative business environment (the Yamalo-Nenets Autonomous District, Murmansk Region, Khabarovsk Region, Komi Republic, Sakha (Yakutia), Khanty-Mansi Autonomous District-Yugra, Chukotka Autonomous District and the Krasnoyarsk Territory).
2. The 3<sup>rd</sup> and 4<sup>th</sup> grades include regions with neutral innovative entrepreneurial environment (the Republic of Karelia, Kamchatka Territory, the Arkhangelsk Region, Nenets Autonomous District, Magadan Region and the Irkutsk Region).
3. The 5<sup>th</sup> and 6<sup>th</sup> grades include regions with adverse innovative entrepreneurial environment (the Sakhalin Region and the Republic of Tuva).

Taking into account the scores gained by the Northern regions in all 7 parameters characterizing the innovative entrepreneurial environment, the authors of the present study confirmed the hypothesis about a significant interregional gap in the development level of the entrepreneurial environment in the Northern regions of Russia, which directly affects the efficiency of the business sector. The gap between the regions in the development level of the business environment accounted to 7 scores ("*I score*" corresponds to the maximum result, while "*6 scores*" means the minimum result). As shown by the conducted research, the main problem when enhancing the business sector in Russia in the context of innovation-driven economy consists in the fact that not all regions created a favourable business environment. This predetermines the need to change the measures of state support with respect to the business sector.

## CONCLUSION

Summing up the research results, it should be noted that developing the priority areas of entrepreneurship in the Northern regions in the context of innovation-driven economy requires carrying out the following measures:

1. Monthly monitoring of the number of registered and liquidated enterprises in the region.
2. Increasing the average per capita income of the population, including that achieved through increasing the amount of social benefits.
3. Increasing the value of fixed assets and implementing measures to reduce depreciation of fixed assets.

4. Encouraging organizations which have their own web site and use the special information and communication means as well as software.
5. Reimbursing part of internal expenses to the organizations carrying out research and development;
6. Attracting investments into the fixed capital (including foreign direct investment).
7. Providing tax incentives and financial support to organizations specializing in the creation of new high-quality technologies and rendering technical services for their further export.

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