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MANAGEMENT OF RISKS REDUCING THE ECONOMIC SECURITY OF THE REGION: METHODOLOGICAL ASPECTS

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Abstract

The paper describes methodological aspects of managing risks reducing economic security, including, first, express analysis of the level of economic security, establishment of risk zones and their ranking by factors. Second, a calculation procedure to find points of attention characterizing high risk and threat by traceable trends of certain directions of influence. Third, a tool to identify risk-contributing factors and their combinations according to criteria of economic security. Fourth, management principles of risks reducing the level of economic security in the region. Fifth, the pyramid of economic security modules in the region ensuring the calculation of indicators of the studied risk through the matrix of elasticity coefficient. Sixth, the mechanism of preventive measures and the management program of risks reducing the level of economic security in the region. It is critical to create the register of specialists in all sectors of risk management within territorial subjects of the Russian Federation to avoid the reduction of regional economic security. The paper provides the change analysis of this risk through the BCG-matrix allowing characterizing the complex level of economic security in the Chechen Republic. The main purpose of the study is to define methodological aspects of managing risks reducing the level of economic security. To study and create stochastic models all relevant data shall correspond to requirements of compatibility, definability, continuity and longitude nature. According to the above criteria, the representative sampling included 40 indicators, of which 11 were general, 16 – indicative and social and 13 – production and resource.

Keywords: Elasticity, economic security, threat, mechanism, region.

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1. Introduction

Under sanctions and transition of Russia to digitalization of economy the importance of risks reducing the economic security of territorial subjects of the Russian Federation, including the Chechen Republic, is becoming urgent. Therefore, each risk factor requires a solution characterizing the change of indicators' polarity, exclusion of their synchronism and force of influence. Considering complex geopolitical, sociopolitical and socioeconomic situation in this region the study of this problem seems quite relevant and due.

2. Problem Statement

The risks reducing the economic security in territorial subjects of the Russian Federation are not fully studied. Key boundaries of risk indicators reducing the level of economic security are not defined, and the state strategy of ensuring the region's economic security requires new approaches. Hence, this formed the basis for the study of economic security of governmental entities with regard to assessment tools and management mechanism regarding risks reducing the economic security of the territorial subject of the Russian Federation.

3. Research Questions

Assessment and analysis of macroeconomic dynamics regarding the region's economy and the influence of various factors fostered the improvement of the management mechanism for risks reducing the economic security in the region and the development of the set of measured aimed at sustainable and stable development of the economic system in the region.

It shall be noted that the risk-contributing determinants and the points of growth were described in the works of famous scientists: Perroux (1961) (growth pole theory), Hagerstrand (1966) (innovation diffusion theory), Pottier (1963) (development axes theory), Friedmann (1973) (center-periphery model), Richardson (1978) (urban agglomeration effect), Guriev (2009) (measurement of happiness, Pareto (1964) (influence of various factors on the development of the studied process), Solow (1956), Swan (1956) (economic growth theory). The authors of works (Ciccone & Hall, 1996; Dell, Jones, & Olken, 2009) identified a significant influence on total factor productivity, GDP and such indicators as employment density, average air temperature and share of the population with complete school education.

4. Purpose of the Study

The main purpose of the study is to define methodological aspects of managing risks reducing the level of economic security in the Chechen Republic.

5. Research Methods

To study and create the stochastic models all relevant data shall correspond to the requirements of compatibility, definability, continuity and longitude nature. According to the above criteria, the representative sampling included 40 indicators, of which 11 were general, 16 – indicative and social and

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13 – production and resource indicators. It shall be noted that the suggested tools and indicators allow assessing and analyzing risks reducing the economic security of any territorial subject of the Russian Federation (Blokhin, 2017). To apply the cost indicators ($\mathbf{X_j}$) the deflator index published by the State Committee on Statistics was used to analyze the time series in a comparable form. Each group has key indicators being the quintessence of this element ($\mathbf{Y_i}$). In the first group, the key factor includes the gross regional product, GRP ($\mathbf{X_1 \rightarrow Y_1}$), which when forming a matrix of paired correlation coefficients has the highest values in the general set (0.48). The second group of indicators includes productive factors, i.e. values of a resource (sources). According to the analysis of stochastic models, the key factors include industrial production ($\mathbf{X_{13} \rightarrow Y_3}$) and agriculture ($\mathbf{X_{12} \rightarrow Y_2}$). The correlation level, mainly the binding force, does not decrease below 0.16, except for extremes falling within the interval [0.45; 0.6], which confirms their importance as dependent factors. The last group of indicators is multidirectional and only includes indicators reflecting various aspects of the social sphere and opportunities of their application (from $\mathbf{X_{14}}$ **to** $\mathbf{X_{40}}$). Among indicative indicators the most preferable are social factors ($\mathbf{Y_4, Y_5, Y_6, Y_7, Y_8, Y_9}$), first of all, due to their high informative value and stochastic dependences. The received values generally exceed the correlation coefficients by 0.7, except for such indicators as the number of graduates from higher educational institutions and the number of doctors.

Then, the influence rate of these factors was defined based on the analysis of one-factor models chosen against objective conditions and available statistical data. The time series contains 11 points. It is impossible to analyze more longitudinal series in the Chechen Republic due to famous events of the middle of the 1990s-the beginning of the 2000s, absence of initial statistical data during the previous periods and high heterogeneity of available data.

The analysis of stochastic relations and comparison of each indicator allows stating that the elasticity coefficient changes with the change of exposure X_i by 1% similar to the change of a performance indicator Y_i. Hence, we get comparable data ensuring subsequent integrated calculations. The elasticity coefficients for each Y_i are calculated according to X_i indicators.

The indicators considered within the sampling of risk factors reducing the economic security are mainly direct. The reverse indicators are as follows: unemployment rate, wear of fixed production assets, emission of pollutants and the number of all forms of crimes. Special emphasis is placed on regional subsidies reflecting both negative and positive trends. This depends on sign changes in accompanying indicators. According to express assessment, 235 points (65.28%) are in the instability zone, which characterizes the situation as unstable and requiring additional detailed study. The obtained result is heterogeneous, i.e. 30.7% belong to negative values. Undoubtedly, the factor of established stochastic relation shall be in the positive field. This comparison confirms a considerable share of values, which require special attention due to increased level of threat.

6. Findings

1. Principles of economic security of the region and the pyramid of economic security modules of the region

The concept of economic security guarantees the independence of a state, stability and safety throughout the region's economic growth and economic development. Economic security of governmental

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entities is quite complex (external and internal). Economic security in CIS countries is defined through the concept of "interests", in Eastern Europe it is considered through the categories of "international security", and in economically developed countries – through "stability".

The risk factors reducing the economic security mainly include external and internal factors of the target function. The following belong to problems related to the assessment tools and management mechanism of risks reducing the economic security in the region: critical, i.e. issues requiring immediate solutions; significant and essential, i.e. issues arising objectively, but insignificantly impacting the management mechanisms of risks reducing the economic security; predictive, i.e. issues requiring verification of forecasts.

2. Criteria of sources of risks reducing the economic security of the region

It is not sufficient to develop a complex range of assessment characteristics for the list of indicators unless they satisfy the methodological rules (Khadisov, 2016). Therefore, we consider it necessary to identify 3 projections concerning the blocks of indicators: 1) projection of dynamic and structural changes and ratios; 2) projection of consistency of transaction unit; 3) vector projection.

The summarizing indicators are as follows: GRP, state of a debt, import and export reflecting key trends and describing the situation in general.

Production and resource indicators characterize the state of the region's economy and a possibility for development based on the existing potentials. Indicative and social indicators are not factors of direct influence, but they reflect sustainable development of the region and compensate imbalances generating the factors of economic risk.

3. Assessment tools of risk factors reducing the economic security of the region

The detailed analysis of assessment tools and analysis of dynamic changes in the economy of the Chechen Republic is based on statistical data of the State Committee on Statistics from 2005 to 2015. For dynamic and economic analysis of the region the time series contain 11 points, which allow using the expanded structure of tools to assess changes and correlations in progress. As described earlier, the time interval until 2000 cannot be established. From 2000 to 2005 the economy and the social sphere of the republic are characterized by actual changes that cause system and spontaneous character that pushes their quantitative estimates not subject to the objective analysis and forecasting towards theoretical and methodological changes regarding methods of collecting and processing statistical information and established trends. The fact of the comparative analysis with low level of credibility, as well as different ways of selecting the statistical information makes the use of objective data for the Chechen Republic until 2005 incorrect.

The generalizing table is made to assess the risk factor of compliance to the principles of economic security without defining the degree of importance of each risk-contributing factor since the level of influence is only possible within the analysis of integrated values of the obtained results. Then as a compliance assessment the initial analysis shall consider the ternary system of assessment: "-1" – noncompliance, "0" – partial compliance, "1" – compliance.

The actual distribution of integrated values of the Chechen Republic mainly falls within the instability zone – 48% of sampling. The second position is taken by points located within the stability zone

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– 46%. This ranking makes it possible to say that the subject of the study is stable with a considerable share of factors having neither unstable nor stable character of risk-contributing factors.

The major disadvantage and vulnerability of the obtained information is the impossibility to consider the development of indicators within the dynamic analysis. For this purpose, we will use the transformational BCG-matrix, where in x-direction – average value according to development and stability criteria, and in y-direction – average value according to independence and improvement criteria. As a result we get values across X and Y – (0.5; 0, 37).

Considering the obtained results it may be concluded that the region in terms of assessment indicators of risks reducing the economic security falls within a segment tending towards intensively and dynamically growing stability and independence.

According to the analysis of the transformed BCG-matrix, the major factors of risk and threat of economic security of the region are generally connected with the aggravation of existing external and internal problems. The existing economic threats in the Chechen Republic are caused by social and economic, foreign policy, criminal factors, which are mutually correlated and strengthen the general destructive influence.

For more effective use of available opportunities there is a need to reveal key factors out of the large number of problems and to intensify efforts on their solution.

4. Calculation of risk indicators reducing the economic security of the region via elasticity coefficients

To achieve the objective and to solve the set tasks of ensuring economic security there is a need to define the influence rate of each risk factor. In the regression equation the model coefficient – b_i presents the biggest interest since it serves an objective characteristic of the influence rate. However, for integrated analysis and synthesis of data, the b_i parameters of the entire system of equations are not comparable therefore we normalize them through the calculation of elasticity coefficient – E_i. The elasticity coefficient for each comparison will mean the percentage of change of the dependent indicator Y_i with the change of the independent indicator X_i by 1. As a result we get the comparable data allowing further generalizing calculations.

Weaker influence is expressed by life expectancy, agricultural production and the number of economically active population.

Regarding agricultural production and life expectancy the value is caused by a considerable share of negative values and low number of economically active population. These results are indicative and deserve special attention, but it shall be noted that within this study we avoid this since the purpose of the study and analysis of results in the Russian Federation is to identify the common trends and range of elasticity coefficients to define the nation-wide tendencies.

The key risk factors reducing the economic security are as follows: factors of birth rate and age shifts towards aging; factors of a manufacturing sector (characterizing high dependence on external indicators jointly with aging, basic production assets and resulting high social sensitivity to changes); focus on external R&D.

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Regarding modality in extreme values of risk factors, life expectancy holds the leading position. Income is first regarding the quantitative value of identified risks in the block of generalizing indicators. The block of production resources includes agricultural production, R&D costs, population, number of its economically active part. The block of indicative and social indicators covers the birth rate and the graduation rate.

The third group is less numerous and mainly consists of generalizing indicators: gross regional product and regional fiscal position, in general they can be defined as the indicators of economic activity in the region. Special attention shall be paid to the rate of unemployment and wear of basic production assets (Khadisov, 2018).

The unemployment rate is duplicating, though not completely, the characterized graduation rate and economically active population and therefore we consider it necessary to include this problem into the previous risk group. The wear of basic production assets is an accompanying factor of agricultural production and income. It characterizes the increased importance of this factor due to its structural elements and relations to earlier received indicators.

The risk-contributing factors included into the 4th group also require additional grouping. In particular, expenses, accumulation, investments and grants indicate insufficiency of resources for sufficient modernization and achievement of stability and indicate high level of dependence on external factors.

The processing production in total with the previous condition of the wear of basic production assets characterizes strong wear and weak intensity of modernization, which is also typical for expenses and income.

In conclusion let us focus on such risk factor as the total number of reported crimes. This indicator reflects the generating risks of decreasing the economic security of the region as a general criminalization of the regional economy characterized by inefficiency of precautionary measures preventing crimes.

Depending on factors (prime causes) of risks, for each essential risk it is important to find more effective and efficient solution to identify the nature of polarity change, to exclude asynchrony, or to determine the rate and extent of influence.

5. Tactical-analytical and control-expert groups to level risks reducing the economic security of the region

The management of risks reducing the level of economic security of the region shall be considered as the system of preventive measures, i.e. the system of preliminary identification and neutralization of risk-contributing factors and critical situations in the republic.

More effective policy on counteraction of economic threats in the republic requires a special governmental body, which will coordinate activities and control measures together with all operating structural units of public authorities.

There is a need to establish a permanent Interdepartmental Commission on Economic Security within the Council of Public and Economic Security of the region, to approve its members, to define functions and procedures.

Monitoring and improvement of economic security of the region are required for efficient management of risks reducing the level of economic security in the region. The monitoring of economic security of the region shall include, first of all, the monitoring of the following: deviations from expected

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risks reducing the level of economic security of the region, generation of preventive measures of risk localization and quantitative and qualitative assessment of effective risk management. The effective risk management assessment within the economic subject is described in detail in a number of publications (Tsakaev, 2011a, 2011b).

The final stage is the transfer of the analytical list to the supreme body of executive regional authorities: identification of factors, reasons and sources of risks reducing the economic security of the region; preventive measures on risk localization.

It shall be noted that heterogeneity of risk factors and reasons causes significant differences in their solution and elimination.

At the same time the organized commission of experts is not able to make the correct decision and to develop measures to eliminate all risks since there are no unique experts competent in all problems concerned.

Therefore, we consider it critical to create the register of specialists in all sectors of risk management within territorial subjects of the Russian Federation to avoid the reduction of regional economic security.

7. Conclusion

The above seem the methodological aspects of managing risks reducing the economic security. We believe that in the conditions of increased turbulence within social and economic development of governmental entities special attention shall be paid to issues regulating risks of financial security of the Russian regions, ensuring financial stability and financial security of their economic subjects on the basis of effective risk management systems.

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