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Scenario Approach to the Assessment of Development **Prospects of the Russian Regions**

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ABSTRACT

The article describes the features of building and assessment of spatial development scenarios in long-term forecasts. The author used the scenario approach for qualitative and quantitative assessment of alternative strategies for regional development within the framework of the macroeconomic forecast for the development of the Russian economy. Further, the author analyzed the experience of developing spatial scenarios for the EU countries and Russia. Next, the long-term regional trends are presented, which, due to the high inertia of space, will determine spatial development in the future. The author also describes modern problems that significantly impact the choice of strategies for the regions. Prospects for spatial development the author assessed in the framework of three forecast scenarios. For two options of the macroeconomic forecast, the author calculated quantitative estimates of the spatial development parameters characterizing the scenarios. Relevant calculations the author performed using macroeconomic and interregional forecasting and analytical models. Finally, the author showed the advantages of the scenario of balanced growth from the standpoint of implementing national goals of social and economic development.

Keywords: spatial development; long-term trends; priorities of spatial development; conservative scenario; scenario based on agglomeration; balanced scenario; structural and investment policy

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INTRODUCTION

Spatial development challenges¹ attracted a new wave of attention, including public administration, after the crisis 2014–2015, during a search for sources of economic growth and solutions to the worsening social and environmental problems with strong regional allocations. In 2017, the Foundations of State Policy of Regional Development of the Russian Federation for the period up to 2025 was approved,² in 2019 — Strategy of spatial development of the Russian Federation for the period up to 2025,³ in which the solution of the problems of spatial development is considered one of the priorities of the longterm development of Russia. Contemporary challenges facing the international community: need to shift towards sustainable development, the coronavirus pandemic, the climate agenda, despite its global nature, also has strong regional specificities.

For Russia, a country with a great variety of natural and climatic, socio-economic, ethno cultural conditions, the importance of taking into account the spatial aspects of development is not denied, but the practice of developing official documents that support the country's development prospects shows that the spatial limitations of the national dynamics are not always taken into account.

The Federal Law "On Strategic planning in the Russian Federation",4 which adopted in 2014, list of documents whose development involves a regional dimension; this applies to long-term forecasts of socio-economic development of the

Russian Federation, forecasts of development of macro regions and subjects of the Russian Federation. A number of regulations have now been adopted, governing the development of such forecasts. However, the long-term forecast of the socio-economic development of the Russian Federation for the period up to 2036, submitted by the Ministry of Economic Development of Russia, 6 regional level does not include. In the Socio-economic Development Forecast of the Russian Federation for 2022 and the planning period 2023 and 2024⁷ are given a number of indicators for individual regions, taken from forecasts developed in isolation in the constituent entities of the Russian Federation and not coordinated with each other.

However, long-term impact assessment, which may arise in the implementation of alternative spatial development strategies, allows linking the macroeconomic forecast with the real socio-economic processes, taking place in the territory, determining the sources of growth and nature of which is related to space. And identify the most acute problems in the development of regions, the solution of which is necessary for the implementation of the provisions of the macroeconomic forecast.

Trends in economic space formed by a number of basic factors determined by the characteristics and patterns of spatial development. These include: natural resource endowments, advantageous geographical location, agglomeration effects and high

¹ In the article the terms "spatial" and "regional" development are used as synonyms.

² Foundations of State Policy of Regional Development of the Russian Federation for the period up to 2025. Approved by the Decree of the President of the Russian Federation from 16 January 2017 No. 13. URL: https://docs.cntd.ru/document/420389221 (accessed: 22.11.2021).

³ Order of the Government of the Russian Federation from 13 February 2019 No. 207-P "Strategy of spatial development of the Russian Federation for the period up to 2025". URL: http:// government.ru/docs/35733/ (accessed: 22.11.2021).

⁴ The Federal Law "On Strategic Planning in the Russian Federation". URL: https://www.consultant.ru/document/cons_doc_ LAW_164841/ (accessed: 22.11.2021).

⁵ Rules for the development, adjustment, monitoring and control of the long-term forecast of socio-economic development of the Russian Federation (approved by decree of the Government of the Russian Federation from 11 November 2015 No. 1218), URL: http:// base.garant.ru/71245076/#ixzz4zYqfiCtw (accessed: 22.11.2021).

⁶ Forecast of socio-economic development of the Russian Federation for the period up to 2036. Ministry of Economic Development of the Russian Federation. 2018. URL: https://www. economy.gov.ru/ material/file/a5f3add5deab665b344b47a8786 dc902/prognoz2036.pdf (accessed: 22.11.2021).

⁷ Forecast of socio-economic development of the Russian Federation for 2022 and for the planned period 2023 and 2024. Ministry of Economic Development of Russia. 2021. URL: https:// www.economy.gov.ru/material/file/d7f5f5dea44bda4c30d42aac 04cc1fca/prognoz_socialno_ekonom_razvitiya_rf_2022-2024.pdf (accessed: 22.11.2021).

population density, developed infrastructure, human capital, institutions that contribute to the improvement of the entrepreneurial climate, the growth of population mobility, the spread of innovation, etc.⁸ [1–4] Different combinations of factors in specific territories form the potential for regional development. The possibilities and ways of its realization depend on the priorities of spatial development adopted at the state level and at the level of large companies, regional distribution of resources (primarily investment), and implemented regional policy.

Scenario approach is widely used in forecasting socio-economic processes, including the development of spatial systems. The article uses the scenario approach to assess long-term alternative strategies of spatial development of the Russian economy, which may arise from different combinations of internal (regional) and external factors determined by long-term national economic prospects.

REVIEW OF STUDIES ON SPATIAL SCENARIOS

The problem of taking into account spatial factors and constraints when substantiating strategies for long-term development is relevant primarily for individual countries and integration associations, within which regions (countries) are located, significantly different levels of economic development. The scenario development experience is interesting in terms of the choice of spatial development strategies and economic policies that support the scenarios.

Under the ESPON 2050 project, 9, 10 3 spatial development scenarios of the EU countries are considered for the period up to 2030 and 2050, which are determined by the nature of the

driving forces organizing the space: scenario A—"Megacities of Europe", scenario B—"Cities of Europe" and scenario C—"Regions of Europe". Scenario parameters quantified based on econometric predictive models. [5, 6] A detailed description of European scenarios is given in the paper "Assessment of scenarios of spatial development of the Russian economy until 2030". [7]

Alternative strategies for growth and development of integration processes in the context of recovery from the economic crisis are presented for two blocks within the EU: Western European and Central and Eastern European countries. [8] Scenarios are based on two different historical growth patterns from Western and Eastern Europe, where it is understood that each of the blocks can choose their development strategy based on external circumstances. For Central and Eastern European countries (CEE), newly admitted to the EU, the first strategy involves modernizing the existing production structure, shifting to more advanced industries, strengthening the second-rank city system, improving research and innovation. The second strategy focuses on the development of traditional CEE industries, and taking advantage of the competitive advantages of the CEE countries in terms of the cost of production and attracting foreign investment.

For Western Europe (EU 15) two strategies are presented also. The first focuses on the renaissance of Western Europe as a global center for manufacturing. The alternative strategy assumes that Western Europe is almost completely out of production and focuses on the provision of advanced services globally, and moving from low-level, laborintensive services to knowledge-intensive and business services. The combination of possible alternative strategies by CEE and EU 15 countries allows four different scenarios to assess possible impacts, of which the macroeconomic industry model of growth of regions MASST3 was used. [9]

Scenario analysis suggests a number of recommendations for economic policy. The

⁸ The World Bank. New Perspective on Economic Geography. World Development Report 2009. Moscow: Publishing house "The whole world"; 2009. 384 p.

⁹ European Territorial Scenarios 2050. ESPON 2050. URL: http://www.et2050.eu (accessed: 22.11.2021).

¹⁰ Making Europe Open and Polycentric. Vision and Scenarios for the European Territory towards 2050. URL: http://www.et2050.eu/attachments/article/523/ESPON_Vision-Scenarios_2050.pdf (accessed: 22.11.2021).

general observation is that the effectiveness of strategies for the CEE strongly depends on the strategy chosen by Western European countries. The greatest results are achieved by returning to the updated industrial specialization model in Western European countries and modernizing the economies of the CEE countries. The scenario most appropriate to the current situation, where both blocs maintain their actual specialization, provides the lowest economic growth parameters. The results obtained are in mainstream with the current trends of the revival of interest in industrial policy as a means to revive the economy under conditions of crisis and stagnation.

Spatial development scenarios that conceptualize two well-known theories of regional growth — polarized and levelling — were presented in the long-term forecast of Russia's development up to 2030. [10] Determining factor in the creation of scenarios was the choice of the model of spatial organization of production and resettlement: competitive (relying on the most competitive regions) or diversified in space (a strategy of using endogenous factors in regions and supporting regional competitiveness) growth. Accordingly, two spatial development scenarios were developed as alternatives to the conservative: competitive and diversified growth. The quantitative assessment of spatial scenarios showed that the difference between the total contribution to economic growth and the implementation of different spatial scenarios is not large, however, the development of individual macro regions depends significantly on the chosen scenario.

Assessment of a wide range of alternatives for the development of urbanized areas of the country with a focus on the development of the regions of Siberia and the Far East presented in the framework of four long-term development scenarios¹¹: "broad international cooperation", "limited partnership", "concentration of the country", "preservation of the territory".

A number of scenarios have been developed based on more detailed consideration of selected spatial development issues. The article [10] presents three alternative scenarios of development of the Siberian macro-region within the framework of the megaproject "Siberian Ark". Scenarios differ in the choice of priorities in the development of the macro region and the strategy for achieving the goals. The paper [11] presents five scenarios of formation of a prospective spatial organization of Russia: inertial; competitive (which implies the continuation of active economic development of major agglomerations and resource regions); locally diversified (oriented on active government regulation of spatial development); "siberian doctrine" (oriented on intensive development of Siberia and the Far East); and "USPeh: Ural, Siberia, Volga region" (envisaging active structural changes in the economy of old industrial federal districts).

Analysis of literary sources shows that the most interesting and analytically useful aspect of scenario development is the formation of meaningful hypotheses with alternative strategies of space development. Within the model designs used, the quantitative parameters of the macro-level scenarios tend to differ insignificantly, however, for individual regions (or countries), the choice of a strategy can fully determine the prospects and challenges for future development.

ASSUMPTIONS FOR SCENARIO FORMATION

The long-term prospects for regional development depend significantly on how the Russian and world economies develop.

Strategic goals of Russia's development are presented in the Decree of the President of the Russian Federation "On national order to development of the Russian Federation for

¹¹ Siberia and the Far East in the XXI century: scenario options for the future. Krasnoyarsk: Siberian Federal University; 2018. 76 p.

¹² Structural and investment policy for ensuring economic growth in Russia. Moscow: Scientific Consultant; 2017. 196 p.

the period up to 2030". They are aimed at breakthrough scientific, technical and socioeconomic development and include all key areas of the economy, including economic and social restructuring of the country and all its regions. Diversities of future development of regions are determined depending on how it is possible to overcome the established spatial trends in the future (which are predominantly negative) and implement a strategy that sets new benchmarks and conditions for development. 14

The trajectory of the Russian economy's exit from the crisis and transition to a new model of economic growth is an essential factor for the formation of scenarios of long-term development of the regions. Directions of economic development of Russia were proposed during discussions on economic growth, most of these directions are reflected in the scenario of socially oriented development IEF RAS.¹⁵

From the point of view of formation of meaningful hypotheses of scenarios it is essential to diversity connected with possible alternatives of spatial development of Russia: changing demographic trends and the settlement system; maintaining/eliminating significant interregional income differentiation, providing social infrastructure, access to social benefits; specialization of regional economies; diversification of economies; transition to a new technological mode; scale and timing of major investment projects proposed by sectoral strategies.

The long-term priorities of Russia's spatial development are enshrined in a number of documents adopted at the federal level. Among them: development of the Far East and Trans-Baikal, North Caucasus, Crimea, Kaliningrad

region. The realization of these priorities will require the redistribution of national resources to these regions, the creation of special institutional conditions in them, etc.

Public policy will be essential for the formation of spatial proportions, conducted in relation to the eastern and northern regions of the country, the implementation of the "eastern vector" of the country's development, including the advanced development of the eastern regions, intensification of foreign economic cooperation with the APR countries.

Economic development of the Arctic can be an important factor for long-term development, which will drive the growth of the eastern and northern regions, as well as give push to the development, including, the branches of "new economy" in many Russian regions.

Alternative development opportunities for many regions may arise from the integration processes in the EEU, international cooperation in the framework of the Shanghai Cooperation Organisation — SCO ("North-South" axis).

The recent challenges facing the global and Russian economies require a shift in the assessment of development prospects, so they are also relevant for the Russian regions. Coronavirus pandemic and economic crisis of 2020 significantly changed economic agenda, highlighting the short- and medium-term challenges of the pandemic and economic recovery. Many assessments of the impact of the pandemic have been published, including at the regional level. [12-14] However, the pandemic and the related crisis have not reversed the problems and imbalances in the Russian economy that impeded economic growth, but have only exacerbated them – growth recovery begins with lower starting conditions. [15] The challenges of modernizing the economy will have to be faced with severe resource constraints that significantly reduce the capacity of individual regions to assist, and also requiring a clear and well-founded system of regional priorities.

The climate agenda and transition to a lowcarbon economy is becoming a significant factor

¹³ Decree of the President of the Russian Federation from 21 July 2020 No. 474 "On national order to development of the Russian Federation for the period up to 2030". URL: https://www.garant.ru/products/ipo/prime/doc/74304210/ (accessed: 22.11.2021).

¹⁴ Challenges and Policy of Spatial Development of Russia in the XXI Century. Moscoe: Society of Scientific Publications KMK; 2020. 365 p.

¹⁵ Post-crisis economic recovery and the main directions of Russia's socio-economic development forecast for the period up to 2035. Moscow: Science; 2020. 152 p.

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in the long-term development of the regions. [16, 17] The Government approved the Strategy for socio-economic development of Russia with low-emission gas emissions until 2050. [16] Impacts of climate change are complex and creates a significant risks, particularly to people, infrastructure and a number of economic sectors. On the other hand, climate change provides new opportunities for regions, such as longer navigation periods in the Northern Sea Route, reduction of the heating period, increase in crop productivity and absorption capacity of managed ecosystems.

QUALITATIVE CHARACTERISTICS FOR SCENARIOS

The main factor contributing to the shift in the spatial distribution of production is fixed investment, the changing structure of which affects spatial proportions with a certain lag. In this regard, real changes in the distribution of production as a result of targeted investment policies are evident in the long term.

Taking into account the central role of investment policy, three alternative spatial development scenarios have been developed, based on hypotheses regarding the regional structure and the dynamics of fixed investment.

Conservative scenario combines regional development options that maintain a regional investment pattern close to the 2014–2019 situation. The content of the scenario consists of the long-term trends noted above in the formation of the territorial and sectoral structure of the economy. The scenario assumes that investment policy will remain passive. Targeted impacts will be related only to the implementation national projects, that in this case, the distribution of investments from the federal budget will approximate the territorial proportions of the population distribution.

The conservative scenario will characterize regional dynamics: concentration of the population in the center of the country, most prosperous regions and cities; increasing polarization between rising and depressed regions; preservation of the modern composition of leaders and outsiders of spatial growth; continuation of state support for priority regions; continuation of trends in the distribution of economic activity between the western and eastern parts of the country through increased mining in the eastern regions. The challenges and disparities in spatial development that exist by the beginning of 2020 with high probability to persist and worsen.

Investment and regional policy options considered as a regional investment framework are grouped in two scenarios: based on large agglomerations and natural resource centers that are competitive in world markets,¹⁷ and balanced regional growth.

Development of large agglomerations scenario, based on the fact that the regions in which the agglomerations are located are the most competitive in terms of attracting investment and labour force. It is expected to further concentrate production and income in the most competitive regions from the perspective of the global economy. The priority of maintaining and further developing production centers in demand on the world markets of natural resources remains, this is due to the assumption that the Russian economy will continue to specialize in production and exports in the long term.

The characteristics of regional dynamics are: high level of openness of the Russian economy, significant influence of global trends on spatial distribution of economic activity and specialization of regions; priority in the

¹⁶ Strategy for socio-economic development of Russia with low-emission gas emissions until 2050. Approved by the Order of the Government of the Russian Federation from 29 October 2021 No. 3052-p. URL: http://government.ru/docs/43708/ (accessed: 22.11.2021).

¹⁷ This paper does not discuss the definition of large agglomerations and their boundaries. We proceed from the list of large agglomerations listed in the Strategy of spatial development of the Russian Federation for the period up to 2025. The indicators presented in the forecast refer in general to the subject of the Russian Federation, on the territory of which the agglomeration is located. Thus, large agglomerations are seen only as determining the dynamics and sectoral composition of investment in the region concerned.

development of globally competitive regions, concentration of population and production; change the settlement system by concentrating the population around economic growth centers. The new spatial structure will be formed on large agglomerations connected by a developed system of transport communications.

Scenario assumes production growth, faster development of infrastructure, concentration of human capital, financial resources in the most competitive regions. The development of all other regions on the use of endogenous growth factors, which regions realize in conditions of interregional (and international) competition for resources and markets. Regional policies are expected to focus on increasing the mobility of factors of production, stimulating their concentration in the most competitive regions. The result of this type of spatial growth will be "optimization" of spatial distribution of population and production (by "compression" of it around the centers of economic growth).

Balanced growth scenario includes active investment policies aimed at spatial diversification of growth, establishment of economic growth centers in regions with different types of economies and economies of scale, using advantage of the competitive advantages of each region. For most regions, growth will be based to a large extent on domestic (endogenous) sources and effective use of the potential of interregional interactions. Implementation of infrastructure projects should be aimed at increasing the transport and information connectivity of territories, interregional integration, also improving access to social infrastructure services, improving the quality of the living environment.

Regional dynamics features in a balanced scenario would: multipolarity of distribution of regional and local growth centers; formation of growth centers based on capitalization of development factors (economic and geographical situation, agro-climatic, natural and energy resources, cultural and historical heritage, transit potential, potential for development of foreign economic relations

on the basis of cross-border cooperation); preservation of state support for priority regions; "retention" (prevention of compression) of the economic space by maintaining the vital activity of the already developed territories.

Within the scenario the formation of new growth centers in the old industrial regions of the Center, the Volga region, the Urals and Siberia is supposed due to "new industrialization" based on modernization of production and development of new branches "Industry 4.0". Integrated development of the eastern regions of the country will be achieved through major extractive sector projects, also priority financing of the manufacturing sector, transport and social infrastructure. State support for strategic regions will be significant factors determining the regional structure of investments — Far East, North Caucasus, Arctic and implementation of national projects. Economic growth should cover all regions to some extent, and its dynamics, factors and sources may differ from region to region.

QUANTITATIVE CHARACTERISTICS FOR SCENARIOS

Quantitative parameters of the scenarios presented above were estimated on the macroeconomic forecast of the Russian Federation, taking into account the whole range of internal and external conditions of development of the national economy. Model forecasting tools include macroeconomic and interregional models developed in IEF RAS.¹⁸ [18] Two variants of the macroeconomic forecast of the development of the Russian economy became the basis for the estimation of scenario forecasts: basic and target.19 Under of macroeconomic forecasting sets constraints for the economy as a whole on fixed investment, household final consumption, population and labour resources used,

¹⁹ Post-crisis economic recovery and the main directions of Russia's socio-economic development forecast for the period up to 2035. Moscow: Science; 2020. 152 p.



¹⁸ Russia's economic prospects: forecast to 2030. Moscow: Ankil; 2013. 408 p.

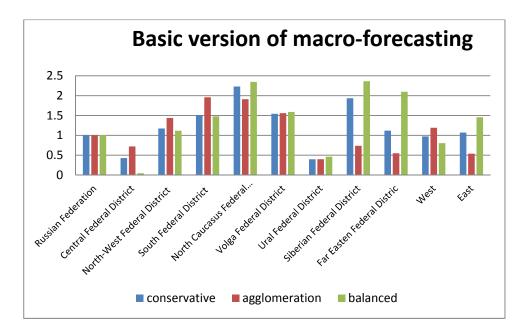


Fig. 1. Average annual growth rates of GRP of federal districts for the period 2020-2035 when implementing the basic version of the macro forecast, %

Source: compiled by the author.

distributed across regions according to priorities set in the spatial scenario.

Below are quantitative estimates for six trajectories of regional dynamics, which correspond to the hypotheses on the implementation of each of the three scenarios of spatial forecasting under conditions of low growth of the Russian economy (basic option) and more optimistic assumptions about the development of the country (target option).

Macroeconomic forecasting in the base version assumes that the pre-crisis level (GRP) of 2019 will not be exceeded until 2023, and the next decade will see a low average annual growth rate -1.1%. Implementation of the basic scenario for the Russian economy may lead to stagnation of production, conservation and aggravation of negative trends in the spatial development of the country. The regional dynamics of the federal districts, corresponding to the above scenarios, in the implementation of the basic macro-prognosis variant are presented at *fig. 1*.

At a low growth rate of the economy as a whole, the development of the regions is determined mainly by inertial trends. Positive GRP performance will be achieved in both the western and eastern regions of the country for all three spatial scenarios, although for some regions and even federal districts the situation is not simple. For the western regions, the agglomeration support scenario maximizes GRP growth, for the eastern regions — in a balanced scenario. In the conservative scenario, the proportions between GRP production in the western and eastern parts of the country remain almost unchanged. In the agglomeration scenario, the trend of shifting production to the western regions of the country continues. Under the balanced scenario, the eastern regions of the country will increase by 2 percentage points by the end of the period compared to the conservative variant.

Real differences in spatial dynamics due to the different structural and investment policy options arise under the assumption of the realization of the target variant of the macroeconomic forecast (*fig. 2*). They relate primarily to the dynamics of the western and eastern regions of the country.

In the large agglomeration scenario, the faster growth of the western regions resulting

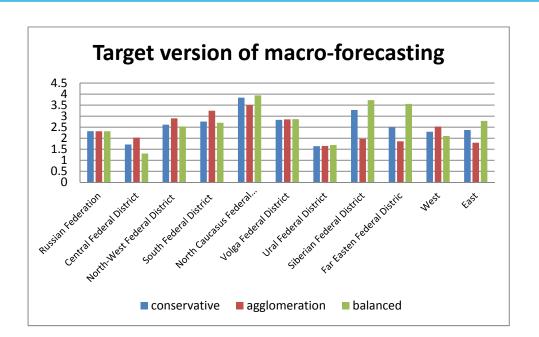


Fig. 2. Average annual growth rates of GRP of federal districts for the period 2021–2035 when implementing the target version of the macro forecast, %

Source: compiled by the author.

in further shifts the output and actual final consumption of households from east to west, increasing the gap between Western regions in average per capita final household consumption. The balanced growth scenario assumes a priority in the distribution of investments in favour of the eastern and peripheral regions of the country, which will result in faster growth of the eastern regions.

Comparison of indicators of production and final consumption of the population, dynamics of interregional differentiation of average per capita GRP indicators, spatial diversification of growth shows that a balanced growth scenario is the preferred long-term spatial development option. Structural and investment policy aimed at the implementation of the scenario, allows, on the one hand, to reach the parameters of the macroeconomic forecast, on the other hand, has an advantage over the other two scenarios in terms of redressing the accumulated imbalances in spatial development, solving the long-term geopolitical and strategic problems of the country.

Threats and risks to the implementation of projection scenarios emanating from the external

environment (possibility of maintaining or strengthening the sanctions regime, tightening access to external resources, continued decline or stagnation of world commodity prices, deterioration of the economic situation in the country), are identical for all variants. Similarly, there are demographic and investment risks for all scenarios. A balanced growth scenario implies a number of institutional changes, to improve the investment attractiveness of the country as a whole and its individual regions. In particular, it is the formation and creation of new effective models of interaction of power and business, improving the quality of human capital, and the implementation of an active structural and investment policy, without which the targeted variant of macro-prognosis and, accordingly, the balanced variant of the regional forecast cannot be implemented.

CONCLUSION

Use of scenario approach for development of spatial development forecasts allows assessment of long-term consequences of implementation of alternative strategies of development of territories, linking macroeconomic forecasts with

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real socio-economic processes in the regions, to identify sources of growth, the nature of which is connected with space, and to identify the most acute problems in the development of regions.

The presented three alternative strategies of spatial development of Russia are based on assumptions about different structural and investment policy options. While maintaining current trends in spatial development as expected in the conservative scenario, continue the shift in population and production distribution to the western and southern parts of the country. The gap between growing and depressed regions will widen. Maintaining normal conditions for the life in strategic and depressed regions at the expense of budgetary resources will require a significant amount of redistribution.

A radical change in the situation is possible only if an active structural and investment policy. The reliance on large agglomerations and export-oriented natural resource centers scenario will lead to significant changes in spatial proportions, population concentration and production around economic growth centers. Increasing interregional differentiation will require active regional policies, aimed, on the one hand, at optimizing the spatial distribution of the population, increasing the mobility of factors of production and stimulating their concentration in the most

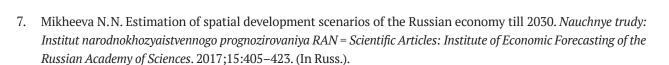
competitive regions, and, on the other hand, to create compensatory mechanisms to support the outsider-regions.

The balanced growth scenario assumes spatial diversification through the formation of new growth centers, the dynamics, factors and sources of which may differ from region to region. Realization of a balanced option can ensure more even development of all regions, smoothing regional imbalances, "holding" the economic space, creating conditions for reducing interregional differences.

The quantification of alternative scenarios shows that a balanced growth scenario is the preferred long-term spatial development option. Structural and investment policy aimed at the implementation of the scenario, allows, on the one hand, to reach the parameters of the macroeconomic forecast, On the other hand, it has advantages over the other two scenarios in terms of addressing accumulated imbalances in spatial development, long-term geopolitical and strategic objectives of the country. Full realization of the balanced growth scenario is possible under favorable conditions of development of the country as a whole. In additions, it involves additional institutional risks. However, the transition to a balanced spatial growth strategy will require a number of institutional changes and proactive structural and investment policies.

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