

Federal State Budgetary Institution of Science
"Vologda Research Center of the Russian Academy of Sciences"



PROBLEMS OF TERRITORY'S DEVELOPMENT

Founded in 1997
Volume 30, Issue 4

Vologda • 2026

Founded in 1997

Published 6 times a year

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PROBLEMS OF TERRITORY'S DEVELOPMENT

Peer-reviewed scientific and practical journal covering a wide range of issues on the socio-economic development of territories.

The journal's primary aim is to provide broad scientific communities and practitioners with the opportunity to familiarize themselves with scientific research findings in the field of scientific support for territorial economies and to participate in discussions on these issues. Key topics include territorial development problems, regional and sectoral economics, socio-economic development of territories, issues of regional budget revenue formation and expenditure rationalization, innovation economics, and current issues in the development of the agro-industrial complex.

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FROM THE EDITOR

DOI: 10.15838/ptd.2026.4.144.1

UDC 332.1 | LBC 65.050.22

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SPACE AS THE MAIN FACTOR IN THE SUSTAINABLE DEVELOPMENT OF TERRITORIES

Geopolitical confrontation and the growing dynamism of the external and internal environment are making the tasks of maintaining global dominance, ensuring national security, and achieving sustainable territorial development strategic priorities. At the current stage of development, the spatial factor is playing an increasingly important role in addressing these tasks. This issue of the journal brings together articles whose authors examine space as a factor in the sustainable development of territories at different levels, from global to local.

The article by *E.V. Balatsky* addresses the reshaping of geopolitical space and the redrawing of state borders as a way of preserving global leadership. The author argues that the merger of large territories into unified states could become a major driver of world economic development over the next two to three decades. He shows that the United States, through the Grand Unification project – which would incorporate three new territories: Greenland, Canada, and Australia – is attempting to restart the cycle of capital accumulation and preserve its geopolitical hegemony, since such a union could lead to a reconfiguration of the global natural resource market in favor of the United States.

For citation: Uskova T.V. (2026). Space as the main factor in the sustainable development of territories. *Problems of Territory's Development*, 30(4), 7–9. DOI: 10.15838/ptd.2026.4.144.1

In her article, *E.A. Belousova* argues that spatial balance is one of the key characteristics of a municipality's economic well-being. She proposes a methodology for assessing it based on calculating the average deviation from unity of indices built from socio-economic indicators reflecting the stages of reproduction, and she tests the proposed toolkit on the municipalities of the Sverdlovsk Region. The calculations carried out over a fifteen-year period made it possible to identify periods of decline and growth in spatial balance, as well as its intraregional heterogeneity.

E.A. Tretiakova's study aims to develop an integrated model for the comprehensive spatial-dynamic ecological and economic assessment of natural resource use. This model makes it possible to objectively characterize the current situation in both spatial and temporal dimensions, to detect emerging trends in a timely manner, and to take appropriate management decisions well in advance. The methodology was tested on water use data for the regions of the Northwestern Federal District of Russia, which are distinguished by a developed and diversified industrial base with a high environmental intensity of impact on natural water bodies. The findings may be useful to public authorities in the regions of the Russian North-West when developing or updating projects and programs aimed at ensuring sustainable and balanced development.

S.S. Patrakova examines the influence of the spatial factor at the level of rural territories. The article emphasizes that the sustainable development of rural areas is a pressing task for the state. At the same time, despite the implementation of a wide range of state programs and projects at the federal and regional levels, a large number of problems in rural development have become chronic. The author concludes that the current model of rural development needs to be revised, considers the conceptual foundations of rural territorial development in Russia based on a neo-endogenous model, and proposes new

promising regulatory instruments, including individual rural development plans, quality-of-life standards, and cooperation projects along the lines of "city-village" and "village-village".

The next two articles address problems of the housing sector at the regional level. *G.F. Romashkina* and *O.I. Osokin* investigate the spatial interconnectedness of local housing markets in the Tyumen Region – one of the polycentric regions with pronounced differentiation of local markets not only among the constituent entities of the Federation that make up the region but also among municipalities. The article by *I.A. Sekushina* and *A.N. Belkin* reveals the features and trends of housing sector development in the municipalities of the Vologda Region. The authors identify persistent territorial disparities in the level of housing provision, the degree of housing amenities, the condition of the housing stock, and the volume and structure of new housing construction, including individual housing construction. They demonstrate the presence of spatial specificities: significant differences in housing sector development between urban and rural areas, the emergence of signs characteristic of suburbanization, and the particular features of the housing sector in rural municipalities. The findings can be used by regional and local government authorities in the development of housing programs and spatial development strategies.

The most acute internal challenges and threats to Russia's spatial development at present are the shortage of labor resources and demographic problems.

To some extent, the labor shortage is being addressed through external labor migration. The study by *A.E. Plakhin*, *E.S. Ogorodnikova*, and *K.V. Rostovtsev* is devoted to this issue. It aims to identify approaches to detecting the features of the territorial distribution of legal labor migrants and to update understanding of migration flows. The authors establish that the highest concentration of foreign workers is found in the economic centers

of the federal districts, with a substantial increase in foreign workers also observed in the regions of the Far Eastern Federal District.

Population aging, as one of the demographic threats, is particularly acute for the underdeveloped Far Eastern regions. A team of authors (*T.M. Komarova, O.V. Averina, E.V. Stelmakh, and S.A. Solovchenkov*) examines the process of population aging and its consequences for the socio-economic development of the Jewish Autonomous Region. They note the high demographic burden on the working-age population, the decline in the share of non-working-age residents, and the predominance of the population over working age. The authors conclude that the low life expectancy of the population indirectly reflects the weak level of healthcare development in the region. Moreover, the population's commitment

to a healthy lifestyle is insufficient. These demographic problems hinder the region's socio-economic development.

The article by *V.A. Stepanenko* and *E.V. Bazueva* examines intellectual inequality as one of the factors promoting persistent spatial differentiation in the socio-economic development of Russia's regions. The authors conclude that this problem is currently being addressed only in a fragmented manner and propose an organizational and managerial mechanism for reducing intellectual inequality aimed at the region's economic development.

The "Monitoring of Changes" section presents the economic trends of the Russian North-West as of May 2026 (*M.A. Sidorov, E.V. Lukin*) and the main trends in the social well-being of the population of the Vologda Region (*M.V. Morev, E.E. Leonidova*).

We hope that the articles in this issue will be of interest to readers.

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TERRITORIAL ORGANIZATION AND MANAGEMENT

DOI: 10.15838/ptd.2026.4.144.2

UDC 327(100) | LBC 66.4

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THE EXPANSIONIST POLICY OF D. TRUMP AND THE RESHAPING OF THE GLOBAL GEOPOLITICAL LANDSCAPE



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At present, the geopolitical landscape is being reshaped and state borders are being redrawn, which is giving rise to fundamentally new decisions by the political leadership of many countries. In the context of this problem, the article examines the possibility of the United States of America maintaining its geopolitical hegemony through the implementation of the Great Unification project, which envisages the accession of three new territories – Greenland, Canada, and Australia. The research shows that this project is virtually the only chance for the United States to restart the capital accumulation cycle within its existing jurisdiction. The paper demonstrates that such an unification would lead to a reconfiguration of the global natural resource market in favor of the United States, securing its undisputed leadership. The notion of a deal, constantly articulated by Trump in his political rhetoric, fits entirely within the historical traditions of the U.S. territorial expansion. A separate examination of the situation with Greenland, Canada, and Australia indicates that these territories have their own vulnerabilities and may therefore be interested in joining the United States, which makes the Great Unification project quite feasible. At the same time, the article emphasizes that the implementation of the said project would require the fulfillment of four conditions that are currently absent: reaching a final consensus among the U.S. political elites regarding the necessity of the Great Unification project; the shift of the U.S. authorities from a destructive to a constructive form of expansionist policy (from coercive methods to

For citation: Balatsky E.V. (2026). The expansionist policy of D. Trump and the reshaping of the global geopolitical landscape. *Problems of Territory's Development*, 30(4), 10–28. DOI: 10.15838/ptd.2026.4.144.2

constructive integration); the return of the country's political elites to civilized diplomacy, which entails taking into account the interests of others, conducting constructive negotiations, demonstrating respect for partners, and being ready to compromise; and Washington's possession of an appropriate conceptual document (plan) with a detailed strategy and tactics for the integration of new territories. The work notes that if these conditions are not met, periodic outbursts of interest among future White House occupants regarding the annexation of new territories will be observed, which will significantly contribute to the overall destabilization of the geopolitical situation. The merging of large territories into unified states may become the main factor of human development over the next 2–3 decades.

Great Unification project, United States of America, geopolitical hegemony, deal.

ACKNOWLEDGMENT

The article was prepared within the framework of the project of the Ministry of Science and Higher Education of the Russian Federation for 2026 "Global and regional centers of Power in the emerging world order" (075-15-2024-551). The author expresses his gratitude to the anonymous reviewers for their helpful comments. The author expresses special gratitude to V.A. Volkonsky for his valuable advice on improving the manuscript of the article.

Introduction: New policy in new conditions

The arrival of U.S. President Donald Trump on the global political stage marked the beginning of an entirely new phase of expansionism – one that entails redrawing established borders through the enlargement of U.S. territory. Suffice it to recall that Trump first floated the idea of annexing Greenland during his first presidential term, with his administration actively working on the plan, and in 2019 the head of the White House openly expressed interest in purchasing the island¹. America's interest is believed to have been triggered by China's attempt in 2018 to buy a local airport (Gricius, 2025). In 2020, Trump's White House aides and specialists from the U.S. Treasury Department examined the proposed purchase in greater detail and assessed the financial resources it would require. That same

year, according to Miles Taylor, a former official at the U.S. Department of Homeland Security, the U.S. President inquired about the possibility of exchanging Puerto Rico for Greenland; and in 2024, during his second term, he stated that it was "absolutely necessary" for the United States to acquire Greenland². In 2026, at the World Economic Forum in Davos, Donald Trump expressed his willingness to pay for the island, and according to the *Daily Mail*, he considered offering every resident of Greenland one million dollars if they voted for its accession to the United States³. Some time later, members of Trump's team began to speak out on the Greenland issue as well. For example, Elon Musk addressed the future U.S. ambassador to Denmark, Ken Howery, with the words: "Help America get Greenland!"⁴ All this attests to the seriousness of the global hegemon's claims to the world's largest island.

¹ NYP: Trump was interested in purchasing Greenland during his first term. RIA Novosti. Available at: <https://ria.ru/20241225/grenlandiya-1991119838.html?ysclid=mlfcym9oie690978651>

² Trump again declared that the United States needs to acquire Greenland. RIA Novosti. Available at: <https://ria.ru/20241223/trump-1990764727.html>

³ Daily Mail: Trump may offer Greenlanders \$1 million each for joining the United States. Kommersant. Available at: <https://www.kommersant.ru/doc/8364270>

⁴ The president is absolutely serious." Why did Donald Trump decide to annex Greenland and Canada to the United States, and how might it end? Lenta.ru. Available at: <https://lenta.ru/articles/2025/01/10/trump-the-new-coqueror/?ysclid=mlfd1i0v1v460994510>

Yet Trump's appetites were not confined to the northern island. Soon came announcements of the swift return of the Panama Canal to American ownership, as well as proposals for Canada and Mexico to join the United States. Even during his second inauguration, Trump pointedly referred to Canadian Prime Minister Justin Trudeau as "Governor of the great state of Canada" and treated the country itself unconditionally as the 51st U.S. state. Moreover, according to Trump, he is doing this for the good of Canadians themselves: "Many Canadians want Canada to become the 51st state of the United States... I think it's a great idea. 51st state!"⁵.

No less significant is the creation, in 2021, of the AUKUS military partnership between Australia, the United States, and the United Kingdom. It gives Australia access to American nuclear submarine technology and, in effect, binds Canberra tightly to Washington's strategic course for decades to come (Laurenceson, 2025).

Yet even these moves do not exhaust the innovative imperatives of the Trump administration. The current year, 2026, has brought new forms of U.S. activism on the international stage. In January 2026, Venezuelan President Nicolás Maduro was abducted by U.S. intelligence services and is to face trial in an American court on charges of narco-terrorism, while his person has been replaced by the puppet figure of Delcy Rodríguez. The following month, the United States and Israel launched a joint operation to bomb Iran and eliminated a significant part

of the country's senior political leadership. Also in January 2026, the American president declared an oil blockade against Cuba, and in February he clarified that he planned to "blow up" the island nation, since its authorities are already "hanging by a thread"⁶.

These events are being actively discussed both in the media and in academic publications. Analysts' opinions range widely: some believe that Trump's rhetoric and its external chaos betray the absence of a coherent policy⁷, while others regard it as a natural element of strategy (Koretskaya, 2017; Alekseev, 2017). Some, however, take his promises very seriously⁸.

There is apparently an objective basis for the contradictory nature of Trump's policy, but the new vector he has set in international relations demands the closest attention. Two lines of Trump's expansionist policy have now emerged quite clearly – *a constructive one* and *a destructive one*. The first involves expanding U.S. borders through the formal incorporation of new territories (Canada, Greenland, etc.), while the second entails strengthening America's positions in various regions by bringing the governments of the relevant countries under control and overthrowing undesirable regimes (Cuba, Iran, Venezuela, etc.). Tellingly, the position of the U.S. authorities on these issues is announced openly, not hidden – which can be regarded as a new trend in the country's state governance. None of these changes is accidental, and the foreign policy imperatives that Trump articulates should not be dismissed as rhetorical bravado. Accordingly, the aim of this article is to examine the prerequisites and possibilities for Washington's implementation

⁵ The president is absolutely serious." Why did Donald Trump decide to annex Greenland and Canada to the United States, and how might it end? Lenta.ru. Available at: <https://lenta.ru/articles/2025/01/10/trump-the-new-coqueror/?yscl=mlfd1i0v1v460994510>

⁶ Will Cuba become "the next Iran": Trump's plans and prospects. Mail: news. Available at: <https://news.mail.ru/politics/70430869/>

⁷ Making it in 24 hours: Western press begins tallying Trump's chaotic "feats." Moskovsky Komsomolets. Available at: <https://www.mk.ru/politics/2026/04/23/uspets-za-24-chasa-zapadnaya-prensa-nachala-podschyot-khaotichnykh-podvigov-trampa.html>

⁸ I said so! The most scandalous statements by U.S. President Donald Trump. Ren.TV. Available at: <https://ren.tv/longread/1338500-ia-skazal-samye-skandalnye-zaiavleniia-prezidenta-ssha-donalda-trampa>

of a new phase of foreign policy expansion, as well as the geopolitical configuration that may emerge as a result of such a policy.

To make the aim more concrete, let us consider three territories that could be united with the U.S.: Greenland, Canada, and Australia. For a constructive examination of this new geopolitical configuration, it makes sense to assess three problematic aspects: the expediency and justification of the planned expansion for the United States itself; the feasibility of the stated objectives; and the likelihood and conditions of such a large-scale transformation.

The Grand Unification project

Here and below, we shall refer to Trump's project under the conventional title of the "Grand Unification" (GU), which involves the accession to the United States of three territories: Canada, Australia, and Greenland. As noted above, Canada and Greenland have repeatedly been named in Trump's rhetoric as targets of geopolitical unification, while Australia, by virtue of its close military integration with the United States, already lies in the mainstream of such integrationist policy.

It may seem that Washington's geopolitical ambitions on this scale are entirely unfounded and even largely irrational. Yet, as will be shown below, this is not entirely the case. The idea of the GU project did not emerge by chance: it is fully in line with the policy of maintaining America's global hegemony. At the same time, one cannot fail to see in the project a shift to a fundamentally new political stance. Whereas the United States, as a global empire, previously contented itself with the shadow control of various territories around the world, the country's administration now seeks to legitimize its claims to strategically important stretches of land and ocean. This is not, of course, about abandoning shadow control in favor of an official unified jurisdiction; rather, the two strategic lines are now beginning to be pursued simultaneously.

Below, we examine the underlying logic of the GU project. To that end, we identify its geopolitical, geo-economic, and historical preconditions.

Geopolitical preconditions of the Grand Unification

Understanding the present position of the United States brings us to the concept of cycles of accumulation developed by Giovanni Arrighi. According to his classification, the United States is the hegemon of the fourth global cycle of capital accumulation, which is gradually being succeeded by a fifth, centered in China (Arrighi, 2006). The logic of succession of world capital centers (Genoa + Venice, the Netherlands, Great Britain, and the United States) leaves the old hegemon, the United States, almost no chance of holding on to its positions. The gradual displacement of American players from the world market by the Chinese serves as a vivid confirmation of this. At the same time, the outgoing hegemon never gives up its positions without a fight. In this connection, Trump's first presidential term involved an open attempt to *restart* the cycle of capital accumulation within the previous geographic jurisdiction and thereby preserve the privileged position of the United States (Balatsky, 2018). Trump is pursuing the same objective in his second presidential term, but his new strategy differs from the initial one.

Let me note at the outset an extremely important point made by Arrighi: "Every center of capital internalizes (takes on) the costs of providing certain functions – protecting its markets, producing goods, ensuring exchange operations, and its own reproduction" (Arrighi, 2009). In his view, this last function – reproduction – has not yet been mastered by any center. Moreover, the very possibility of "conserving" the world hegemon remains an open question. Trump, in effect, took it upon himself to ensure the *reproduction* of the world

capital center represented by the United States for an indefinitely long period. It cannot be ruled out that this was a utopian idea from the very outset, yet that does not diminish the efforts the American administration has made toward this end.

No less interesting is Arrighi's distinction between the *external* and *internal* territorialism of a world capital center. The former is aimed at expanding beyond the center, the latter at the market within the borders of the leading state (Arrighi, 2006). In this context, it is easy to see that Trump's first presidential term was directed at implementing internal territorialism by bringing high-tech production back to the United States and revitalizing the national economy. For various reasons, this policy failed. In his second term, Trump proclaimed a shift to external territorialism through the incorporation of additional territories into the United States. So far, this policy has likewise not been adequately realized, but the very fact that the Trump administration is searching for new paths and attempting two large-scale institutional experiments is symptomatic.

The foregoing demonstrates that Washington neither wishes nor is able to surrender its privileged position, and is therefore compelled to try every available means to maintain its dominance. The GU project fits squarely into this logic and, if successfully implemented, could at least temporarily prolong U.S. hegemony.

Geo-economic preconditions of the Grand Unification

Another war for the planet's natural resources is currently unfolding. In this respect, the United States, despite its natural wealth, needs additional resource inputs. Incorporating new territories offers a solution to this problem. At present, in terms of land area, the United States ranks behind not only Russia but also China, while China's population is 4.1 times larger than that of the current hegemon. The GU project could rectify this state of affairs. Calculations show that its implementation would make the "renewed" United States the world's absolute leader in territory, exceeding Russia by a factor of 1.7 and surpassing the combined territory of Russia and China by 7 percent (*Tab. 1*). Such an advantage is undoubtedly strategic, significantly improving America's chances of retaining hegemony.

The population increase that the GU project would bring to the United States is not particularly striking, but it cannot be ignored either. In the new configuration, China's population advantage would shrink from 4.1 to 3.4 times. Though not decisive, this demographic gain would give the United States an additional edge in defending its leading positions.

More important, the GU project would give the United States not merely an arithmetical advantage in territory but outright leadership in available natural resources. According to the portal *24/7 Wall St.*, Russia tops the ranking

Table 1. Territory and population of the world's largest countries (as of 2026)

Country	Territory, million km ²	Population, million people
Russia	17.260	146.2
United States	9.147	341.2
China	9.597	1404.9
GU project (USA + Canada + Australia + Greenland)	28.757	409.3
Compiled from: Countries of the world by area. Fandom. Available at: https://geography.fandom.com/ru/wiki/Страны_мира_по_размеру ; List of states and dependent territories by population. Wikipedia. Available at: https://ru.wikipedia.org/wiki/Список_государств_и_зависимых_территорий_по_населению?ysclid=mpicvy1r4w873109473		

of the ten countries with the richest resource endowments by a wide margin (*Tab. 2*). The Grand Unification, however, would give the United States an absolute superiority over its main competitors. The GU bloc's natural resource reserves would exceed Russia's by almost 30 percent and would be nearly equal to those of Russia and China combined; with Greenland, which was not included in the calculations, this advantage would be even greater.

Beyond the general balance of forces shown in Tables 1 and 2, the GU project also promises other strategic geo-economic benefits. Above all, this concerns the coming redistribution of the Arctic and the Arctic Ocean shelf. The Arctic is melting, becoming more open to navigation and colonization, and the potential of its subsoil is estimated at hundreds of trillions of dollars. The northern countries are already contending for Arctic resources, and the GU project carries considerable weight in this struggle. At present, Russia claims roughly half of the Arctic, while the United States, through Alaska, claims only about

10 percent. The incorporation of Greenland alone would raise the U.S. presence in the Arctic region to one third, and together with Canada, the United States could lay claim to nearly half of the Arctic's riches⁹. Furthermore, according to the U.S. government, Greenland produces 43 of the 50 minerals classified as strategic and critical to the American economy. Gabriella Gricius points out that the United States is currently 100 percent dependent on imports for 12 critical minerals and 50 percent dependent on imports for another 29 elements; Greenland possesses many of these, which is why acquiring the island can be seen as a way of reducing the hegemon's dependence on imports from China¹⁰. The ongoing melting of glaciers also opens up additional opportunities for drilling oil and gas wells and extracting ore minerals. Global warming likewise creates new prospects for world shipping and trade, in which the United States is prepared to participate actively¹¹.

Nor should the military significance of Greenland be overlooked. During the Cold War, the island was already important to the

Table 2. Natural resource reserves by country, 2021

Country	Reserves, trillion USD	Relative to Russia, %
Russia	75.7	100.0
United States	45.0	59.4
Saudi Arabia	34.4	45.3
Canada	33.2	43.9
Iran	27.3	36.0
China	23.0	30.4
Brazil	21.8	28.9
Australia	19.9	26.3
Iraq	15.9	21.0
Venezuela	14.3	18.9
GU project (USA + Canada + Australia)	98.1	129.6
Compiled from: The world's most resource rich countries. 24/7 Wall St. Available at: https://247wallst.com/special-report/2012/04/18/the-worlds-most-resource-rich-countries/		

⁹ What is Trump really up to: Is the United States ready to go to war with its neighbors? Ferra.ru. Available at: <https://www.ferra.ru/review/techlife/trump-wants-greenland-and-canada.htm>

¹⁰ By stoking the Greenland debate, is the United States actually harming itself? Eurekalert! Available at: <https://www.eurekalert.org/news-releases/1113269>

¹¹ "If he annexes Canada, why can't we have the Baltics?": Has Trump begun an overseas expansion? BiznesOnline. Available at: <https://www.business-gazeta.ru/article/659409?ysclid=mlfe9r8uvh875465872>

United States as a key location for tracking ballistic missiles that could potentially reach the American homeland from the USSR. In a statement on January 14, 2026, Trump stressed that acquiring Greenland would be decisive for the “Golden Dome” – the proposed missile defense system that the United States wants to use to intercept missiles launched from space. The Greenland–Iceland–United Kingdom gap is also of central importance for maritime surveillance, since it blocks Russian submarines and naval forces from access to the North Atlantic¹².

As for Australia, its incorporation is important in the context of the global confrontation with China. The point is that recent decades have witnessed the active Sinicization of Australia: the Chinese community there is one of the largest in the world in per capita terms and the largest outside Asia. Mandarin Chinese is the second most widely spoken language in Australia¹³. If this process continues, the continent will, in the foreseeable future, turn into something of a Chinese province, with all the consequences that this entails. Some experts already speak openly of the prospect that “the Chinese will build a second China in Australia”, including by transferring part of their military potential there¹⁴. Clearly, such an expansion of China’s influence – and the emergence of a China + Australia bloc – would make any further U.S. struggle to retain hegemony impossible. This is why a silent contest for the continent is now unfolding between the two superpowers, the United States and China. Given these

circumstances, Washington must erect an official barrier to Australia’s further Sinicization.

The geo-economic aspects of the GU project considered above not only fit squarely into the logic of U.S. domination but render it almost devoid of alternatives. Otherwise, America will lack the resources needed to preserve its global privileges.

Historical preconditions of the Grand Unification

The U.S. took shape as a state in a highly distinctive manner, steadily enlarging itself through the acquisition of additional lands. Though the history of these purchases is well known, let us briefly recall its main milestones¹⁵:

1. 1803 (President Thomas Jefferson) – purchase of the Louisiana Territory from France, covering more than 2.1 million km², for 15 million dollars;
2. 1819 (President James Monroe) – purchase of Florida from Spain for 5.5 million dollars;
3. 1848 (President James K. Polk) – acquisition, following the Mexican–American War, of more than half of Mexico’s territory, 1.4 million km², for compensation of 15 million dollars;
4. 1854 (President Franklin Pierce) – purchase of 120,000 km² of territory from Mexico for 10 million dollars;
5. 1867 (President Andrew Johnson) – purchase of Alaska from Russia, an area of 1.7 million km², for 7.2 million dollars;
6. 1898 (President William McKinley) – acquisition of the Philippines, Puerto Rico, and Guam following the Spanish–American War

¹² By stoking the Greenland debate, is the United States actually harming itself? EurekAlert! Available at: <https://www.eurekalert.org/news-releases/1113269>

¹³ The Chinese diasporas of the United States and Canada and the “new” Chinese migration. Zapadnaya Rus. Available at: <https://zapadrus.su/rusmir/istf/132-konferentsii/2019.html>

¹⁴ Andrei Shkolnikov: “The Chinese will build a second China in Australia.” Novye izvestiya. Available at: https://newizv.ru/news/2023-03-04/andrey-shkolnikov-kitaytsy-budut-sozdavat-v-avstralii-vtoroy-kitay-399653?utm_source=sozero.livejournal.com&utm_medium=referral&utm_campaign=sozero.livejournal.com&utm_referrer=sozero.livejournal.com

¹⁵ “The president is absolutely serious”. Why did Donald Trump decide to annex Greenland and Canada to the United States, and how might it end? Lenta.ru. Available at: <https://lenta.ru/articles/2025/01/10/trump-the-new-coqueror/?yscl=id=mlfd1i0v1v460994510>

for 20 million dollars (in 1946 the Philippines gained independence; Puerto Rico and Guam remain unincorporated organized territories of the United States);

7. 1898 (President William McKinley) – annexation of the Hawaiian Islands (in 1893 Americans organized a coup d'état in Hawaii; in 1894 the puppet Republic of Hawaii was proclaimed and annexed four years later; in 1900 Hawaii became a self-governing territory, and in 1959 it was declared the fiftieth state of the United States);

8. 1903 (President Theodore Roosevelt) – acquisition of the Panama Canal Zone for 10 million dollars and the Guantánamo Bay base in Cuba for 3.4 thousand dollars (the Panama Canal was returned to Panamanian jurisdiction in 1999; Guantánamo remains under U.S. control);

9. 1917 (President Woodrow Wilson) – purchase of the Virgin Islands from Denmark for 25 million dollars (the Virgin Islands hold the status of an unincorporated organized territory of the United States).

As for Greenland, experts recall that the United States declared its intention to purchase the island in 1867, 1910, 1946, and 1955, and that President Trump raised the idea once again in 2019 and 2025¹⁶. In the 1860s, President Andrew Johnson, under whom Alaska was acquired, wanted to buy the island from Denmark, and in 1946 President Harry Truman even offered Copenhagen 100 million dollars for the transfer of Greenland to Washington¹⁷.

The United States also had its own designs on Canada. In 1775, during the American War of Independence, American revolutionaries

invaded Quebec but were defeated. Several unsuccessful attempts to seize the territory of present-day Canada were also made during the Anglo-American War of 1812–1815. Calls for the annexation of the British North American colonies continued during the Civil War of 1861–1865, and in 1867 the threat of American invasion became one of the reasons for the creation of the Dominion of Canada and the emergence of a new state. The American military command returned to the idea of invading its northern neighbors in the 1920s and 1930s, when it drafted War Plan Red for a possible armed conflict with the British Empire; although the document was hypothetical and never approved by Congress, the very fact that such an initiative emerged is symptomatic¹⁸.

All these facts make it abundantly clear that the United States has long maintained a stable tradition of territorial transactions to expand its borders, actively employing money, bribery of officials, and military force. American authorities have skillfully exploited historical moments when other states were weakened to strip them of territory. In many cases, money served as diplomatic cover for aggression. The incorporation of Mexican lands, for example, rested on Mexico's military defeat, but monetary compensation lent the deal a veneer of civilized legitimacy. The U.S. authorities also displayed strategic vision, prepared to stay the course long after the initial campaign. Much the same logic governed the Hawaiian Islands, which remained a self-governing territory for almost sixty years and were granted statehood only when nothing any longer stood in the way.

¹⁶ By stoking the Greenland debate, is the United States actually harming itself? EurekAlert! Available at: <https://www.eurekalert.org/news-releases/1113269>

¹⁷ Donald Trump's Western Hemisphere has become more active. Kommersant. Available at: <https://www.kommersant.ru/doc/7422780?ysclid=mlfdppz6a2864986830>

¹⁸ How realistic is Canada's accession to the United States? Trump proposes making the neighboring country the 51st state, and some Canadians are not opposed. RBC. Available at: <https://www.rbc.ru/politics/02/02/2025/679d15419a7947932cb1bfdd?ysclid=mlfdw19r6z878538247>

Combining the instruments at their disposal, the U.S. authorities are fully capable of carrying out another round of jurisdictional expansion. In this respect, Trump's policy by no means contradicts the American tradition; on the contrary, it fits squarely within it. As analysts note, Trump's initiatives are not his "personal invention" but a "new edition" of long-standing American interests (Myagkov, 2025). Even today, the United States can still offer the countries being absorbed certain inducements that would facilitate the peaceful entry of large territories into its fold. The gains from the GU project are likely to outweigh its costs.

But how feasible is the GU project? Let us consider this question separately for each territory.

The absorption of Greenland: *Pro et contra*

The United States' choice of Greenland as a target for incorporation is far from accidental. A number of circumstances, in one way or another, make this plan easier to implement. Let us enumerate them.

First, geographically speaking, Greenland is situated in North America, but by historical convention it belongs to Western Europe, being part of the Kingdom of Denmark (Myagkov, 2025). This fact may seem trivial, yet at a certain moment it could prove decisive and exert a tangible influence on political decisions. The logic of nature and planetary configuration favors Greenland's integration with North America rather than with Europe, and the United States can play on this, using geography to its own advantage. Pressure from the American establishment will only mount because of the island's strategic dimension: controlling Greenland makes it possible, in due course, to raise the question of ownership of and access to the hydrocarbon reserves on the Arctic shelf (Myagkov, 2025).

Second, Greenland has assumed an ambiguous position in its foreign policy. On the one hand, it seeks greater autonomy and separation from mainland Denmark and has been strengthening cooperation with Canada and the United States; on the other, it does not force the process because of its financial dependence on the central authorities (Belukhin, 2024). This creates the basis for a step-by-step absorption of Greenland by the United States. For example, as a first step, the island could gain full political autonomy thanks to economic assistance from the hegemon; as a second, it could obtain the status of a self-governing territory under U.S. patronage; as a third, it could become an unincorporated organized territory of the United States; and as a fourth, it could achieve full statehood. Washington has ample room to exploit Greenland's economic dependence.

Third, the island's geographical position is of military significance, enabling control over the entire polar Arctic zone and the transit routes passing through it (Myagkov, 2025). The United States currently operates 17 military bases in Greenland, which gives it unprecedented leverage for coercive pressure on the island's leadership. Bringing Greenland under U.S. jurisdiction would allow Washington to strengthen its military posture against Russia by controlling Arctic airspace and Russia's Arctic coastline. For the Russian Federation, this would constitute an additional challenge – and that very fact would itself impel the U.S. authorities to push ahead with the project.

Fourth, the island's resource wealth has independent significance and serves as a source of attraction for many countries. Deposits of precious metals (gold, silver, platinum) and rare stones (diamonds, rubies, and the unique stone tugtupite) have been discovered on the island. According to expert estimates, Greenland's oil reserves account for 13% of the

world's undiscovered reserves, and its natural gas reserves for 30%, with more than 80% of hydrocarbon resources lying on the island's shelf. U.S. strategic interest in Greenland is also linked to its abundant freshwater reserves: the total volume of Greenland's glaciers is about 2.85 million km³ of ice, equivalent to 10% of the world's freshwater reserves. The importance of water as a vital resource will only grow, and the United States simply cannot afford to relinquish control over such a market. These circumstances are compounded by global warming, which is especially pronounced in polar latitudes: the island's ice sheet is shrinking by nearly 245 billion tons annually due to melting, opening new prospects for the commercial exploitation of its subsoil (Myagkov, 2025).

Fifth, Greenland's natural resources are of fundamental importance for global competition. The deeper reason for U.S. interest in the island's natural wealth is believed to lie in its rich deposits of rare-earth metals: lithium, niobium, thorium, zirconium, tantalum, beryllium, yttrium, and others. Their total volume is estimated at 38.5 million tons, or about 30% of the world total, placing Greenland second in the world after China in terms of reserves (Myagkov, 2025). The significance of rare-earth metals stems from their growing use in various high-tech innovative industries – from advanced machine building and metallurgy to the nuclear and aerospace industries, the military-industrial complex, the production of electronic equipment and optical communication devices, chemical manufacturing, and household appliances. China is the leading supplier of rare-earth metals to the global and U.S. markets, accounting for up to 70%. This makes the United States dependent on China and

threatens future technological backwardness. Gaining control over Greenland's resources would allow the hegemon to reshape the high-tech market in its favor, ruling out passive contemplation of potential integration opportunities. Moreover, the United States has already taken steps to push China out of Greenland, though given the island's orientation toward external autonomy, this situation could change at any moment.

Sixth, Denmark is currently the weak link among the Nordic countries and is incapable of resisting U.S. pressure. The American administration no longer regards Denmark as a worthy ally in the Arctic zone, unlike, say, Norway. Analysts note that this is precisely what triggered the U.S. claims to Greenland, whereas Trump has never voiced any claims to Norway's Svalbard¹⁹ (Belukhin, 2025). Compared with Norway, Denmark suffers from excessive bureaucracy in all its decision-making, a lack of follow-through, and insufficient funding to meet its commitments. Under these conditions, Denmark has no political trump cards with which to defend its priority over Greenland.

Seventh, a great many contradictions and conflicts have accumulated between mainland Denmark and Greenland. There is no point in enumerating all the clashes between the two territories; let us cite just a few:

- the question of adequate political representation for Greenland in defending its interests in the Arctic, particularly within the Arctic Council;
- the Greenlanders' demands for more active participation in ensuring the island's security;
- the demand for equality between Danish and Greenlandic, and the central government's chronic inability to build

¹⁹ Belukhin N.E. (2025). The Greenland mirror of American interests. Russian International Affairs Council. Available at: <https://russiancouncil.ru/analytics-and-comments/analytics/nikita-belukhin-grenlandskoe-zerkalo-amerikanskikh-interesov/>

simultaneous-interpretation infrastructure (Belukhin, 2025);

– conflicts caused by the juvenile justice system: in 2022, based on testing of parents, 5.6% of children of Greenlandic origin were removed from their families and placed under guardianship, compared with 1% among Danes²⁰.

All this increases the chances that the United States will detach Greenland from Denmark. At the same time, the central government's response has been primarily humanitarian in nature, focused on Greenland's sustainable development, green energy, and support for indigenous peoples, while balancing external pressure and alliance commitments (Grinyaev, Zhuravel, 2025). Clearly, such a passive policy cannot stop the United States.

A few further points may be added to the picture.

First, English serves as the second (working) language among the Scandinavian population, and nearly everyone speaks it quite well. In this respect, moving into an English-speaking jurisdiction would be far less painful for Greenlanders than one might assume. The islanders are likely to have even fewer problems with English than with Danish.

Second, the mooted American payments of one million dollars per head to Greenland's residents are an extremely powerful argument. For a population of 55,600, this would represent a colossal leap in prosperity, whereas for the United States the required sum would equal just one percent of the 2025 federal budget revenues (5.24 trillion dollars)²¹. Such "buying off" of the population could tip the scales in favor of the island's voluntary accession to the United States.

Third, the United States has the means to resolve many of the long-standing and

vexing problems of Greenland's residents – for example, ensuring comprehensive internet coverage across the island. With equipment supplied by SpaceX, the quality of mobile communications for the islanders could be substantially improved.

The facts considered above indicate that the United States has every opportunity to incorporate Greenland. The only questions are how long this will take, at what cost, and in what form.

The absorption of Canada: *Pro et contra*

The second country to feature in Trump's rhetoric as a candidate for incorporation into the United States is Canada. Despite the seeming impossibility of this project, several circumstances work in its favor. Let us briefly consider some of them.

First, the United States and Canada have already achieved an unprecedented degree of political and economic integration. John McDougall, for example, rightly argues that Canada participates in the political agenda "by default" (McDougall, 2020). This entails the forced harmonization of Canadian and U.S. policies, which calls Canadian independence into question in many areas. Moreover, the existing dependence of the Canadian economy on that of the United States drives ever closer cooperation between the two countries (Filina, 2022).

Second, the United States and Canada have synchronized their collective security institutions and their regulation, and maintain extremely close cooperation in this area – intelligence sharing, border security, law enforcement, and counterterrorism. Experts emphasize that this synchronization

²⁰ Danish authorities took a newborn baby from a Greenlandic mother immediately after birth. Rossiyskaya Gazeta. Available at: https://rg.ru/2025/08/25/vlasti-danii-otobrali-mladenca-u-materi-grenlandki-srazu-posle-rodov.html?ysclid=mppu4hdtpv891236949&utm_referrer=https%3A%2F%2Fya.ru%2F

²¹ On the U.S. budget for fiscal year 2025: The deficit exceeded 25%. EurAsia Daily. Available at: <https://easaily.com/ru/news/2025/10/27/o-byudzhete-ssha-za-2025-y-finansovyy-god-deficit-sostavil-bolee-25>

rests on shared institutions, identity, and interests (Khlopov, 2022). Such a configuration of the collective security system can evolve in only one direction: deeper integration.

Third, the United States and Canada have developed exceptionally close scientific ties, which at present can hardly be severed and could, on the contrary, be further deepened. As an editorial in the authoritative journal *Science* puts it, the United States is Canada's principal scientific partner. According to the Canadian bibliometric database *Web of Science*, over the past five years 27% of all Canadian scientific publications were co-authored with American colleagues. Large-scale cooperation programs and joint research projects are also underway in such critical fields as the Great Lakes, the Arctic, space, healthcare, climate monitoring, artificial intelligence, subatomic physics, and data sharing (Quirion, 2025).

Fourth, Canadian public sentiment on possible integration into the United States cannot be described as unequivocal. According to a 2025 Ipsos poll, 30% of Canadians would vote for their country to join the United States if Washington guaranteed them American citizenship and the conversion of their savings into U.S. dollars; in the 18–34 age group, the figure reaches 43%. Notably, 21% of respondents believe that the unification of Canada and the United States into a single state is only a matter of time²².

Fifth, the unification of the two countries presents no language problem, since English is used in both. The presence of a French-speaking minority in Canada periodically makes itself felt but does not lead to sustained separatist sentiment.

All of this makes it abundantly clear that the preconditions for U.S.–Canadian unification exist, and the only question is how comfortable a particular model of integration would prove.

The absorption of Australia: *Pro et contra*

Although President Trump has never commented on Australia, it is precisely this country that is in urgent need of transformation and, perhaps, even integration with the United States. It is worth recalling that Huntington already classified Australia as a torn country (Huntington, 2024). This “rift” became most clearly apparent as far back as the early 1990s, when Australia's political leaders decided that their country should “redefine itself” – leave the West and become an Asian society. This stance took the form of the so-called Keating – Evans choice, a term introduced into scholarly discourse by Huntington and named after its architects: Paul Keating, then Prime Minister of Australia, and Gareth Evans, the foreign minister at the time. The choice entailed a policy course aimed at Australia's merger with Asia.

This historical curiosity shows that by the end of the 20th century the Australian population had already lost its sense of self-identification. Unsurprisingly, Australians with a distinctly Western mindset cannot assimilate into Asian culture overnight. As a result, the country found itself between Scylla and Charybdis: on the one hand, in Paul Keating's words, it remained “an outpost of the empire”; on the other, in Lee Kuan Yew's phrase, it had become “the new white trash of Asia” (Huntington, 2024). Over the past thirty years, Australia's internal split has only widened. The country's Asian orientation and China's successes have led to a partial erosion of the continent's loyalty to its strategic partner, the United States. Canberra believes that the era of U.S. primacy is over and the region has become

²² How realistic is Canada's accession to the United States? Trump proposes making the neighboring country the 51st state, and some Canadians are not opposed. RBC. Available at: <https://www.rbc.ru/politics/02/02/2025/679d15419a7947932cb1bfdd?ysclid=mlfdw19r6z878538247>

multipolar, with deeper economic integration with China contributing not only to domestic and regional prosperity but also to stability and security (Laurenceson, 2025).

There are currently no exact statistics on the number of ethnic Chinese in Australia. According to available data, by 2016 they numbered 1.2 million, corresponding to 5% of the country's population (Katkova, 2018). More recent estimates put the figure at 7% by 2026, while the share of all residents from Asian countries stands at 30%²³. Given that these are minimal estimates against the backdrop of the government's abandonment of the "White Australia" policy, the true scale of the continent's Sinicization could well be several times greater, making Australia's shift under China's patronage entirely realistic in the foreseeable future. Already today, the largest ethnic groups drawn into immigration-related conflict are Italians, Chinese, and Indians, all of which have experienced rapid population growth in recent years²⁴. These facts carry strategic risks for the United States, which will therefore be forced to respond to the emerging situation.

To better grasp the strategic gains from competing U.S. and Chinese unions with Australia, let us turn to *Table 3*.

Clearly, if the United States were to lose Australia and China were to seize the integration initiative, the hegemon's position would become truly precarious. A China + Australia union would be almost twice as large

as the United States in territory, 4.2 times larger in population, and roughly equal in natural resource endowments. If, on the other hand, the United States managed to absorb Australia, China would still outnumber the new union 3.8 times in population but would fall behind by factors of 1.8 and 2.8 in territory and resource reserves, respectively. The conclusion is simple: whoever succeeds in incorporating Australia – or drawing it firmly into their sphere of influence – will be the global leader in the decades ahead.

As for the realism of bringing the island continent into the United States, the facts reviewed above suggest that the project is by no means utopian. Several points stand out.

The first is psychological and cultural. Possessing a Western mindset, the Australian population has spent three decades unable to resolve its cultural identity. Situated far from the main centers of a weakening West, the country is being pulled ever deeper into the orbit of a rising Asia, above all China. Integration with the United States would put an end to this ambiguity. If accompanied by intensified mutual investment flows, the benefits for Australia would be plain, while contacts with Asia would not have to be severed.

The second is linguistic. The United States and Australia are both English-speaking countries, and their union would cause no cultural shock to either population.

Table 3. Parameters of the proposed territorial unions

Country	Territory, million km ²	Population, million people	Natural resource reserves, trillion USD
United States	9.1	341.2	45.0
China	9.6	1404.9	23.0
United States + Australia	16.8	368.4	64.0
China + Australia	17.3	1432.1	42.9
Compiled from data in Tables 1 and 2.			

²³ Behind the Poetic Words: The End of the Earth (Part II). Wen Wei Po. Available at: <https://www.wenweipo.com/a/202602/03/AP6981046ee4b04d7d56d187f3.html>

²⁴ Ibidem.

The third is military. Through membership in the AUKUS bloc, Australia has quietly become a nuclear-capable power. This turns the continent into America's forward base in the Southern Hemisphere, which under no circumstances can be ceded to China, its geopolitical rival.

The fourth is economic. Australia is an extremely peculiar geographical formation with a rather fragile ecology (Diamond, 2023). This necessitates a mass of mega-projects on the continent. Australia, for example, sets records in building giant desalination plants²⁵, undertakes large projects for the construction of airports, highways, and rail lines, including rail and road tunnels under the harbor with high-speed driverless trains²⁶. The country has become a leader in shale gas extraction and the LNG market (Pogosyan, 2020). It is also developing the marine sector as a growth driver by harnessing wave and tidal energy and building a "blue economy" on this basis (Sharygina, 2021). All of this creates a vast market for U.S. technology and investment.

The foregoing suggests that Washington has real opportunities to absorb Australia. The only question is how effectively and delicately this will be accomplished.

Discussion of results

A decade ago, the GU project would have been considered as pure fantasy. Yet amid the reshaping of the old world order, it now appears as perhaps the only worthy response the United States can offer to China's rise. According to IMF data, China's GDP first exceeded that of

the United States by 2.2% in 2016, and by 2025 the advantage of the Middle Kingdom had already reached 34.0%²⁷. This means that time is working in favor of the Asian power, and if current production trends persist, by 2035 China's GDP will exceed that of the United States by roughly 70% – an unacceptable lag for Washington.

The foregoing shows that the GU project is highly desirable for the United States, beneficial to the territories to be absorbed, and entirely feasible. In this connection, it is worth recalling that George Orwell, in his famous novel, depicted three totalitarian states: Eurasia, Eastasia, and Oceania. The composition of the latter is close to the GU project under consideration here²⁸: Oceania consists primarily of the United States, Canada, and Australia, while Greenland figures among the disputed territories over which the three powers are at war. This suggests that by the mid-20th century the global distribution of power on the planet was already clearly visible and predictable. Orwell's futurological forecast now appears to be taking on tangible contours.

At the same time, it is safe to say that the United States is today entirely unprepared to implement the GU project. Several conditions would first have to be met.

First, a *definitive consensus* must be reached between the official and deep state in the United States, as well as between Democrats and Republicans, on the necessity of the GU project. Trump's partial unveiling of the project indicates that a serious demand for such an initiative already exists within the American political establishment; however, the inconsistency of the U.S. president's position on the issue reveals

²⁵ The grand construction of desalination plants in Australia. Fishki.net. Available at: <https://fishki.net/3706461-grandioznaja-strojka-opresnitelnyh-zavodov-v-avstralii.html?ysclid=mpsblem4sv146446853>

²⁶ Australia's infrastructure boom: Can the country afford such expensive construction of transport and road facilities? Za rubezhom. Available at: <https://zarubejom.ru/articles/infrastrukturnyy-bum-avstralii/?ysclid=mpsbyritfc147504599>

²⁷ List of countries by past and projected GDP (PPP). Wikipedia. Available at: [https://en.wikipedia.org/wiki/List_of_countries_by_past_and_projected_GDP_\(PPP\)#cite_note-IMF_Data-1](https://en.wikipedia.org/wiki/List_of_countries_by_past_and_projected_GDP_(PPP)#cite_note-IMF_Data-1)

²⁸ Orwell G. (2024). 1984. Moscow: Azbuka. 352 p.

the absence of unity among different influence groups. It cannot be ruled out that Trump's tenure will become a period of consolidation of the country's political elites around the GU project and of familiarizing the world with the idea, while its actual implementation will fall to subsequent administrations.

Second, the U.S. authorities must make a *definitive shift from destructive to constructive forms* of expansionist policy. The abduction of other countries' presidents (Venezuela), threats to their governments (Cuba and Panama), and the bombing of their territory (Iran) should give way to a drive to unite America's "genetic" allies and to build a model for their effective integration into the country's existing institutional configuration. Today, the United States is already perceived around the world as an aggressive state that feels bound by no obligations, a perception that makes it risky for other countries to enter into strategic alliances with it. Washington's practice of political blackmail and interference in the affairs of other states has already brought the world to the very brink of nuclear catastrophe. Under such conditions, large-scale peaceful integration initiatives are all but impossible to pursue.

Third, America's political elites must revive the art of diplomacy that they have effectively destroyed over recent decades. In that time, Washington has grown unaccustomed to taking other parties' interests into account and to conducting constructive negotiations, preferring instead to exert coercive pressure on its political counterparts. When integrating additional territories into its fold, the United States will be forced to reconcile its own claims with those of others, offer inducements to the countries being absorbed, demonstrate respect toward them, and make compromises. This will require a substantial overhaul of the country's foreign-policy machinery. For now, Trump's crude and provocative statements

work in the opposite direction: they provoke categorical rejection of accession to the United States among both the governments and the populations of the territories targeted for incorporation.

Fourth, the implementation of the GU project requires Washington to have an appropriate conceptual document – a plan – that would set out in detail the strategy and tactics of integrating new territories. It is already clear that the project will be phased and multistage. Greenland, for instance, should be integrated first, then Canada, and finally Australia; success in integrating one territory would serve as the basis for integrating the next. As noted above, the incorporation of Greenland itself would proceed through several steps: first, the island would gain independence from Denmark; then it would acquire the status of a self-governing territory under U.S. patronage; and after some time it would become an unincorporated organized territory of the United States, eventually attaining statehood. Canada and Australia, in all likelihood, would be integrated as sets of states corresponding to their existing historical territorial divisions. In parallel, currency issues, the synchronization of tax systems, and the like would also have to be addressed. No such program currently exists in the United States, although drafting one presents no fundamental difficulty and would not take long.

Fulfilling these conditions is by no means extraordinary; what is needed is simply the consent of America's political elites on the necessity of the GU project. If that consent is not forthcoming in the near future, we will witness cyclical bursts of activity by future occupants of the White House on incorporating new territories, followed by their fading away without any real achievements – yet such initiatives will markedly destabilize the geopolitical environment.

One further aspect of the problem should be noted. The scenarios of geopolitical reconfiguration examined above pursue an obvious goal: gaining control over all the resources directly linked to territories. Behind this goal, however, lies a deeper problem – the contest for technological leadership between China and the United States. The winner of this race will seize and hold primacy as the hegemonic country for many years to come, with all the consequences that entails. Already today, many technological projects of the two giant countries are running into shortages of natural resources. Competition for resources and advanced technologies is therefore merging into a single process, which is precisely why expansionist strategies have become so relevant for the United States. In this sense, for both China and the United States, renouncing the struggle for new territories is tantamount to renouncing the struggle for technological leadership. This confrontation is further exacerbated by the contest for global economies of scale, the attainment of which makes it possible to significantly raise the economic efficiency of a national economy – the key to a country's high competitiveness in the global geo-economic and geopolitical markets.

In conclusion, the value of the present study deserves mentioning. It can be assessed along two dimensions. On the one hand, the analysis is useful in clarifying the main parameters of a specific U.S. integration project. On the other, the very methodology of dissecting scenarios of global redistribution has universal resonance and can be extended to other similar projects. The proposed approach offers a starting point for the scenario-based forecasting of geopolitical and geo-economic development under conditions of high uncertainty and ongoing hybrid warfare. It rests on viewing the future as a set of possible scenarios (variants) of development, each then subjected to substantive analysis. The storyline

examined in this article – the integration of geopolitical space under U.S. auspices – may never materialize and may not become the defining variant of global development. However, the very practice of developing several such scenarios and assigning them probabilities could become a new, regularly employed method of global forecasting. In this sense, the approach presented here may mark the beginning of a useful practice of studying alternative paths and prospects of global economic development.

Conclusion

The article has examined the possibility of the United States preserving its geopolitical hegemony through the implementation of the Grand Unification project, which would involve incorporating three new territories: Greenland, Canada, and Australia. It shows that this project is effectively the only chance for the United States to restart the cycle of capital accumulation within its own jurisdiction. The study notes that such a union would reshape the global market for natural resources in America's favor, preserving its undisputed primacy. It also argues that the notion of a "deal" – constantly invoked in Trump's political rhetoric – fits squarely within the historical tradition of U.S. territorial expansion.

A separate examination of the situations of Greenland, Canada, and Australia shows that each of these territories has its own vulnerabilities and may therefore have reasons to be interested in joining the United States, making the Grand Unification project entirely feasible. At the same time, the article stresses that the implementation of this project requires four conditions that are not yet in place. First, a definitive consensus must be reached within America's political elites on the necessity of the GU project. Second, the U.S. authorities must shift from a destructive to a constructive form of

expansionist policy – from coercive methods to creative integration. Third, America’s political elites must return to civilized diplomacy, one that takes other parties’ interests into account, conducts constructive negotiations, demonstrates respect for partners, and shows a willingness to compromise. Fourth, Washington must have in place an appropriate conceptual

document – a plan – with a detailed strategy and tactics for integrating the new territories.

Should these conditions remain unmet, the world will witness a periodic flare-up and fading of interest among future White House administrations in annexing new territories. This will contribute significantly to the aggravation of the geopolitical situation.

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ЭКСПАНСИОНИСТСКАЯ ПОЛИТИКА Д. ТРАМПА И ПЕРЕФОРМАТИРОВАНИЕ ГЛОБАЛЬНОГО ГЕОПОЛИТИЧЕСКОГО ПРОСТРАНСТВА

В настоящее время началось перекраивание геополитического пространства и изменение границ государств, что продуцирует совершенно новые решения политического руководства многих стран. В контексте данной проблемы в статье рассмотрена возможность сохранения Соединенными Штатами Америки своей геополитической гегемонии за счет реализации проекта Великого Объединения, предполагающего присоединение к стране трех новых территорий – Гренландии, Канады и Австралии. Показано, что этот проект является фактически единственным шансом для США перезапустить цикл накопления капитала в рамках прежней юрисдикции. Продемонстрировано, что подобное объединение привело бы к переформатированию глобального рынка природных ресурсов в пользу США с сохранением их неоспоримого лидерства. Понятие сделки, постоянно артикулируемое Трампом в его политической риторике, полностью укладывается в исторические традиции Америки по расширению их территории. Отдельное рассмотрение ситуации с Гренландией, Канадой и Австралией свидетельствует, что эти территории имеют свои уязвимые места, следовательно могут быть заинтересованы во вхождении в состав США, что делает проект Великого Объединения вполне реализуемым. Вместе с тем подчеркивается, что реализация названного проекта потребует выполнения четырех условий, которые пока отсутствуют: достижение окончательного консенсуса в среде политических элит США в отношении необходимости проекта Великого Объединения; переход властей США от деструктивной к конструктивной форме экспансионистской политики (от силовых методов к созидательной интеграции); возвращение политических элит страны к цивилизованной дипломатии, предусматривающей учет чужих интересов, ведение конструктивных переговоров, демонстрацию уважения к партнерам, готовность идти на компромиссы; наличие у Вашингтона соответствующего концептуального документа (плана) с детально проработанными стратегией и тактикой интеграции новых территорий. Отмечается, что в случае невыполнения перечисленных условий будут наблюдаться периодические вспышки активизации и затухания интереса будущих хозяев Белого Дома в отношении присоединения новых территорий, которые внесут весомый вклад в общую дестабилизацию геополитической обстановки. Слияние больших территорий в единые государства может стать главным фактором развития человечества на ближайшие 2–3 десятилетия.

Проект Великого Объединения, США, геополитическая гегемония, сделка.

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ИНФОРМАЦИЯ ОБ АВТОРЕ

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DOI: 10.15838/ptd.2026.4.144.3

UDC 332.1 | LBC 65.049

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ASSESSMENT OF SPATIAL BALANCE IN THE CONTEXT OF THE ECONOMIC WELL-BEING OF MUNICIPALITIES



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One of the important characteristics of the economic wellbeing of a municipality is spatial balance, as it reflects the proportionality of the development of the regional economy in space. The aim of this article is to assess this indicator. Methodologically, the study is based on the principles of the spatiotemporal and systems approaches, as well as the theory of regional economics. Spatial balance of municipal economic development is defined as the proportionality of the distribution of the regional reproduction process among municipalities, which ensures commensurate economic outcomes for the population residing in their territories. The assessment is proposed to be carried out by calculating the average deviation from unity of the presence indices for socioeconomic indicators reflecting the reproduction stage. The proposed definition and assessment methodology constitute the scientific novelty of research in this area. The methodology was tested on data from 69 municipalities of the Sverdlovsk Region for the years 2010, 2015, and 2020–2024, which made it possible to compare the current spatial balance with the period of active economic growth. The analysis results showed that spatial disproportionality generally tend to decrease, but in 2024 it started to grow. Among the antileaders in spatial balance are: Verkhnyaya Pyshma Urban Okrug, Reftinsky Urban Okrug, Zarechny Municipal Okrug, and Verkhnesaldinsky Municipal Okrug. They concentrate a large volume of investment and real sector output, which, on the one hand, ensures economic growth, but on the other hand, significantly

For citation: Belousova E.A. (2026). Assessment of spatial balance in the context of the economic well-being of municipalities. *Problems of Territory's Development*, 30(4), 29–43. DOI: 10.15838/ptd.2026.4.144.3

increases anthropogenic pressure and may adversely affect their longterm sustainability. The paper also revealed that consumption is traditionally concentrated in the administrative center of the region and is largely shaped by nonresidents. With regard to the stage of distribution of local budget revenues, a trend has been identified towards their relatively stable and uniform dispersal across almost 90% of municipalities.

Municipality, region, spatial development, economic space.

ACKNOWLEDGMENT

The research was carried out at the expense of the grant of the Russian Science Foundation 25-28-01430, <https://rscf.ru/project/25-28-01430/>.

Introduction

The economic well-being of a municipality is a construct developed to assess economic progress at the micro level within the theoretical framework of sustainable development (Belousova, 2022). Balanced spatial development serves as one of the means of achieving economic well-being, since it is aimed at shaping and improving the settlement system, the location of productive and non-productive activities, and the infrastructure framework. The link between spatial and sustainable development lies in the fact that sustainable development sets the goals, while their attainment occurs on a physical basis and depends on its capacity. Balanced spatial development, in turn, makes it possible to address social objectives (ensuring access to services when siting social infrastructure, residential comfort in housing construction, etc.), environmental objectives (ensuring an even anthropogenic load on the environment and optimizing the use of scarce natural resources), and economic objectives (maintaining the spatial flexibility of economic activity and reducing the costs of overcoming distance).

From the standpoint of material well-being, balanced spatial development of the economic

sphere is of greatest importance. At the same time, regionalization processes are intensifying (Shabunova et al., 2026), which at the municipal level means the need to increase the self-sufficiency of local socio-economic systems. Spatial imbalance in economic development can become an obstacle to meeting the material and non-material needs of the local community and to retaining the population and economic actors in a given territory.

The aim of this study is to assess the spatial balance of the municipalities of the Sverdlovsk Region. In line with this aim, the following objectives are set: 1) reviewing the literature to characterize the concept of “spatial balance”; 2) determining a methodology for assessing spatial balance; and 3) carrying out calculations to assess the spatial balance of the municipalities of the Sverdlovsk Region.

Theoretical foundations of the study

Dictionaries define “balance” as “the relationship between interrelated indicators of an activity or process”¹ as well as “full correspondence, an equal relationship between things; equilibrium”². According to G.B. Kleiner, however, it is not entirely correct in economics to equate balance and

¹ Balance. Available at: <https://slovarozhegova.ru/word.php?wordid=972> (accessed: 20.05.2026).

² Balance. Available at: <https://gramota.ru/meta/balans> (accessed: 20.05.2026).

equilibrium, since the former refers to the elements of a system, while the latter refers to the characteristics of a system's state (Kleiner, 2015). Kleiner interprets balance as the proportionality (commensurability) of a system's structural components (subsystems), which is a necessary condition for the successful functioning of an economic system in the long term (Kleiner, Rybachuk, 2019, p. 311).

From S.V. Belousova's perspective, "balance can be defined as a spatial characteristic that establishes the relationship of parts within a whole or the relationship of mutually conditioned elements that ensure the normal existence, functioning, and optimal operation of something" (Belousova, 2014, p. 36). In other words, the emphasis in interpreting balance is placed on the relationship among elements that ensures the optimal functioning of a system.

In a general economic sense, S.M. Baskakov considers balance as "the correspondence of a system's established parameters to one another, whose changes are coordinated and proportional" (Baskakov, 2019, p. 95). As the researcher notes, this definition rests on three structural, sequentially interrelated essential characteristics: "First, balance is a phenomenon whose emergence is conditioned by objective economic reality and is associated with the optimal mode of functioning of the economy as a whole. Second, balance is a process aimed at eliminating significant inequalities and disproportions in economic development. Third, balance characterizes the state of the economy and its ability to function stably and harmoniously" (Baskakov, 2019).

The Soviet classic of regional economics A.E. Probst observed that the harmony (optimal proportionality) of all elements of the national economy consists in optimal

development rates (proportionality over time), a harmonious structure of social production (an optimal relationship among its individual branches and elements of reproduction), and the proportionality of social production in space (the harmonious distribution of all social production across the entire country and within economic regions) (Probst, 1982, p. 8). Spatial balance, therefore, means the harmonious distribution of social production across a territory. Balanced spatial development can also be viewed as the state opposite to spatial disproportionality.

In the study by A.I. Antipin and E.A. Shishkina, disproportions in the spatial development of regions are understood as the mismatch between the socio-economic situation and infrastructure provision of regions (Antipin, Shishkina, 2024). The authors analyze the dynamics of the gap between the maximum and minimum values of economic and infrastructural development indicators to determine the magnitude of disproportions, including such indicators as the level of industrial development (gross value added, GVA), investment, electricity consumption, the share of roads meeting standards, and living standard indicators (Antipin, Shishkina, 2024).

Spatial imbalance, understood as disproportion, also features in the work of Chinese scholars. For example, Chen and colleagues examine the spatial differentiation of the efficiency of development and the transition to a green and low-carbon economy in municipalities (Chen et al., 2026). According to their findings, the spatial configuration of municipalities in terms of efficiency is mainly determined by GVA, urban development (urbanization), and consumption (retail turnover per capita). A distinctive feature of their study is the nature of the object: unlike

other similar works, they conduct the analysis not at the level of urban agglomerations or administrative-territorial units, but of cities located in the economic zone of the Yangtze River basin.

The relationship between the spatial imbalance of resource concentration (water and land) and food availability is examined in a study by Guo and colleagues (Guo et al., 2026). To assess this, the authors use coefficients of spatial mismatch between food production and the water and land resources available for agriculture. A particular challenge of such research lies in calculating the available resources. For water resources, this involves measuring the volume of available water from irrigation systems and the amount of precipitation. For agricultural land resources, the total area of cultivated land is used, adjusted by the regional grain crop yield.

It is worth noting that studies of spatial imbalances often use the term “spatial mismatch” in the context of a significant geo-spatial mismatch between cultivated land area, population size, and the economy, which affects the sustainable development of regions. This also makes it possible to interpret spatial balance as the absence of disproportions in resource concentration (Liu, Yang, 2025; Lei et al., 2026).

A team of researchers from the Institute of Economics of the Ural Branch of the Russian Academy of Sciences and Chelyabinsk State University identifies three causes of spatial disproportions: “inertial development (the ‘path dependence’ effect); negative-type deindustrialization (the transition to an export-oriented resource and semi-finished goods economy of an incomplete cycle, the replacement of domestic production with imports); and the redistribution of mobile factors of production (labor, capital, and

knowledge) in favor of the largest urban centers” (Tatarkin et al., 2016, p. 64). As a result, one (rarely two) super-large compact areas (poles) of relative prosperity with a post-industrial economy emerge within a region, while vast adjacent agrarian-industrial territories stagnate (or even degrade), pointing to serious spatial imbalances. What occurs, therefore, is not merely a change in the morphology of space but a coupled transformation of economic, social, and spatial development (a change in the configuration and spatial structure of the territory itself, its systems and complexes) (Suvorova, 2019, p. 56).

Spatial imbalance thus takes shape as the simultaneous presence of spatial disproportions in socio-economic processes and in the configuration and structure of space, its systems and complexes. In the work of A.I. Tatarkin and co-authors, three sets of indicators – social, economic, and environmental activity – are used for a composite assessment of the level of balance in the economic activity of two regions (the Sverdlovsk Region and the Chelyabinsk Region). The scoring approach, combined with the specified criteria, is applied as follows: indicators reflecting negative types of environmental activity (deterioration of the environmental situation) are assigned one point when they increase and three points when they decrease.

T.V. Uskova and S.S. Patrakova propose a comprehensive understanding of spatial balance as a state of economic space in the duality of statics and dynamics, characterized by the stable and co-directional development of system-forming elements aimed at achieving positive economic and social effects (Uskova, Patrakova, 2024). This requires meeting the conditions of proportionality (no growth in disproportions

between rural and urban elements of the regional system), coherence of development goals, and connectivity (the presence of stable, intensive, and parity-based linkages between elements). The authors' approach to assessing the balanced development of urban and rural territories seeks to formalize these conditions and rests on two methods: scoring (based on conditions set by the researcher) and the calculation of an integral indicator by aggregating heterogeneous indicators.

The rural–urban dichotomy often lies at the center of research on spatial imbalance. For example, Indonesian scholars view spatial imbalance as spatially conditioned inequality (or spatial exclusion) in access to public facilities, infrastructure, and economic resources (Sjaf et al., 2025). The authors share the view that the causes of inequality are rooted in the historical neglect of rural regions, the concentration of investment in urban centers, and the uneven distribution of resources, which may further exacerbate structural poverty and hinder regional economic growth and “spatial justice”. In their study, the level of regional hierarchy of spatial inequality, taking into account the accessibility of infrastructure facilities or public services, is assessed using scalogram analysis. Particular attention is paid to data collection, for which an original Data Desa Presisi (DDP) methodology was developed. It comprises a population census, a spatial approach, and the participation of local communities. Spatial data are obtained through mapping with drones, which makes it possible to create a working map containing information on building and dwelling numbers that is subsequently used for the census and surveys. The spatial inequality model is built from calculations of the accessibility of public infrastructure

and public services using the maximum entropy principle; groupings by the human development index; and assessments of the socio-economic conditions of local communities using the Williamson economic inequality index.

Another axis of spatial imbalance is the center–periphery dimension, within which inequality in socio-economic development between central and peripheral territories comes to the fore (Bieleman et al., 2026). In that study, spatial imbalance is assessed through narrative analysis, since a mixed-method approach is used, combining a systematic literature review with expert interviews on selected cases in the European Union.

Another example of spatial imbalance among territories that differ in their locational characteristics is presented in a study of health service provision in South Korea (Kim et al., 2026). The authors identify an uneven distribution of medical services both between metropolitan and provincial regions and between large urban centers and rural areas. To this end, they apply an index method and calculate two indices: the mismatch index (DISC), which reflects the degree of spatial imbalance between supply and demand, and the service-load mismatch index (DISTRES), which shows the difference in capacity between service delivery and demand.

In both cases (rural versus urban and center versus periphery) spatial imbalance is largely attributable to problems of transport and communication connectivity. As a study of India notes, many rural and semi-urban areas remain cut off from major transport corridors, which limits their socio-economic potential and exacerbates regional inequality (Halдар, Mistri, 2026). An analysis of the prospects

for the Marrakech–Fes motorway project in Morocco shows that improving spatial connectivity through a new transport artery, while improving the economic situation in the adjacent territories, may create long-term problems of high carbon intensity in rapidly growing regions. Despite reducing economic inequality, the project may lead to an increase in environmental inequality (Arbouch, 2026).

The results of the analysis suggest that different types of spatial disproportion can be distinguished depending on the cause of their emergence, corresponding to the parameters of economic space: location (base potential), changes in connectivity (external and internal), or concentration (of resources, population, and economic activity). Furthermore, one can conclude that the tools used to assess spatial imbalance in the studies reviewed vary depending on how the essence of spatial imbalance is understood. Both a normative approach, which relies on balance criteria, and an approach based on measuring the scale of imbalances are employed.

The review of interpretations made it possible to identify several factors contributing to spatial balance: the proportionality of the components of a territorial system, inclusiveness in the regional space (resulting in its optimal functioning), and proportionality of distribution among territorial systems (for example, among municipalities within a region). In our view, the spatial balance of municipal economic development can be understood as the *proportionality of the distribution of the regional reproduction process among municipalities, which makes it possible to ensure commensurate economic*

outcomes for the population residing in their territories. Accordingly, spatial balance can be measured by assessing the proportionality of each municipality's participation in the regional reproduction process (production, distribution, exchange, and consumption).

The proposed theoretical approach and methodology are relatively simple to apply and rely on accessible statistical data, while at the same time making it possible to take into account the state and dynamics of the reproduction process as a space-forming factor.

Materials and methods

To assess the spatial balance of municipalities, we calculate the spatial balance index (*ISI*), based on presence indices. Each presence index is computed as the ratio of a municipality's share in a regional indicator to its share in the region's population, using the following formula:

$$IP_m = \frac{x_{im}/x_m}{y_i/y}, \quad (1)$$

where IP_m is the presence index for indicator m ;

x_{im} is the value of indicator m for the i -th municipality;

x_m is the regional value of indicator m ;

y_i is the population of the i -th municipality;

y is the regional population.

An IP_m value of 1 is considered balanced, at this level the municipality's population participates proportionally in the outcomes of the reproduction process (for example, in the consumption of goods and services or in receiving investment). Values below 1 mean that the population of a given territory

receives less investment or consumes less. Values above 1 are interpreted as a disproportionately large concentration of a given process in the territory under analysis compared with other territories in the region.

The socio-economic indicators used in the spatial balance index are presented in *Table 1*, which reflects the stages of reproduction.

Thus, the spatial balance index should make it possible to analyze how proportionally municipalities are included in the region's economic space across the main stages of the

reproduction process. The full calculation algorithm is presented in the *Figure*.

Let us specify the formula for calculating the spatial balance index for a municipality:

$$ISI = \sum_1^4 \frac{|1-IP_m|}{4}. \quad (2)$$

The information base for the study was municipal statistics from Sverdlovskstat for 2010, 2015, and 2020–2024. The calculation was not performed for all municipalities: rural and urban settlements (21 municipalities)

Table 1. Indicators of the spatial balance index

Indicator	Stage of reproduction
1. Fixed capital investment, thousand rubles	Distribution
2. Retail trade turnover, thousand rubles	Exchange, consumption
3. Goods shipped of own production, works and services performed in-house (excluding small businesses), thousand rubles*	Production
4. Agricultural output (at actual prices), thousand rubles*	Production
5. Local budget revenues, thousand rubles	Distribution
* Indicators 3 and 4 are summed, after which their share in the corresponding regional sum is calculated. This method of calculation is intended to compensate for the presence of different spatial types among the set of municipalities. Source: own compilation.	

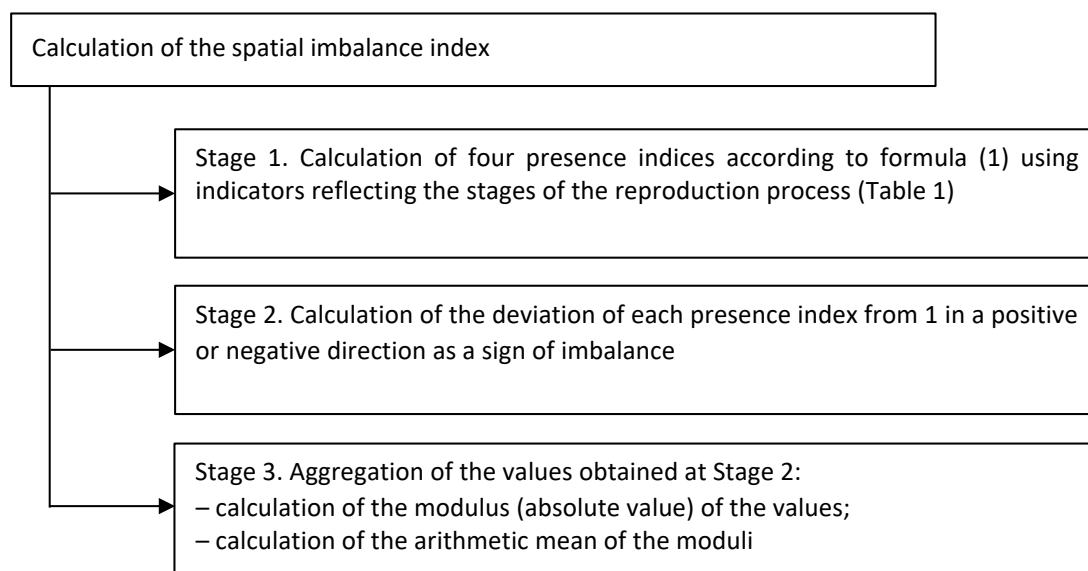


Figure. Algorithm for calculating the spatial balance index

Source: own compilation.

were excluded, as were four urban okrugs that are closed administrative-territorial entities. The final set comprised 69 municipalities. The selected period makes it possible to compare trends in spatial balance over the last five years with a period of economic growth.

Results of the study

At the first stage, presence indices were calculated for each stage of the reproduction process. The results show that the greatest contribution to the spatial imbalance of economic development in the municipalities of the Sverdlovsk Region comes from the unevenness of the investment process. Over the period analyzed, the average deviation of the corresponding presence indices from unity (the balanced value), whether upward or downward, ranged from 0.63 to 1.03. The functioning of the real sector – as measured by the indicators “Goods shipped of own production, works and services performed in-house (excluding small businesses)” and “Agricultural output (at actual prices)” – was characterized by somewhat less unevenness, ranging from 0.67 to 0.90. For the consumption process (retail trade turnover), the interval was 0.37 to 0.63, while the least unevenness was observed in the distribution of budget funds, ranging from 0.37 to 0.48. A general trend toward decreasing unevenness can also be identified for 2020–2023 compared with 2010–2015, with the exception of budget fund distribution, whose imbalance shows a tendency toward stability with a narrow range of *ISI* values.

The leaders in disproportionately high concentration of investment resources are industrial centers: Zarechny Municipal Okrug, Sredneuralsk Municipal Okrug, Verkhnesaldinsky Municipal Okrug, Verkhnyaya Tura Urban Okrug, Kachkanarsky Municipal Okrug, Kushvinsky Municipal Okrug, and

the municipal entity “City of Yekaterinburg”. At the same time, a disproportionate deficit is especially visible in small, remote, or depressed territories: Tavdinsky and Tugulymsky municipal okrugs, municipal entity “City of Alapayevsk”, Degtyarsk and Pelym municipal okrugs, Verkhneye Dubrovo Urban Okrug, Makhnevskoye Municipal Entity, Malyshevsky Municipal Okrug, and Staroutkinsk Municipal Okrug.

The analysis shows that consumption has traditionally been concentrated in the region’s administrative center, the only municipality whose presence index exceeds 1 (in some years, the nearby Aramilsky Urban Okrug and Zarechny Municipal Okrug also exceeded this threshold). The most disproportionately low level of consumption (presence index below 0.2) is recorded in Makhnevskoye Municipal Entity, Krasnoufimsky Municipal Okrug, Irbitskoye Municipal Entity, and Taborinsky and Kamyshlovsky municipal districts. However, the disproportionate concentration in the municipal entity “City of Yekaterinburg” (with an index of 2.1 in 2010–2015) declined to 1.5 in 2020–2023 and fell below unity to 0.83 in 2024. Given that the presence indices of all other municipalities are below unity, we suggest that consumption (the “Retail trade turnover” indicator) is generated by non-residents of the region.

The municipalities that are balanced in terms of population and concentrate the product of the real sector of the economy (presence indices in the range of 0.9–1.2) include the municipal entity “City of Yekaterinburg,” Bogdanovich Municipal Okrug, Berezovsky Municipal Okrug, and Revda Municipal Okrug. Disproportionately high concentration is recorded in Reftinsky Urban Okrug (average presence index of 3.8), Verkhnyaya Pyshma Urban Okrug (5.3), Verkhnesaldinsky Municipal

Okrug (2.4), and Kachkanarsky Municipal Okrug (2.3). Throughout the entire period under review, low concentration (presence index less than or equal to 0.2) is observed in Taborinsky and Slobodo-Turinsky municipal districts; Artinsky and Artyomovsky municipal okrugs; Verkhoturksy, Novolyalinsky, Sosvinsky, Tavdinsky, Tugulymsky, Shalinsky, and Bisertsky municipal okrugs; and Degtyarsk and Karpinsk municipal okrugs.

Income distribution is calculated through the sum of the region's consolidated budget (which is why most indices are below unity), yet this reveals an unambiguous tendency toward relatively stable distribution: over the

entire period, almost 90% of municipalities have a presence index for this indicator ranging from 0.4 to 0.8. The exceptions are territories that concentrate (and require) larger budget allocations: Taborinsky Municipal District (average 1.39), Volchansky Municipal Okrug (1.31), and Garinsky Municipal Okrug (1.12), as well as Asbestovsky Municipal Okrug and Pervouralsk Municipal Okrug, which show disproportionately low concentration relative to other municipalities (0.39 and 0.38, respectively).

The results of calculating the spatial balance index (*ISI*) based on presence indices are presented in *Table 2*.

Table 2. Spatial balance index of the municipalities of the Sverdlovsk Region

Municipality	2010	2015	2020	2021	2022	2023	2024
Baikalovsky Municipal District	0.67	0.49	0.43	0.44	0.39	0.47	0.63
Kamyshlovsky Municipal District	0.79	0.59	0.67	0.56	0.69	0.58	0.70
Nizhneserginsky Municipal District	0.82	0.44	0.46	0.62	0.61	0.58	0.52
Slobodo-Turinsky Municipal District	0.72	0.64	0.57	0.53	0.58	0.66	0.68
Taborinsky Municipal District	0.68	0.73	0.59	0.64	0.79	0.73	0.78
Municipal Entity "City of Yekaterinburg"	0.54	0.45	0.41	0.44	0.43	0.38	0.27
Artyomovsky Municipal Okrug	0.71	0.70	0.60	0.66	0.67	0.66	0.66
Artinsky Municipal Okrug	0.71	0.65	0.61	0.68	0.53	0.64	0.69
Achitsky Municipal Okrug	0.69	0.64	0.60	0.61	0.61	0.38	0.55
Beloyarsky Municipal Okrug	0.69	0.59	0.50	0.49	0.37	0.50	0.56
Bogdanovich Municipal Okrug	0.53	0.31	0.31	0.31	0.35	0.36	0.45
Verkhnesaldinsky Municipal Okrug	0.65	1.18	0.87	0.72	1.05	0.67	0.69
Verkhoturksy Municipal Okrug	0.80	0.53	0.59	0.60	0.63	0.51	0.60
Garinsky Municipal Okrug	0.76	0.56	0.43	0.89	0.48	0.49	0.75
Irbitskoye Municipal Entity	0.58	0.43	0.36	0.38	0.32	0.45	0.58
Kamensky Municipal Okrug	0.74	0.58	0.56	0.59	0.62	0.61	0.70
Krasnoufimsky Municipal Okrug	0.74	0.65	0.68	0.82	0.70	0.56	0.70
Nevyansky Municipal Okrug	0.63	0.58	0.41	0.50	0.46	0.39	0.49
Nizhnneturinsky Municipal Okrug	0.51	0.91	0.43	0.38	0.38	0.36	0.47
Novolyalinsky Municipal Okrug	0.79	0.69	0.64	0.45	0.63	0.64	0.73
Gornouralsky Municipal Okrug	0.75	0.64	0.64	0.65	0.65	0.60	0.65
Pyshminsky Municipal Okrug	0.69	0.63	0.54	0.62	0.59	0.57	0.61
Revda Municipal Okrug	0.61	0.46	0.40	0.38	0.24	0.39	0.68
Rezhevskoy Municipal Okrug	0.65	0.55	0.54	0.55	0.57	0.53	0.64
Sosvinsky Municipal Okrug	0.74	0.65	0.67	0.56	0.65	0.67	0.52
Sysertsky Municipal Okrug	0.66	0.43	0.39	0.48	0.45	0.44	0.54

End of Table 2

Municipality	2010	2015	2020	2021	2022	2023	2024
Tavdinsky Municipal Okrug	0.81	0.79	0.72	0.72	0.70	0.74	0.78
Talitsky Municipal Okrug	0.74	0.68	0.56	0.57	0.58	0.53	0.63
Tugulymsky Municipal Okrug	0.77	0.66	0.68	0.71	0.66	0.70	0.72
Turinsky Municipal Okrug	0.71	0.64	0.58	0.58	0.62	0.64	0.71
Shalinsky Municipal Okrug	0.75	0.66	0.66	0.68	0.71	0.65	0.68
Municipal Entity "City of Alapayevsk"	0.75	0.74	0.65	0.67	0.64	0.65	0.72
Aramilsky Urban Okrug	0.66	0.42	0.22	0.38	0.34	0.31	0.42
Asbestovsky Municipal Okrug	0.49	0.57	0.55	0.53	0.57	0.53	0.60
Berezovsky Municipal Okrug	0.54	0.45	0.34	0.27	0.30	0.36	0.44
Verkhnyaya Pyshma Urban Okrug	1.86	1.54	1.35	1.30	1.12	0.97	0.98
Verkhny Tagil Municipal Okrug	0.77	3.08	0.57	0.48	0.43	0.42	0.36
Verkhnyaya Tura Urban Okrug	0.74	0.71	0.59	0.42	0.46	0.48	0.40
Volchansky Municipal Okrug	0.68	0.69	0.51	0.53	0.60	0.77	0.87
Degtyarsk Municipal Okrug	0.83	0.78	0.70	0.72	0.63	0.62	0.70
Zarechny Municipal Okrug	2.27	1.83	0.53	0.39	0.40	0.40	0.29
Ivdel Municipal Okrug	0.79	0.50	0.39	0.34	0.33	0.32	0.40
Urban Okrug "the Town of Irbit"	0.66	0.57	0.42	0.51	0.44	0.52	0.55
Kamensk-Uralsky Urban Okrug	0.53	0.50	0.32	0.38	0.36	0.32	0.43
Kamyshevsky Urban Okrug	0.65	0.47	0.50	0.51	0.50	0.44	0.43
Karpinsk Municipal Okrug	0.65	0.66	0.56	0.58	0.51	0.58	0.67
Kachkanarsky Municipal Okrug	0.90	0.42	0.72	1.04	0.53	0.45	0.54
Kirovgrad Municipal Okrug	0.65	0.58	0.43	0.52	0.52	0.46	0.50
Krasnoturyinsk Municipal Okrug	0.81	0.37	0.31	0.32	0.36	0.31	0.39
Krasnouralsk Municipal Okrug	0.43	0.42	0.26	0.30	0.24	0.36	0.45
Krasnoufimsk Urban Okrug	0.69	0.71	0.54	0.51	0.57	0.58	0.62
Kushvinsky Municipal Okrug	0.70	0.53	0.45	0.41	0.40	1.15	0.49
Nizhnyaya Salda Municipal Okrug	1.58	0.71	0.60	0.58	0.67	0.68	0.70
Municipal Entity "City of Nizhny Tagil"	0.58	0.32	0.36	0.36	0.35	0.35	0.52
Pervouralsk Municipal Okrug	0.53	0.53	0.40	0.35	0.40	0.35	0.30
Polevskoy Municipal Okrug	0.60	0.48	0.42	0.52	0.43	0.44	0.58
Severouralsky Municipal Okrug	0.50	1.07	0.35	0.30	0.37	0.36	0.48
Serovsky Municipal Okrug	0.52	0.38	0.53	0.47	0.44	0.42	0.57
Sredneuralsk Municipal Okrug	1.46	1.62	0.29	0.34	0.27	0.61	0.64
Sukhoi Log Municipal Okrug	0.39	0.34	0.32	0.34	0.38	0.37	0.39
Bisertsky Municipal Okrug	0.74	0.55	0.57	0.67	0.62	0.67	0.72
Verkhneye Dubrovo Urban Okrug	0.75	0.74	0.62	0.64	0.63	0.62	0.62
Verkh-Neyvinsky Urban Okrug	0.68	1.54	1.17	0.45	0.27	0.23	0.28
Malyshevsky Municipal Okrug	0.75	0.72	0.66	0.64	0.65	0.63	0.68
Reftinsky Urban Okrug	1.48	2.46	1.14	0.95	0.85	0.73	0.69
Pelym Municipal Okrug	0.75	0.69	0.62	0.62	0.62	0.61	0.67
Staroutkinsk Municipal Okrug	0.81	0.68	0.67	0.67	0.65	0.67	0.67
Makhnevskoye Municipal Entity	0.77	0.75	0.75	0.73	0.58	0.64	0.76
Alapayevskoye Municipal Entity	0.53	0.38	0.43	0.37	0.45	0.47	0.55
Source: own compilation.							

Overall, the *ISI* showed a downward trend, from 0.76 in 2010 to 0.54 in 2023, rising slightly in 2024 to 0.59. Consequently, the general level of imbalance in economic and spatial development is declining, which improves the level of economic well-being. Of the total set of municipalities, 42% have a spatial inequality level below 0.6 (deviation from 1) in most of the years analyzed. At the same time, one can identify the outsiders in terms of spatial imbalance: Verkhnyaya Pyshma Urban Okrug (its *ISI* is gradually declining but remains high: from 1.86 in 2010 to 0.98 in 2024), Reftinsky Urban Okrug (average *ISI* of 1.19), Zarechny Municipal Okrug (average *ISI* of 0.87), and Verkhnesaldinsky Municipal Okrug (average *ISI* of 0.83). By concentrating a significant volume of investment and real-sector output, these territories, on the one hand, ensure economic growth; on the other, however, they substantially increase the anthropogenic load, which in the long term may have a negative impact on their sustainability. In 2024, most municipalities saw an increase in spatial imbalance and a break in the downward trend, except for Zarechny, Reftinsky, Verkhnyaya Tura, and Verkhny Tagil municipalities and the city of Yekaterinburg, which suggests that economically developed municipalities may be able to maintain stable trajectories.

Conclusion

The theoretical analysis has shown that the spatial effects of economic development are

increasingly studied through the lens of the three dimensions of sustainable development, underscoring the close connection between spatial balance and sustainable development. Drawing on a review of the literature, we formulate an original definition of spatial balance as the proportional distribution of the regional reproduction process among municipalities, one that ensures commensurate economic outcomes for the population living in their territories. This definition captures the essential features of spatial balance: the proportionality of territorial system components, inclusion in the regional space resulting in its optimal functioning, and the proportional distribution among territorial systems (for example, among municipalities within a region).

In line with this definition, we propose assessing the spatial balance of municipalities using a composite index built from four presence indices, each corresponding to a stage of the reproduction process. Taken together, this indicator makes it possible to assess how proportionally municipalities are integrated into the region's economic space.

An analysis conducted on data for 69 municipalities of the Sverdlovsk Region for 2010, 2015, and 2020–2024 revealed that spatial imbalance had been trending downward, but began to rise in 2024. The most significant contribution to spatial imbalance comes from the distribution of investment within the regional economic space.

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ОЦЕНКА ПРОСТРАНСТВЕННОЙ СБАЛАНСИРОВАННОСТИ В КОНТЕКСТЕ ЭКОНОМИЧЕСКОГО БЛАГОПОЛУЧИЯ МУНИЦИПАЛЬНЫХ ОБРАЗОВАНИЙ

Одной из важных характеристик экономического благополучия муниципального образования является пространственная сбалансированность, поскольку она отражает пропорциональность развития муниципальной экономики в пространстве. Цель статьи – оценка данного показателя. Методологически исследование базируется на положениях пространственно-временного и системного подходов, а также теории региональной экономики. Пространственная сбалансированность муниципального экономического развития определена как пропорциональность распределения регионального воспроизводственного процесса между муниципальными образованиями, которая позволяет обеспечить соразмерные экономические результаты для населения, проживающего на их территории. Оценку предложено производить на основе расчета среднего отклонения от единицы индексов присутствия по социально-экономическим показателям, отражающим стадию воспроизводства. Предложенные определение и методика оценивания составляют научную новизну исследования. Методика апробирована на данных 69 муниципальных образований Свердловской области за 2010, 2015, 2020–2024 гг., что позволило провести сравнение текущей пространственной сбалансированности с периодом активного экономического роста. Результаты анализа показали, что в целом пространственная несбалансированность снижалась, но с 2024 года начала расти. Среди антилидеров по пространственной сбалансированности находятся городской округ Верхняя Пышма, городской округ Рефтинский, муниципальный округ Заречный и Верхнесалдинский муниципальный округ. Они концентрируют большой объем инвестиций и продукта реального сектора, что, с одной стороны, обеспечивает экономический рост, а с другой – существенно увеличивает антропогенную нагрузку и в долгосрочной перспективе может оказать негативное влияние на их устойчивость. Определено, что потребление традиционно концентрируется в административном центре региона, а в целом по региону в значительной степени формируется нерезидентами. Также выявлена тенденция к относительно стабильному и равномерному распределению доходов местного бюджета у практически 90% муниципальных образований.

Муниципальное образование, регион, пространственное развитие, экономическое пространство.

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SPATIAL-DYNAMIC INTEGRATED ASSESSMENT OF WATER USE IN THE NORTHWESTERN FEDERAL DISTRICT REGIONS OF RUSSIA



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The growing problems of water resources scarcity in various countries and regions – resources essential for human livelihoods and economic activities – together with a high degree of their pollution, require the development of adequate assessment tools capable of characterizing the current situation both spatially and temporally, identifying trends, and enabling timely management decisions. In this regard, the aim of this study is to develop an integrated model for comprehensive spatialdynamic ecologicaleconomic assessment of natural resource utilization and to test it with the help of the case of water use in the regions of the Northwestern Federal District of Russia. These regions are characterized by developed and diversified industrial sector with a high ecological intensity of impact on natural water bodies. The objectives of the study included the following: the scientific literature review on water use assessment, the development of analytical ecologicaleconomic tools consistent with the stated aim, and their approbation. The scientific novelty of the research lies in the development of an integrated model for comprehensive spatialdynamic ecologicaleconomic assessment of natural resource use and its testing on the case of water resources use in the regions of the Northwestern Federal District. The research employed methods of analysis, synthesis, analytical groupings, absolute and relative values, chain substitutions, statistical data analysis, and graphical representation. The information base of the study comprised open data published on the website of the Federal State Statistics Service of the Russian Federation and the Ministry of Natural Resources and Ecology of the Russian Federation. The

For citation: Tretiakova E.A. (2026). Spatial-dynamic integrated assessment of water use in the Northwestern Federal District regions of Russia. *Problems of Territory's Development*, 30(4), 44–66. DOI: 10.15838/ptd.2026.4.144.4

approbation results made it possible to characterize the type of ecological-economic dynamics in conjunction with the type of decoupling, factor effects, and correlation relationships, as well as to identify the most priority (from the perspective of the severity of the current situation) and negative trends. The obtained results may be useful for public authorities in the development (updating) of projects and programs aimed at ensuring sustainable balanced development of the regions of the Russian NorthWest.

Water resources, environmental economics, balanced natural resource use, regional economics, sustainable development, spatial analysis, dynamic analysis, decoupling.

ACKNOWLEDGMENT

The article is based on research carried out by the Institute of Economics of the Ural Branch of the Russian Academy of Sciences under the state assignment of the Ministry of Science and Higher Education of the Russian Federation No. 0327-2024-0020 for 2024-2026.

Introduction

Water is a vital renewable natural resource whose quality and quantity shape both the quality of life and the development prospects of individual countries and their regions. Considerable attention is devoted to water issues in global¹ and national sustainable development agendas, including the green transition agenda of the Russian Federation². At every level of governance, economic actors must be encouraged to use water resources responsibly, improve the efficiency of water use, reduce pollution of water bodies, and preserve the biodiversity of their ecosystems.

These and related issues have been widely studied. Specific water availability per territory has been examined by I.A. Shiklomanov and O.L. Markova (Shiklomanov, Markova, 1987), V.I. Danilov-Danilian and K.S. Losev (Danilov-Danilian, Losev, 2006), H. Ritchie and M. Roser (Ritchie, Roser, 2017), and others. Anthropogenic pressure on water bodies has

received considerable attention in the work of I.D. Rybkina (Rybkina, 2023), V.F. Fomina (Fomina, 2023), and others. Scholars point to unsatisfactory water quality and the imbalance between per capita water availability and population density (Danilov-Danilian, Losev, 2006), highlight wasteful water use (Tretiakova, 2019; Huang et al., 2021; Li et al., 2022), and stress that the quality of aquatic ecosystems cannot be improved without reducing the discharge of polluted wastewater³ (Tursunalieva, Toktosunova, 2022). The authors' contribution lies in developing a methodology for ecological and economic research on water use, constructing systems of analytical indicators, and providing scientific justification for the necessary management decisions.

Notably, the urgency of these problems has not diminished over time. It was high in the 1990s and remains just as acute in present-day Russia, despite newly developed

¹ Transforming our world: The 2030 Agenda for Sustainable Development. United Nations General Assembly Resolution 70/1 of September 25, 2015. Available at: https://unctad.org/system/files/official-document/ares70d1_ru.pdf (accessed: 30.03.2026).

² Goals and main directions of sustainable (including green) development of the Russian Federation: Decree of the Government of the Russian Federation No. 1912-r dated July 14, 2021. Available at: <http://government.ru/docs/all/135692/> (accessed: 30.03.2026).

³ Ryumina E.V. (1990). Modeling the interrelationships between the development of the national economy and environmental protection: Doctor of Sciences (Economics) dissertation abstract. Moscow. 36 p.

technologies and the capacity to deploy them on a broad scale. The shortcomings in the adoption of best available techniques (BATs) have been examined in many studies. Available findings indicate that the practical use of BATs substantially reduces the discharge of pollutants and lowers concentrations of key contaminants in water bodies, thereby promoting more sustainable water use in the regions (Adam et al., 2023). At the same time, it is important to emphasize that the piecemeal introduction of BATs in water treatment, water supply, water purification, and wastewater disposal is a necessary but insufficient condition. Only their large-scale deployment can fundamentally change the situation for the better. One obstacle to the widespread adoption of BATs is the low economic efficiency and long payback periods of the associated projects. Researchers note that the methodology for assessing efficiency in the field of water use requires updating. They also recommend developing a system of sound calculations of the cost per unit of negative impact on water bodies and of water abstraction, so as to make the introduction of such technologies economically worthwhile (Kasimova et al., 2015).

In their studies, the authors employ both absolute indicators of environmental pressure (the volume of water withdrawn from surface and underground sources and the volume of polluted wastewater discharged) and relative indicators that capture the intensity of anthropogenic impact (the ratio of environmental pressure to the economic result of economic activity) (Semyachkov, 2022; Gorbatenko, 2023; Rybkina et al., 2023). These indicators are further divided into resource-intensity measures – the water intensity of the economy as a whole

or of individual economic activities – and pollution-intensity measures – the discharge of pollutants into surface water bodies per 1,000 rubles of gross output (Gorbatenko, 2023; Rybkina, 2023; Fomina, 2023; Popova, 2023).

The spatial distribution of the indicators under study is generally presented using cartographic methods, tables, or various types of diagrams. The degree of spatial heterogeneity is most often assessed using the coefficient of variation. R. Chen and colleagues use the Gini coefficient in their work (Chen et al., 2023). Changes in the indicators over time are examined by calculating rate-of-change measures (coefficients and rates of change, growth/decline in values). Many studies apply these tools in combination (Dzhamalov et al., 2022; Popova, 2023; Zhang, 2025; Nasyrov et al., 2026).

When econometric methods are used, researchers construct time-series models or panel-data models. It should be noted, however, that these are not always stationary, which limits their applicability. Owing to the wide dispersion of values, the models may not satisfy the quality requirements of various statistical tests, another important condition for their use. Such limitations encourage researchers to seek new methods and models and to build new indicator systems.

The number of publications on the rational use of resources, including water resources, shows no sign of declining. A large body of scholarly work now exists proposing various methods and tools for assessing the rationality, balance, and efficiency of natural resource use. These studies make a significant contribution to the study of existing problems. Their sheer number and diversity

of focus point to the urgent need to improve assessment tools toward comprehensive, multidimensional diagnostics capable of characterizing the current situation in both spatial and temporal dimensions, identifying trends, and enabling timely management decisions. Accordingly, the aim of this study is to develop an integrated model for the comprehensive spatial-dynamic ecological and economic assessment of natural resource use and to test it on the example of water use in the regions of the Northwestern Federal District of Russia, which are characterized by a developed and differentiated industrial base with a high environmental intensity of impact on natural water bodies. The research objectives are: to review the scientific literature on water-use assessment, to construct an analytical ecological-economic toolkit that meets the stated aim, and to test it.

The calculations cover the period 2015–2024. The sample includes all 11 regions that make up the Northwestern Federal District. For each indicator analyzed, the number of observations is 110, and the total number of observations across all indicators is 630. Correlation coefficients were calculated at a significance level of 0.05; only statistically significant results are reported. The scientific novelty lies in integrating several currently sought-after methodological tools into a single research framework, substantially enhancing their combined analytical potential. The practical significance consists in providing decision-makers with essential information on a number of critical aspects in an integrated form.

Materials and methods

The information base for the study was drawn from open data published on the websites of the Federal State Statistics Service of the Russian Federation and the Ministry of Natural Resources and Environment of the Russian Federation.

The study employs methods of analysis and synthesis, analytical groupings, absolute and relative values, chain substitutions, statistical data analysis, and graphical presentation.

An integrated model for the comprehensive spatial-dynamic ecological and economic assessment of natural resource use (*Fig. 1*) was constructed on the principle of complementarity among the existing methods and analytical tools in this field. Since most authors in ecological-economic research rely on the values of economic result (ER), environmental pressure (EP), and environmental intensity (EI)⁴, the first step in the analytical procedure must be to compile the corresponding database.

Presenting these data in the form of diagrams, graphs, maps, and schematic maps makes it possible to visualize their spatial distribution across Russian regions or countries of the world.

The degree of spatial differentiation of an indicator can be determined using the coefficient of variation:

$$K_v = \frac{\sigma}{\bar{x}} \cdot 100, \quad (1)$$

where K_v is the coefficient of variation;
 σ is the standard deviation of the indicator;
 $\bar{x}$ is the mean value of the indicator.

A coefficient of variation of up to 10% indicates relative homogeneity of the set of

⁴ EI is determined by dividing the EP indicator by the ER indicator and characterizes either resource intensity (the amount of resource per unit of economic result) or the intensity of anthropogenic pollution (the volume of pollution per unit of economic result).

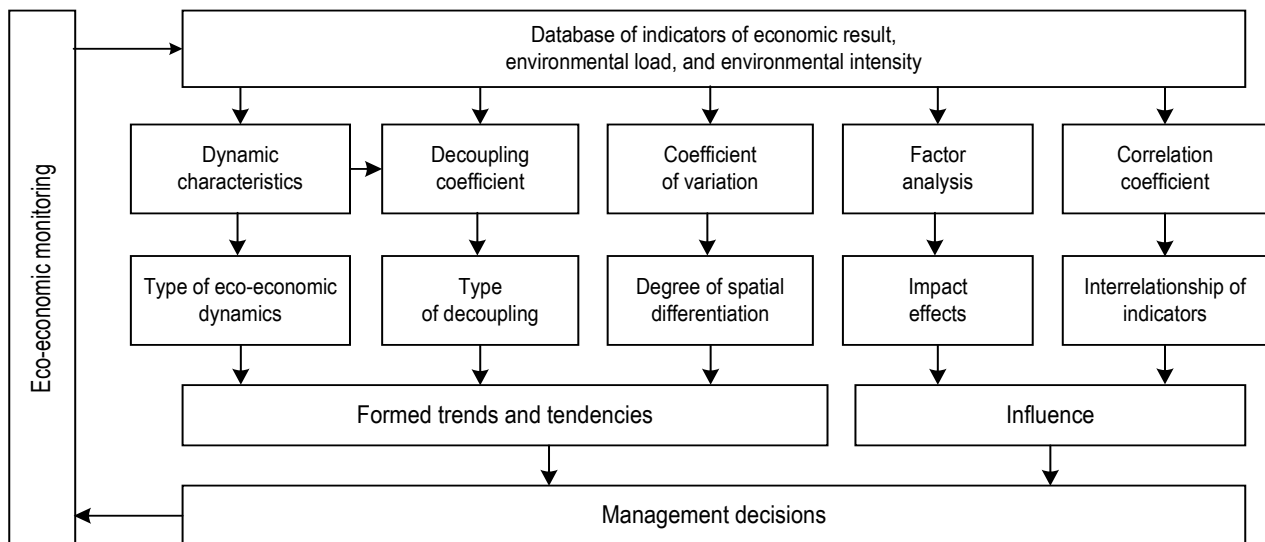


Figure 1. Integrated model for the comprehensive spatial-dynamic ecological and economic assessment of natural resource use

Source: own compilation.

objects under study; 10–33% indicates relative differentiation; and more than 33% indicates pronounced differentiation⁵.

The scale of changes in indicator values over time is assessed by researchers using such dynamic characteristics as the rate of increase (decrease):

$$T_{\text{inc(dec)}} = \frac{x_i}{x_b} \cdot 100 - 100, \quad (2)$$

where $T_{\text{inc(dec)}}$ is the rate of increase (decrease) of the indicator;

x_i is the value of the indicator in the current period;

x_b is the value of the indicator in the base period.

When $T_{\text{inc(dec)}} < 0$, the indicator declined over the period under analysis; when $T_{\text{inc(dec)}} > 0$, it increased.

The use of these dynamic characteristics makes it possible to determine the type of ecological-economic dynamics, the essence of which is discussed in detail in the literature (Victor, 2015; Shang et al., 2015; Glazyrina et al., 2015) and summarized in Table 1.

Table 1. Determining the type of ecological-economic dynamics

Type of dynamics	ER	EP	EI
Black growth	$T_{\text{inc(dec)}} \geq 0$	$T_{\text{inc(dec)}} \geq 0$	$T_{\text{inc(dec)}} \geq 0$
Brown growth	$T_{\text{inc(dec)}} \geq 0$	$T_{\text{inc(dec)}} \geq 0$	$T_{\text{inc(dec)}} \leq 0$
Green growth	$T_{\text{inc(dec)}} \geq 0$	$T_{\text{inc(dec)}} \leq 0$	$T_{\text{inc(dec)}} \leq 0$
Black decline	$T_{\text{inc(dec)}} \leq 0$	$T_{\text{inc(dec)}} \geq 0$	$T_{\text{inc(dec)}} \geq 0$
Green decline	$T_{\text{inc(dec)}} \leq 0$	$T_{\text{inc(dec)}} \leq 0$	$T_{\text{inc(dec)}} \geq 0$
Absolutely green decline	$T_{\text{inc(dec)}} \leq 0$	$T_{\text{inc(dec)}} \leq 0$	$T_{\text{inc(dec)}} \leq 0$

Source: compiled from (Victor, 2015; Shang et al., 2015; Glazyrina et al., 2015).

⁵ Polyakova V.V., Shabrova N.V. (2015). Fundamentals of the Theory of Statistics: A Textbook. Yekaterinburg: Ural University Press. P. 58.

Dynamic characteristics can also be used to calculate the decoupling elasticity coefficient (Kong et al., 2021; Kutyshkin, Shulgin, 2024; Tapio, 2005):

$$K_e = \frac{T_{inc(dec)EP}}{T_{inc(dec)ER}}, \quad (3)$$

where K_e is the decoupling elasticity coefficient;

$T_{inc(dec)}^{EP}$ is the rate of increase (decrease) of environmental pressure;

$T_{inc(dec)}^{ER}$ is the rate of increase (decrease) of economic result.

The value of the decoupling elasticity coefficient, together with the dynamic characteristics of economic result and environmental pressure, makes it possible to determine the type of decoupling (Tab. 2).

The spatial heterogeneity of economic result, environmental pressure, and the intensity of economic activity, combined with the type of ecological-economic dynamics and the type of decoupling, yields a large volume of information. This information can be used to identify priority territories (regions, municipalities) based on the severity of the current situation and the nature of its dynamics – an important consideration for management decisions. It is equally important, however, to identify the factors behind this

dynamics and the observed trends. To enhance the informative value of the analytical toolkit, therefore, factor and correlation analyses should be incorporated into the model.

Among the many factor models used in ecological-economic research, the IPAT model has become widespread. It holds that the scale of anthropogenic impact (I , *impact*), or environmental pressure (EP), depends on three factors: *population* (P), *affluence* (A), and *technology* (T): $I = P \cdot A \cdot T$ (Shkiperova et al., 2015; Tretiakova, 2019; Kong et al., 2021).

In the context of this study, the model can be written as:

$$EP = Pop \cdot Aff \cdot EI, \quad (4)$$

where EP is environmental pressure;

Pop is population;

Aff is affluence (gross product per capita);

EI is environmental intensity, characterizing the technologies in use.

The change in environmental pressure under the influence of these factors can be assessed using the method of chain substitutions. This makes it possible to quantify the contribution of each component through three effects: a population effect (change in population size), an income effect (generated within the economic system), and

Table 2. Determining the type of decoupling

Type of decoupling	ER	EP	K_e
Strong decoupling	$T_{inc(dec)} > 0$	$T_{inc(dec)} < 0$	$K_e < 0$
Weak decoupling	$T_{inc(dec)} > 0$	$T_{inc(dec)} > 0$	$K_e < 0.8$
Expansive negative decoupling	$T_{inc(dec)} > 0$	$T_{inc(dec)} > 0$	$K_e > 1.2$
Strong negative decoupling	$T_{inc(dec)} < 0$	$T_{inc(dec)} > 0$	$K_e < 0$
Weak negative decoupling	$T_{inc(dec)} < 0$	$T_{inc(dec)} < 0$	$K_e < 0.8$
Recessive decoupling	$T_{inc(dec)} < 0$	$T_{inc(dec)} < 0$	$K_e > 1.2$
Expansive coupling	$T_{inc(dec)} > 0$	$T_{inc(dec)} > 0$	$0.8 < K_e < 1.2$
Recessive coupling	$T_{inc(dec)} < 0$	$T_{inc(dec)} < 0$	$0.8 < K_e < 1.2$
Source: compiled from (Zabelina, 2019; Glazyrina, 2020; Zabelina, 2023; Kutyshkin, Shulgin, 2024; Allocca et al., 2025)			

a technological effect (change in eco-intensity as a result of technological modernization).

In the correlation analysis of ecological-economic studies, researchers most often calculate Pearson correlation coefficients (when indicators are normally distributed) and Spearman coefficients (when distributions deviate from normality). These values indicate the strength of association between the indicators under study.

The synthesis of the information obtained makes it possible to draw conclusions about the type of ecological-economic dynamics and the type of decoupling, the emerging trends of change, and the factors behind them. This, in turn, provides a reasoned basis for choosing instruments of targeted management intervention and subsequently monitoring their results. The proposed model can be used for spatial ranking of regions and for substantiating differentiated management decisions.

Results and discussion

In 2024, the volume of river runoff resources in the Northwestern Federal District amounted to 580.9 km³/year, which is 2.0% above the long-term average (569.6 km³/year) and 3.0% above the previous year⁶. The largest volume was recorded in the Arkhangelsk Region (353.7 km³/year), the smallest in the Pskov Region (13.2 km³/year).

The regions of the Northwestern Federal District are sufficiently endowed with water resources (*Fig. 2a*). In terms of per capita water availability (*Fig. 2b*), the Kaliningrad Region falls into the category of territories with high water availability, while the remaining regions have very high availability (Shklomanov, Markova, 1987). The northern regions – Arkhangelsk Region, Nenets

Autonomous Area, and the Komi Republic – are best supplied with water resources (*Fig. 2*). Together with Murmansk Region, they show a slight decline in both total and per capita values.

The model for assessing the type of ecological-economic dynamics is based on economic result and environmental pressure. The former was represented by gross regional product (GRP). To eliminate the distorting influence of inflation, values were converted from current to constant (2015) prices.

As shown in *Figure 3a*, most regions of the district experienced economic growth over the period analyzed. The most notable growth was in the Leningrad Region (+44.7%), St. Petersburg (+32.2%), and the Kaliningrad Region (+23.9%). A decline was observed in the Komi Republic (-7.6%) and the Nenets Autonomous Area (-2.0%), where extractive industries, which are under enormous external economic pressure, predominate.

The study found that the gross product produced is positively associated with water availability: the correlation coefficient was 0.35. When St. Petersburg, the Leningrad Region, and the Murmansk Region (which differ markedly from other regions in their indicators) are excluded from the sample, the coefficient increased to 0.66, indicating a significant role of water resources in the regional economy.

St. Petersburg, the Leningrad Region, and the Vologda Region make the largest contribution to the district's gross product. In per capita terms, however, the Nenets Autonomous Area is the leader (*Fig. 3b*) and is the only region with negative dynamics. In the Komi Republic, per capita gross product is rising due to the faster rate of population decline against the backdrop of falling total gross product.

⁶ On the state and protection of the environment of the Russian Federation in 2024. State report. Moscow: Ministry of Natural Resources of Russia; All-Russian Research Institute of Ecology. 721 p.

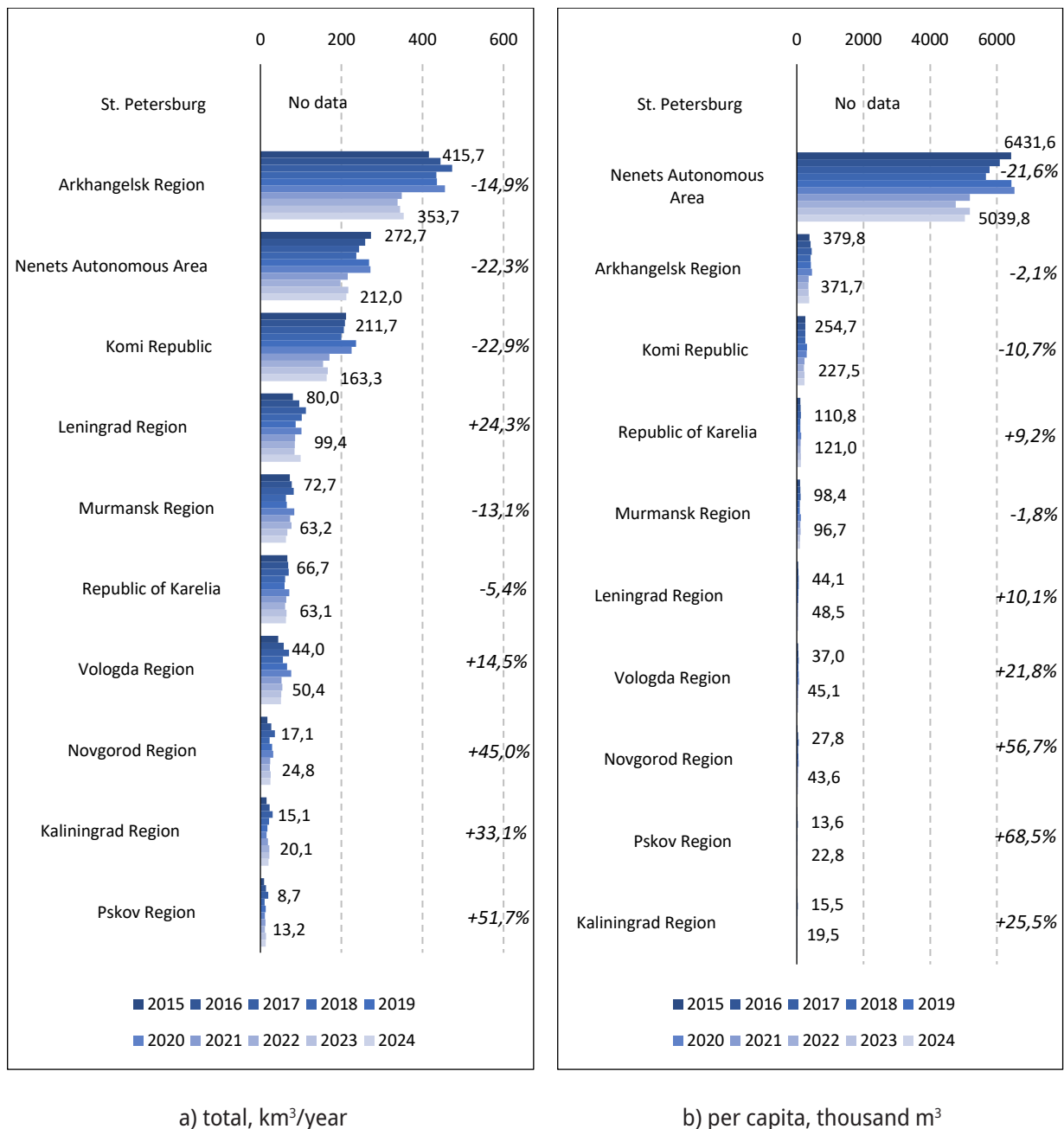


Figure 2. River runoff resources

Note: rates of decrease are shown in italics.

Source: On the State and Protection of the Environment of the Russian Federation in 2024. State Report. Moscow: Ministry of Natural Resources of Russia; All-Russian Research Institute of Ecology. 721 p.

Source: own calculation.

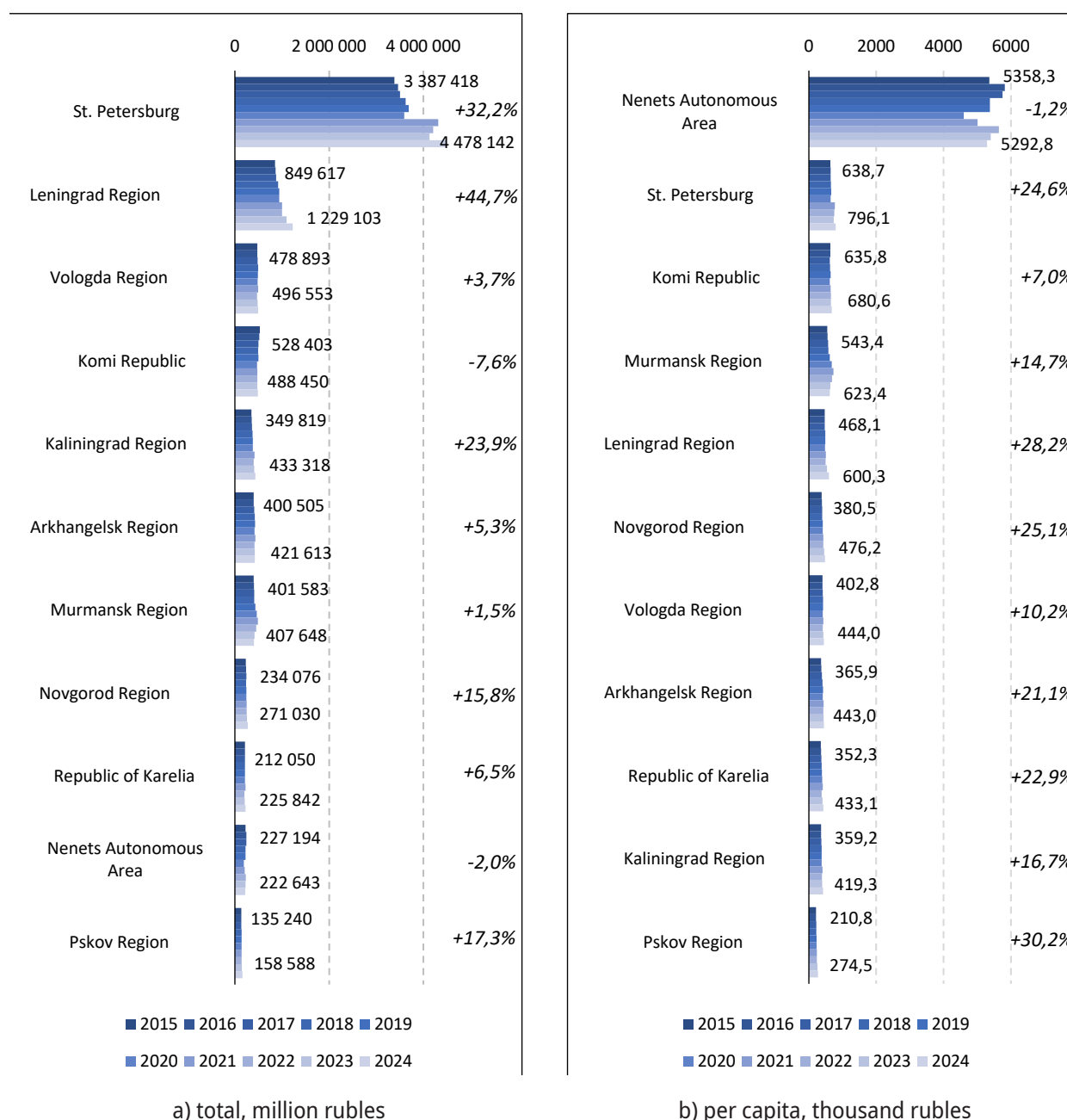


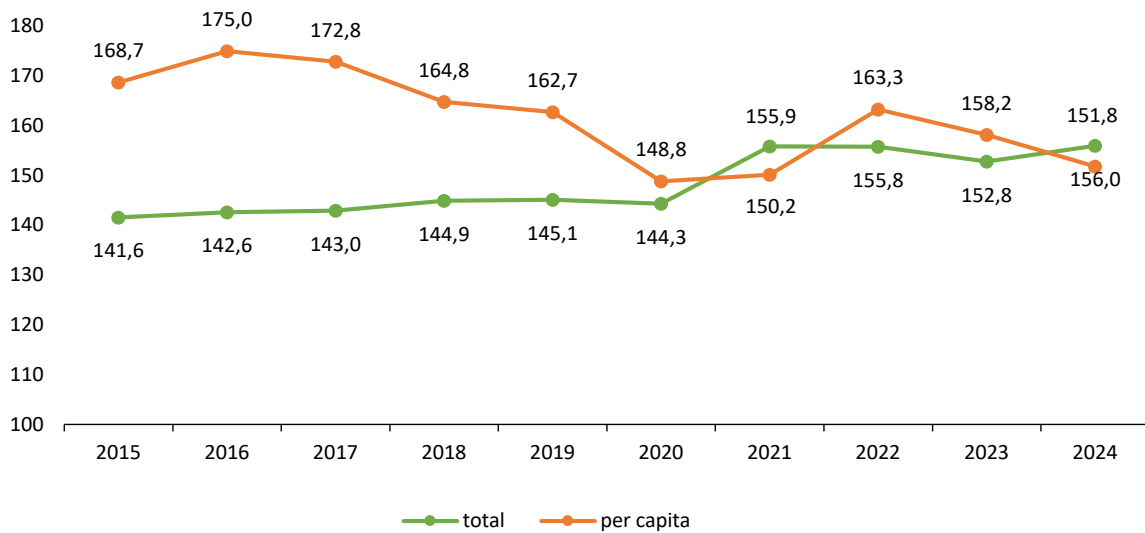
Figure 3. Gross regional product at 2015 prices

Source: own calculation based on Rosstat data. Available at: <https://rosstat.gov.ru/statistics/accounts>.

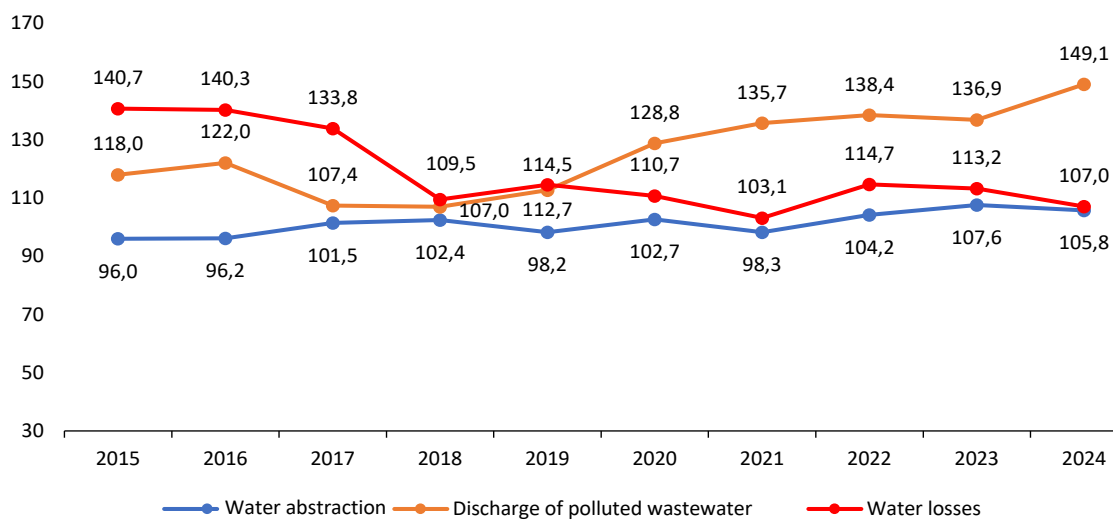
In terms of gross regional product, the regions of the Northwestern Federal District are highly differentiated (Fig. 4a), and the level of differentiation has increased in the post-pandemic period. The difference in per capita gross product, by contrast, was greater in the pre-pandemic period.

Water abstraction volumes and gross product are positively related: the correlation

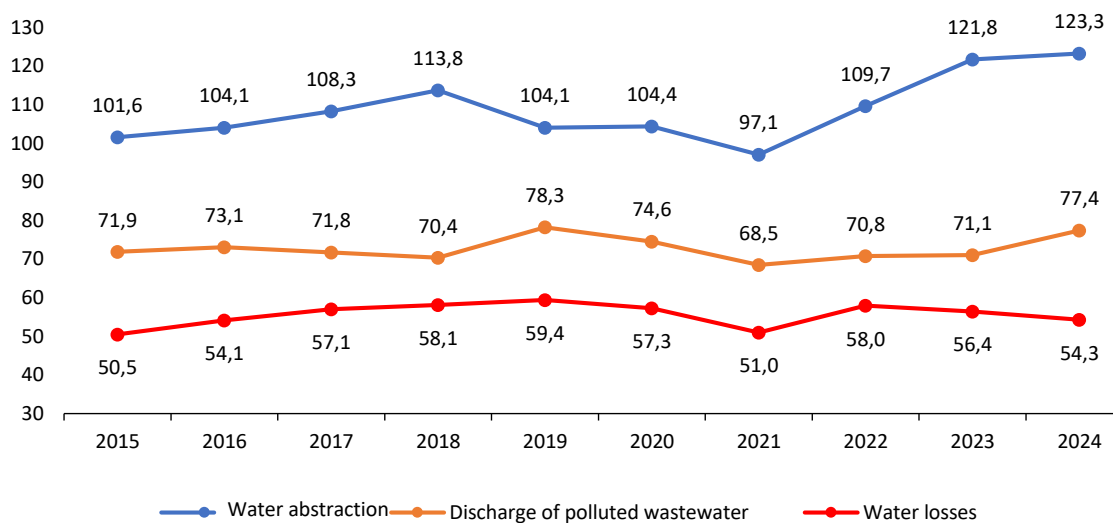
coefficient was 0.38 (after excluding St. Petersburg, the Murmansk Region, and the Nenets Autonomous Area from the sample). The low value may point to the presence of a decoupling effect in some regions. Water abstraction volumes are also characterized by a high degree of differentiation (Fig. 4b), although it is lower than that of polluted wastewater discharge and water losses.



a) gross regional product



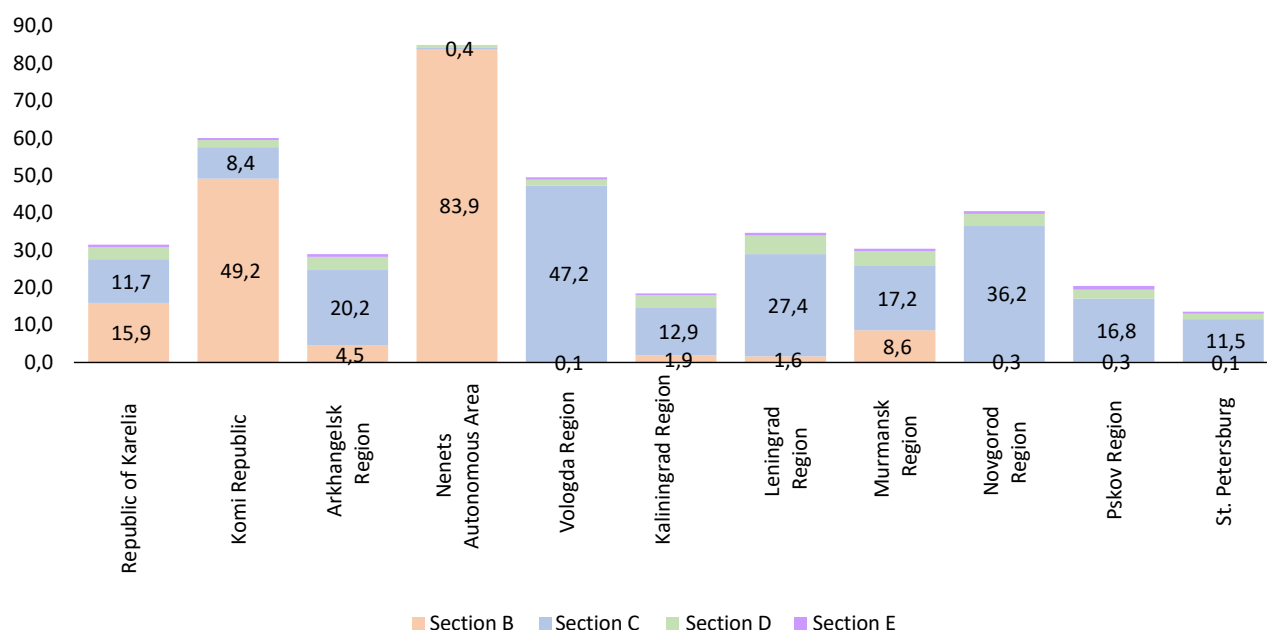
b) environmental pressure



c) environmental intensity

Figure 4. Coefficient of variation, %

Source: own calculation.



Section B – mining and quarrying; Section C – manufacturing;
 Section D – electricity, gas, steam, and air conditioning supply;
 Section E – water supply; sewerage, waste management, and remediation activities.

Figure 5. Share of industrial economic activities in the gross regional product structure of the Northwestern Federal District regions in 2024, %

Source: own calculation based on Rosstat data. Available at: <https://rosstat.gov.ru/statistics/accounts>.

Figure 5 shows substantial differences in the contribution of industrial production to gross regional product across the regions of the Northwestern Federal District.

The economic decline in the Komi Republic was accompanied by a reduction in water abstraction from natural water bodies (-3.4%), whereas the Nenets Autonomous Area, by contrast, saw an increase (+76.3%). Figure 6a shows that, over the period analyzed, water abstraction increased in six regions of the district and decreased in five. The leaders in this indicator are the Murmansk Region and St. Petersburg.

The volume of water abstraction characterizes environmental pressure on water bodies, while its ratio to the volume of gross regional product reflects the environmental intensity of impact. This intensity is highest in Murmansk and Arkhangelsk regions and

lowest in the Nenets Autonomous Area and St. Petersburg (Fig. 6b).

In the Northwestern Federal District, water abstraction from surface water bodies predominates. In 2024, the volume of surface water withdrawn amounted to 4,675.8 million m³, while groundwater abstraction totaled 621.2 million m³. The capacity of recycling water supply systems in the federal district as a whole was 14,396.6 m³, with the largest capacities concentrated in the Vologda Region.

The total volume of water used was 4,849.64 million m³, the largest share of which was directed to production needs (3,704.35 million m³), drinking and household needs (726.15 million m³)⁷.

At the same time, it should be noted that this indicator's degree of differentiation is the highest among all the analyzed measures of

⁷ On the state and protection of the environment of the Russian Federation in 2024. State report. Moscow: Ministry of Natural Resources of Russia; All-Russian Research Institute of Ecology. 721 p.

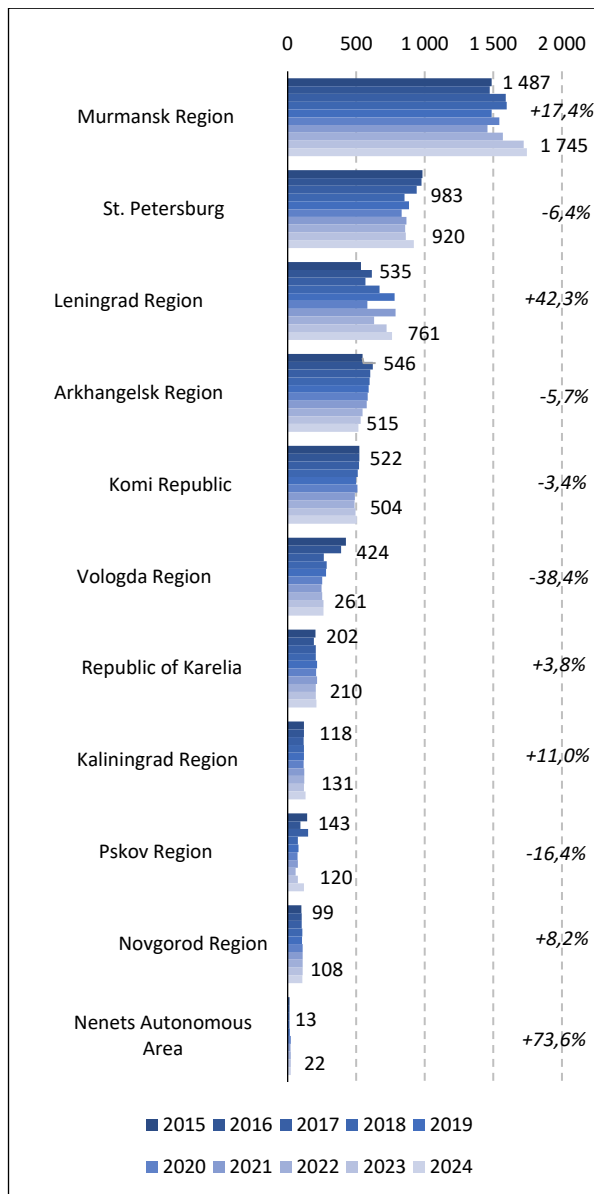
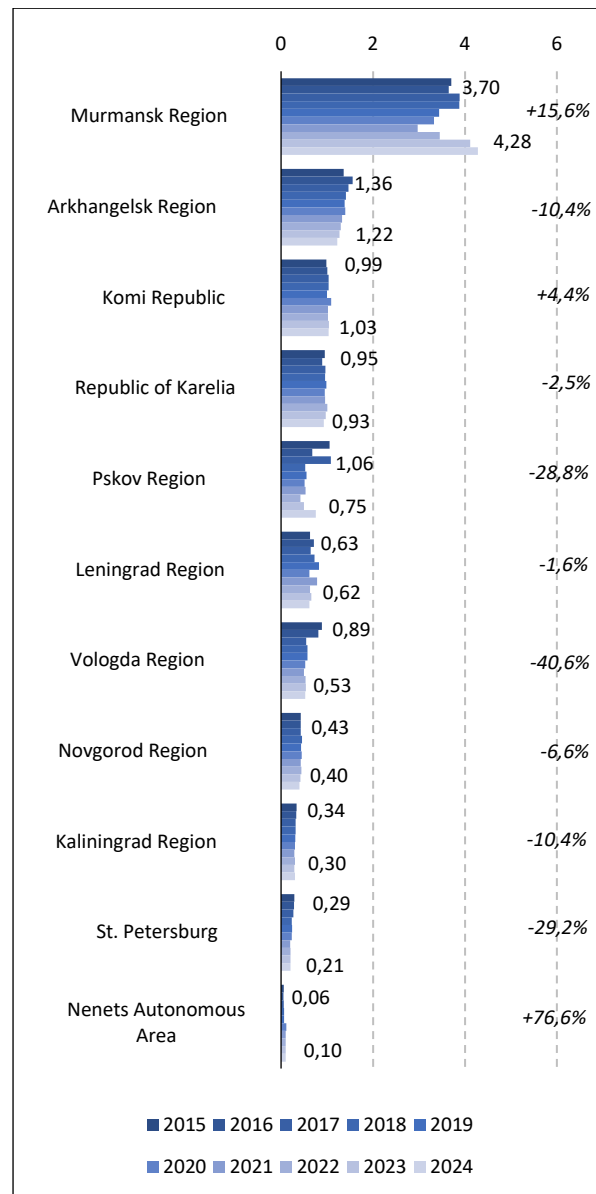
a) total, million m³b) m³ per 1,000 thousand rubles of gross regional product

Figure 6. Water abstraction from natural water bodies

Source: On the State and Protection of the Environment of the Russian Federation in 2024. State Report. Moscow: Ministry of Natural Resources of Russia; All-Russian Research Institute of Ecology. 721 p.

Source: own calculation.

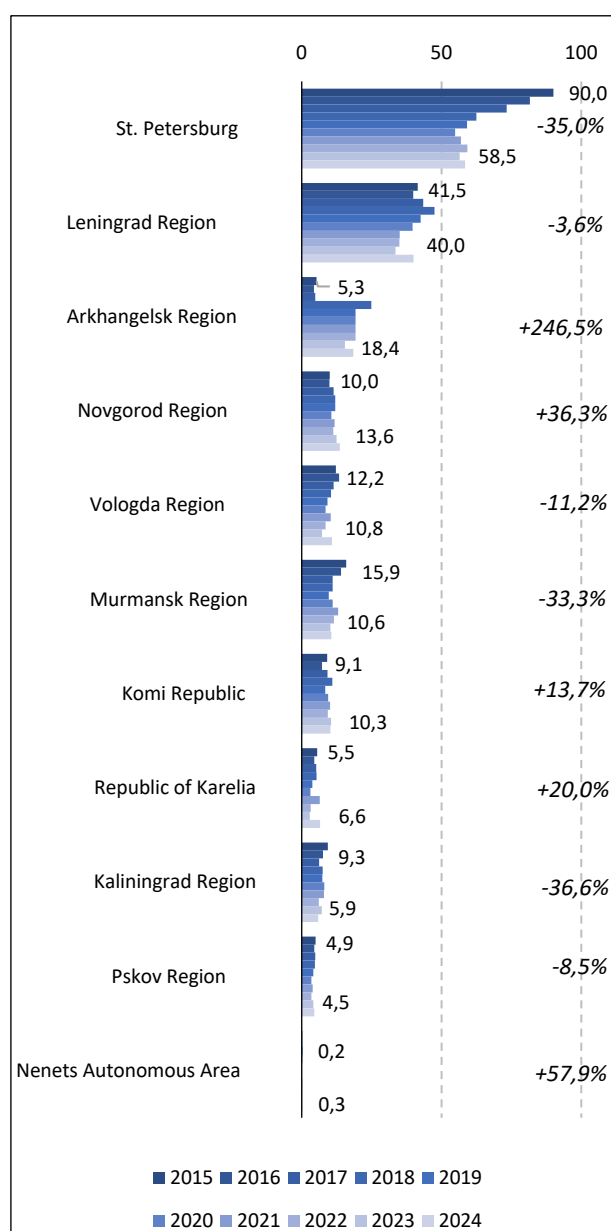
environmental intensity. In terms of dynamics, anthropogenic pressure from water abstraction increased in three regions of the district – the Nenets Autonomous Area, the Murmansk Region, and the Komi Republic – while it declined in the remaining eight regions.

Unfortunately, there is a direct relationship between water abstraction and losses during

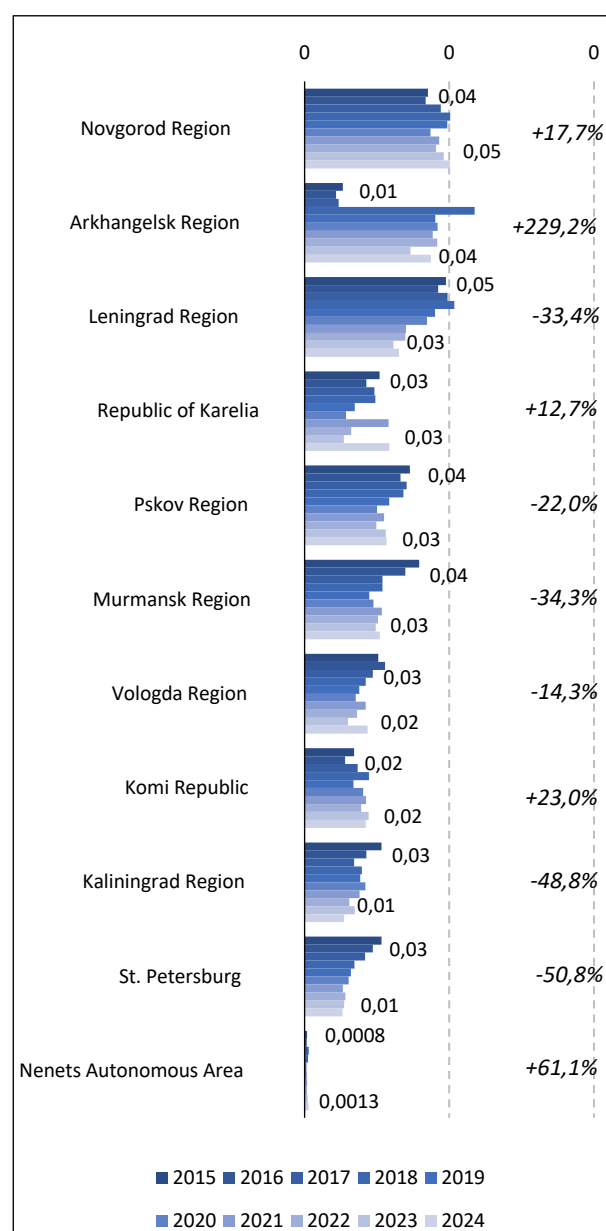
transport (correlation coefficient of 0.43). The smallest difference was in the Nenets Autonomous Area (1.3%) and the largest in the Novgorod Region (12.6%). These losses are largely attributable to the high degree of depreciation of fixed assets in the municipal sector (correlation coefficient of 0.44). Equipment wear ranges from 38.0% in the Republic of Karelia to 60.5% in the Komi Republic.

Over the period analyzed, water losses during transport were recorded in five regions of the Northwestern Federal District in both absolute (Fig. 7a) and relative terms (Fig. 7b). The highest growth rate was observed in the Arkhangelsk Region (246.5%). St. Petersburg leads in the total

volume of losses, while the Novgorod Region leads in intensity. The dispersion of absolute values of the indicator is high but has a downward tendency. The differentiation of the relative indicator is the smallest among the measures of environmental intensity, yet it remains high.



a) total, million m³



6) m³ per 1,000 rubles of gross regional product

Figure 7. Water losses during transport

Source: On the State and Protection of the Environment of the Russian Federation in 2024. State Report. Moscow: Ministry of Natural Resources of Russia; All-Russian Research Institute of Ecology. 721 p.

Source: own calculation.

Most regions of the district reduced the volume of polluted wastewater discharge (Fig. 8a). It remained unchanged only in the Nenets Autonomous Area and increased slightly in the Leningrad Region (by 0.2%). However, the dispersion of values, already very high, increased over the period analyzed. St. Petersburg leads in the volume of wastewater discharge, while the Arkhangelsk Region and the Republic of Karelia lead in intensity. The degree of differentiation

remained high throughout the entire study period and tended to increase. Emissions are directly related to the size of gross regional product: the correlation coefficient was 0.37 after excluding St. Petersburg, the Leningrad Region, and the Arkhangelsk Region, which differ substantially from other regions in terms of pollution volumes. The relatively low coefficient may indicate the presence of a decoupling effect in some regions of the district.

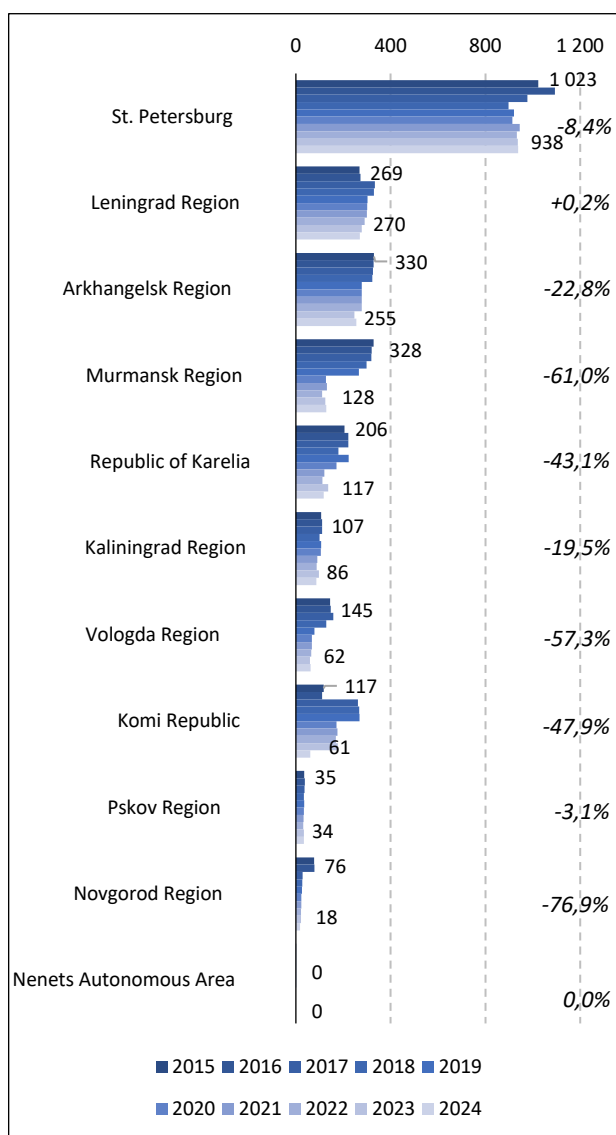
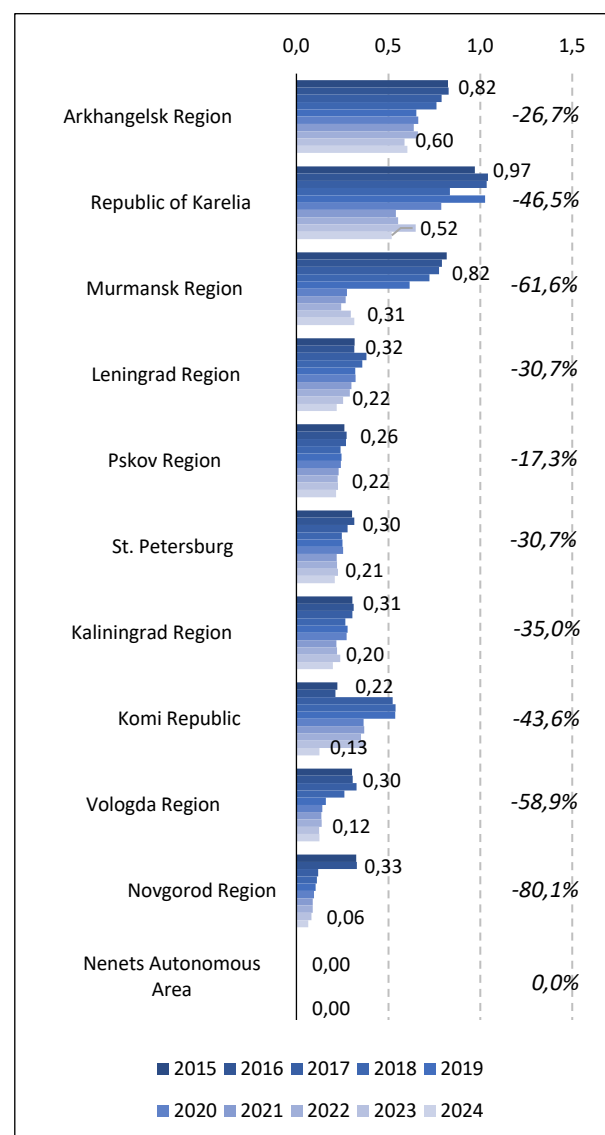
a) total, million m³b) m³ per 1,000 rubles of gross regional product

Figure 8. Discharge of polluted wastewater

Source: On the State and Protection of the Environment of the Russian Federation in 2024. State Report. Moscow: Ministry of Natural Resources of Russia; All-Russian Research Institute of Ecology. 721 p.

Source: own calculation.

Figure 9 presents the results of determining, on the basis of the dynamic characteristics discussed above, the type of ecological-economic dynamics (Fig. 9a), the type of decoupling (Fig. 9b), and the factor analysis using the IPAT model (Fig. 9c), which makes it possible to assess the strength of the population, income, and technological effects on water abstraction from natural water bodies.

“Green” economic growth was observed in four regions of the Northwestern Federal District: St. Petersburg, the Arkhangelsk Region, the Vologda Region, and the Pskov Region. By achieving strong decoupling, driven primarily by the technological effect, the environmental intensity of economic activity decreased.

The Murmansk and Novgorod regions are characterized by “black” growth. This is caused

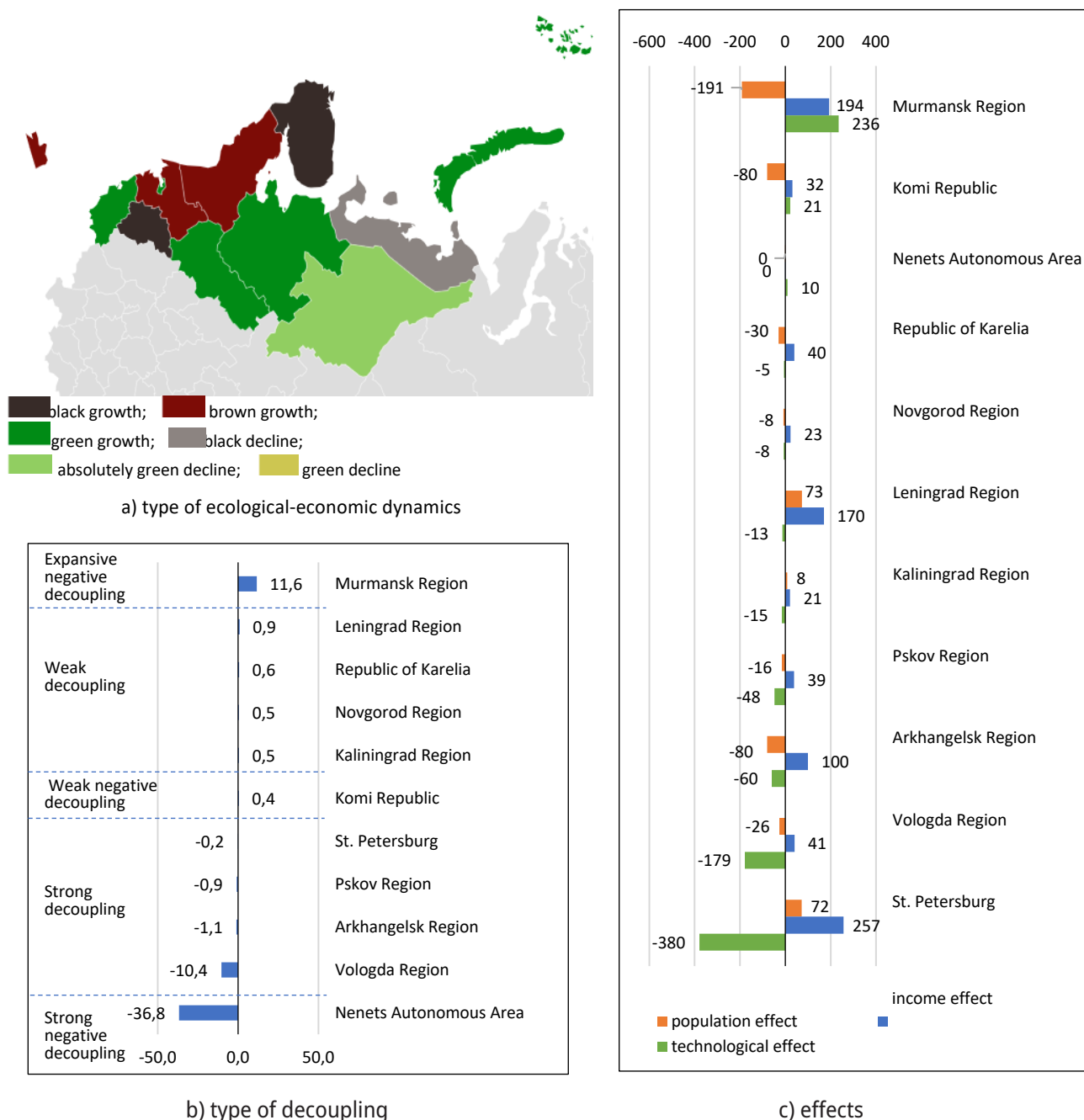


Figure 9. Results of the spatial-dynamic analysis of water abstraction from natural water bodies

Source: own calculation.

by expansive negative decoupling, in which economic growth leads to increased water abstraction (the income effect). In addition, the water-intensive technologies still in use drove up both environmental intensity and the volume of water withdrawn, a negative influence of the technological effect.

The Komi Republic experienced “green” economic decline due to weak negative decoupling, in which environmental pressure

decreases more slowly than the observed economic contraction, thereby raising the environmental intensity of activity. Against the backdrop of a falling total gross product in the region (whose negative rate exceeds that of the republic’s population), gross regional product per capita is nevertheless increasing.

Figure 10 presents the results of determining the type of ecological-economic dynamics (Fig. 10a), the type of decoupling (Fig. 10b), and the

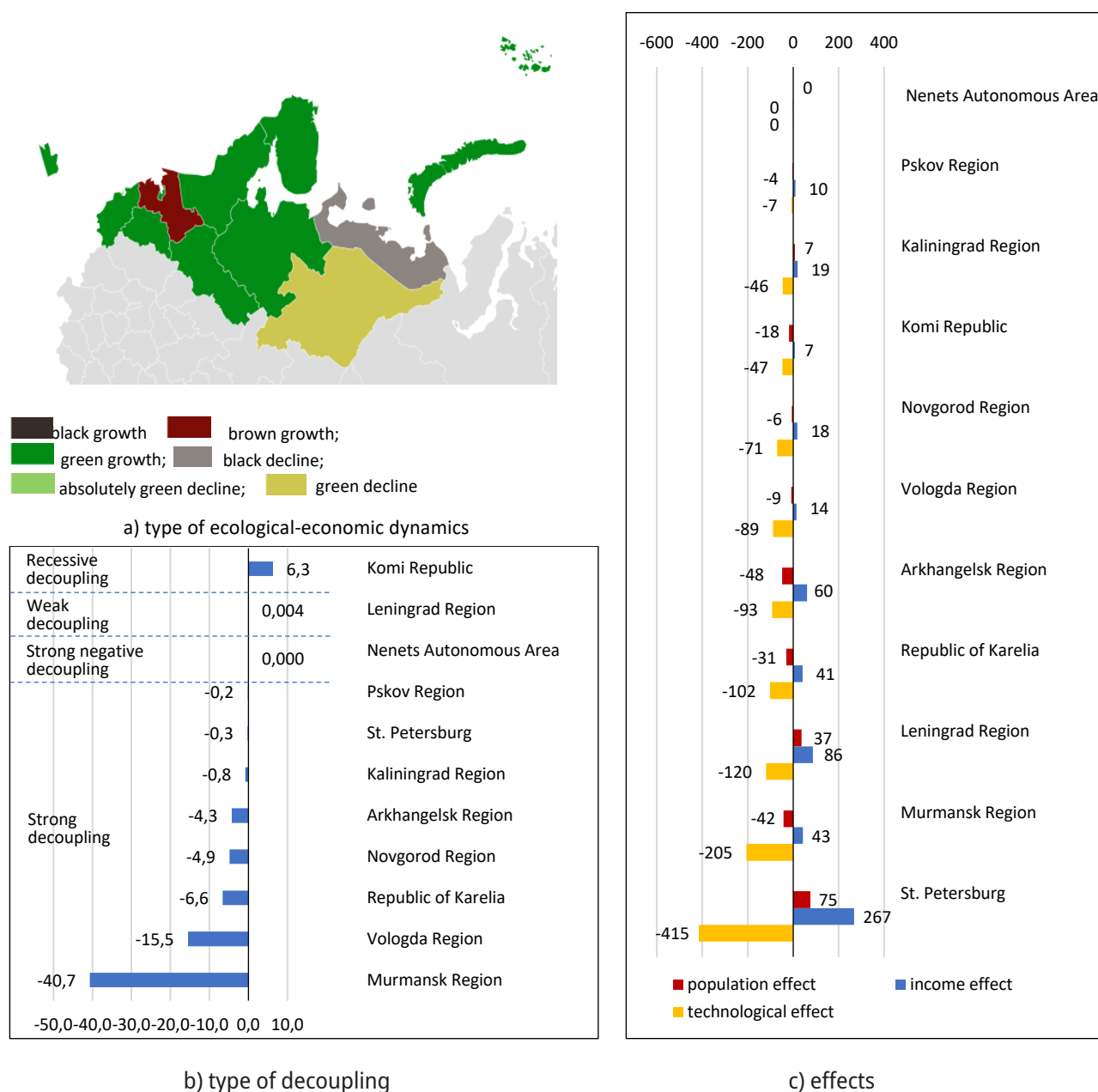


Figure 10. Results of the spatial-dynamic analysis of the discharge of polluted wastewater

Source: own calculation.

scale of the population, income, and technological effects (Fig. 10c) with respect to the discharge of polluted wastewater. The figure shows that most regions of the district are characterized by “green” growth driven by strong decoupling and the predominance of the technological effect, which reduced the environmental intensity of economic activity. The Komi Republic is distinguished by “green” decline and recessive decoupling, while the Nenets Autonomous Area exhibits “black” growth with strong negative decoupling.

Overall, the dynamics of wastewater discharge in the Northwestern Federal District are more favorable than those of water abstraction, which suggests that management efforts and their intensity could be increasingly directed toward water conservation.

The study found that wastewater disposal is directly related to current expenditures on collection and treatment, with a correlation coefficient of 0.57 (Fig. 11). At the same time, it is inversely related to unit treatment costs,

with a correlation coefficient of -0.37 (Fig. 12). In other words, as per-cubic-meter expenditures on wastewater collection and treatment rise, a positive environmental effect is observed: environmental pressure declines through a reduction in discharge volumes.

The economic mechanism also operates with respect to water abstraction: the coefficient of variation is -0.58, meaning that as the per-unit water tax rises, abstraction volumes decline (Fig. 13). A properly set water price encourages economic actors to conserve resources: higher prices induce enterprises to reduce losses, with a correlation coefficient of -0.40 (Fig. 14).

These findings corroborate the view of other authors on the need to revise resource tax rates and environmental pollution charges (Zima, 2024). Recent legislative changes in this area⁸ are aimed at strengthening their regulatory role; the possibility of assessing their effects will arise once the next set of statistical data is published.

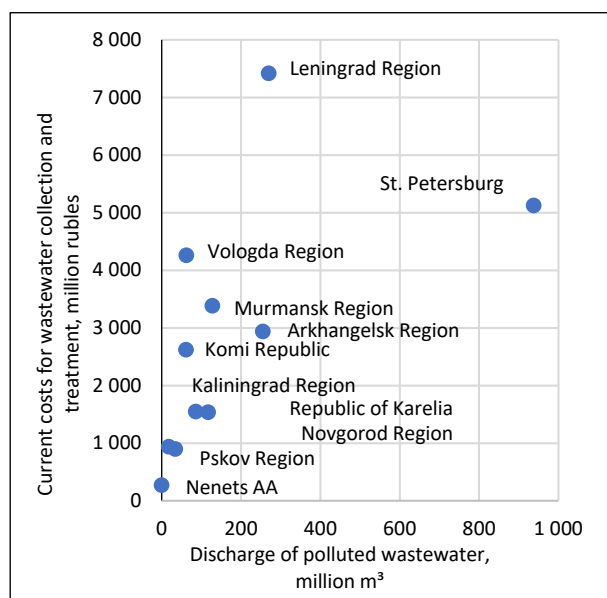


Figure 11. Discharge of polluted wastewater and current expenditures on wastewater collection and treatment in 2024

Source: own calculation.

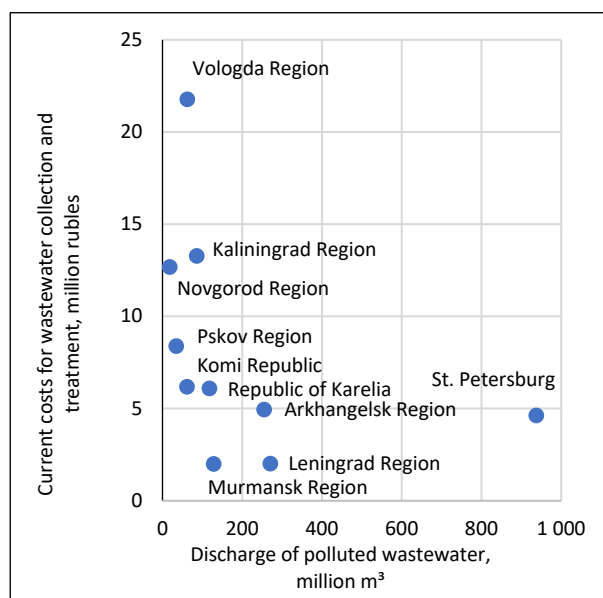


Figure 12. Discharge of polluted wastewater and unit treatment costs (excluding the Nenets Autonomous Area) in 2024

Source: own calculation.

⁸ On rates of payment for negative environmental impact in 2025: Decree of the Government of the Russian Federation No. 1852-r dated July 10, 2025 (as amended on September 1, 2025). Available at: <https://www.consultant.ru/cons/cgi/online.cgi?req=doc&base=LAW&n=513974&dst=101126#JfPAHOVS8Zv5jsj2>

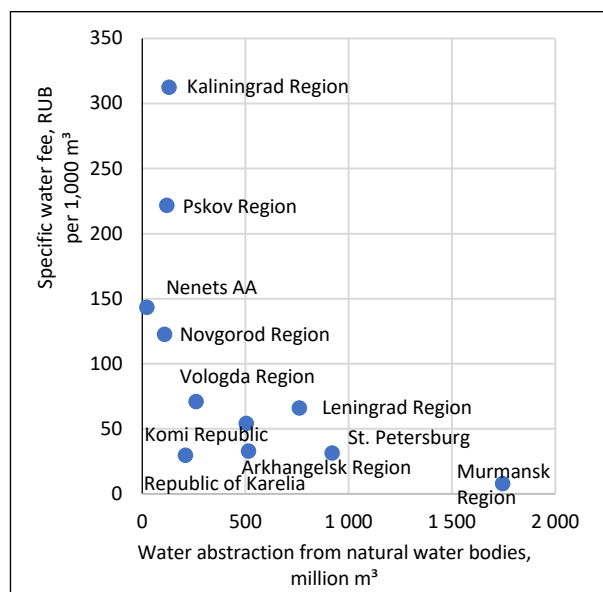


Figure 13. Unit water charges and water abstraction in 2024

Source: own calculation.

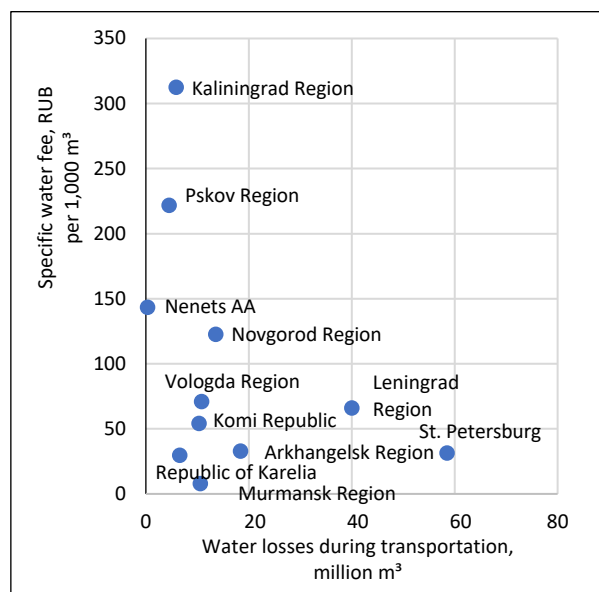


Figure 14. Unit water charges and water losses in 2024

Source: own calculation.

Conclusion

Testing the integrated model proposed in this paper for the comprehensive spatial-dynamic ecological and economic assessment of natural resource use, using water use in the Northwestern Federal District of Russia as an example, made it possible to identify the regions most problematic in terms of the water intensity of their economies and the intensity of anthropogenic environmental pollution.

In particular, the most difficult situation is observed in the Nenets Autonomous Area, which exhibits “black” economic decline characterized both by an increase in water consumption (mainly used to maintain reservoir pressure in hydrocarbon extraction) and by anthropogenic pollution of surface water bodies (with increasing volumes of wastewater discharged into groundwater bodies)⁹. The situation is aggravated by rising water losses during transportation.

Negative trends may be further exacerbated by climate change: oil infrastructure has been built on permafrost, which thaws under the thermal influence of structures, causing significant subsidence that deforms building foundations and pile bases; cracks appear in foundations and storage tanks, leading to oil leaks; and soil, ground, and groundwater become contaminated. Given these entrenched negative trends, comprehensive programs are needed to tackle the complex, multidimensional (technical, technological, economic, and other) challenges. The measures currently being implemented under the regional project “Preservation of Unique Water Bodies” – cleaning coastal strips and water protection zones of industrial and household waste, as well as monitoring the condition of the bottom and banks of water bodies within water protection zones – are clearly insufficient, since they do not address the causes that produce and reinforce

⁹ Report on the state and protection of the environment of the Nenets Autonomous Area in 2024. Department of Natural Resources, Ecology, and Agro-Industrial Complex of the Nenets Autonomous Area. Naryan-Mar. 132 p. Available at: <https://dprea.adm-nao.ru/ekologiya/doklady-o-sostoyanii-okruzhayushej-sredy-v-neneckom-avtonomnom-okruge/> (accessed: 21.04.2026).

the existing trends. The results of this study indicate that this region should receive priority attention from government authorities, public organizations, and the scientific community.

“Brown” growth, characterized by increasing water consumption and the discharge of polluted wastewater, is observed in the Leningrad Region, which also has a high rate of water loss during transport (though with a downward trend).

The Murmansk and Novgorod regions are distinguished by high water intensity of their economies, with water abstraction growing faster than the regional economy. This situation is largely attributable to a negative technological effect in the Murmansk Region and a weakly positive one in the Novgorod Region, both expressed in rising water intensity. In these regions, overcoming the existing trends will require, above all, measures

to stimulate technological upgrading aimed at saving water in production, reducing water losses during transport, and ensuring that wastewater is treated to the required standard.

The abundant water resources of Russia’s Northwestern regions cannot justify wasteful water use, and the wide differentiation of economic and environmental indicators points to the need to design programs that take regional specificities into account. Within the framework of state regulation, it is essential to combine administrative measures of standardization and control with economic incentives and restrictions, which, as the correlation analysis has shown, are also effective.

The author hopes that the approach developed here and the findings obtained will assist decision-makers in selecting a concrete set of measures for each region aimed at improving the water use situation in a targeted manner.

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ПРОСТРАНСТВЕННО-ДИНАМИЧЕСКАЯ ИНТЕГРИРОВАННАЯ ОЦЕНКА ВОДОПОЛЬЗОВАНИЯ В РЕГИОНАХ СЕВЕРО-ЗАПАДНОГО ФЕДЕРАЛЬНОГО ОКРУГА РОССИИ

Нарастающие в различных странах и регионах проблемы дефицита водных ресурсов, необходимых для жизнеобеспечения людей и ведения хозяйственной деятельности, а также высокая степень их загрязнения требуют разработки адекватного оценочного инструментария, позволяющего характеризовать сложившуюся ситуацию как в пространственном, так и во временном аспектах, выявлять тренды и заблаговременно принимать соответствующие управленческие решения. В связи с этим целью исследования стало формирование интегрированной модели комплексного пространственно-динамического эколого-экономического оценивания использования природных ресурсов и ее апробация на примере водопользования в регионах Северо-Западного федерального округа России, которые отличаются развитой и дифференцированной промышленностью с высокой экологической интенсивностью воздействия на природные водные объекты. Задачи исследования включали: обзор научной литературы по оценке водопользования, формирование аналитического эколого-экономического инструментария, отвечающего поставленной цели, и его апробация. Научная новизна проведенного исследования заключается в формировании интегрированной модели комплексного пространственно-динамического эколого-экономического оценивания использования природных ресурсов и ее апробации на примере использования водных ресурсов в регионах Северо-Западного федерального округа. В процессе исследования были использованы методы анализа, синтеза, аналитических группировок, абсолютных и относительных величин, цепных подстановок, статистического анализа данных и графического отображения. Информационной базой исследования послужили открытые данные, размещенные на сайте Федеральной службы государственной статистики Российской Федерации и Министерства природных ресурсов и экологии Российской Федерации. Результаты апробации позволили охарактеризовать тип эколого-экономической динамики в комплексе с видом декаплинга, факторными эффектами и корреляционными взаимосвязями; выявить наиболее приоритетные (с точки зрения остроты сложившейся ситуации) и негативные тенденции. Полученные резуль-

таты могут быть полезны органам власти при разработке (актуализации) проектов и программ, нацеленных на обеспечение устойчивого сбалансированного развития регионов Северо-Запада России.

Водные ресурсы, экономика природопользования, сбалансированное природопользование, региональная экономика, устойчивое развитие, пространственный анализ, динамический анализ, декарпинг.

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ИНФОРМАЦИЯ ОБ АВТОРЕ

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SUSTAINABLE DEVELOPMENT OF TERRITORIES, BRANCHES, AND PRODUCTION COMPLEXES

DOI: 10.15838/ptd.2026.4.144.5

UDC 332.1, 338.2 | LBC 65.049(2)

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CONCEPTUAL FOUNDATIONS OF RURAL DEVELOPMENT IN RUSSIA BASED ON THE NEO-ENDOGENOUS MODEL



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Ensuring the sustainable development of rural territories has always been, and remains, an urgent task for Russia. Despite the implementation of a complex of federal and regional state programs and projects, a large number of economic, socio-demographic, and infrastructural problems – which have already become chronic – persist in the development of the countryside. This necessitates not merely the design of new measures and instruments or the improvement of existing ones, but a fundamental rethinking of the very model of rural development that has taken shape in the country to date. The aim of this study is to substantiate the conceptual foundations for the development of Russia's rural territories on the basis of the neo-endogenous model, with a view to their subsequent implementation in the practice of state governance. In pursuit of this aim, a mechanism for regulating rural development has been elaborated, one that rests on the principles of neo-endogenous development and envisages the use of both existing and new, promising instruments. The latter include: individual plans/projects for the development of rural territories with a low level of socio-economic development; quality-of-life standards for rural areas; and cooperation development projects along “urban–rural” and “rural–rural” lines in the economic, social, and other spheres of public life. The findings contribute to shaping conceptions of the prospects for the development of the Russian countryside and can be used by researchers conducting studies on

For citation: Patrakova S.S. (2026). Conceptual foundations of rural development in Russia based on the neo-endogenous model. *Problems of Territory's Development*, 30(4), 67–83. DOI: 10.15838/ptd.2026.4.144.5

related topics, as well as by public authorities in refining strategic planning documents and designing specific rural development projects.

Rural territories, neo-endogenous development model, mechanism, collaboration, cooperation.

ACKNOWLEDGMENT

The article was prepared within the framework of the state assignment for the Vologda Research Center of the Russian Academy of Sciences on the research topic "Factors and Instruments for Ensuring Balanced Spatial Development of Russian Regions amid the Aggravation of Great Challenges" (FMGZ-2025-0013).

Introduction

According to the Strategy for Spatial Development of the Russian Federation for the period up to 2030, with a forecast up to 2036 (approved by Government Order 4146-r, dated December 28, 2024), ensuring balanced spatial development is one of Russia's strategic goals. Its achievement depends not so much on identifying and developing inter- and intra-regional growth points – which are most often cities¹ – as on the systematic and comprehensive development of rural areas. However, researchers note that the development of Russian rural areas is hampered by a whole range of socio-demographic, economic, and infrastructure problems (see, for example, Nefedova, 2025; Voroshilov, 2025). Moreover, most of these problems are protracted in nature, despite the implementation of state support measures within the framework of the "Integrated Development of Rural Territories" program (approved by Government Resolution 696, dated May 31, 2019) and the program for the development of agriculture and the regulation of markets for agricultural products, raw materials, and food (approved...by Government Decree 717, dated July 14,

2012), national projects, etc. This makes it necessary not just to work out new measures and tools, but to review the very model of rural development that has taken shape in Russia by now.

According to Russian and foreign researchers (Kostyaev, 2018a; Kostyaev, 2018b; Ivanov, 2021; Kozlova, Kopylova, 2025; Georgios et al., 2021; Eversole, Campbell, 2023; Liu, Han, 2025), the most promising approach appears to be a transition to a neo-endogenous model, which is currently used in a large number of developed countries in Europe and Asia². Its essence lies in focusing on the development of rural areas by increasing the efficiency of using both internal (endogenous) and external (exogenous) resources, as well as the potential of cooperative relations in the social, economic, and other spheres of public life along the lines of "urban–rural" and "rural–rural" interactions between the state, businesses, the population, and other actors. At the same time, in the context of the turbulence of the global economy and geopolitics, the exacerbation of existing challenges and the emergence of new global and

¹ For instance, in the list of 2,160 key settlements in the Russian Federation, approved by the presidium (staff) of the Government Commission for Regional Development in the Russian Federation (protocol 143pr, dated 16.12.2024), 68 % are cities (1,041 units) and urban-type settlements (438 units), and only 32 % are rural settlements (681 units, which is almost 2.2 times fewer than the number of urban settlements).

² For example, the LEADER rural development program, implemented in European countries, and the rural revitalization program in China largely correspond to the neo-endogenous development model (Biczkowski, 2020; Liu et al., 2025). At the same time, in the global scientific community, alongside the neo-endogenous model of rural development, an exogenous model is also distinguished – it assumes reliance mainly on external development resources – and an endogenous model, which focuses primarily on using internal resources for development. The neo-endogenous model, like the endogenous one, is based on using the potential of local (local) communities and resources, as well as, unlike the latter, diverse networks, knowledge, innovations, and social capital (Kostyaev, 2023). The modern model of rural development in the Russian Federation is most often identified as an exogenous type model with the dominance of the city over the countryside, which, in turn, is considered as a supplier of food resources and raw materials for the development of the urban economy (see, for example, Kostyaev, 2021).

national challenges, unlocking the potential of cooperation and collaboration seems extremely relevant, as it becomes obvious that it is impossible to develop “alone”. However, while the theoretical and methodological foundations of the neo-endogenous model are well-studied in the global scientific community, the issues related to its practical implementation, on the contrary, have been and remain controversial.

The aim of the work is to provide scientific substantiation of the conceptual foundations for the development of rural areas in Russia based on a neo-endogenous model, with the subsequent implementation of these foundations into the practice of public administration. We proposed to solve interrelated tasks to achieve this aim: to provide a brief description of the trends in the development of rural areas in the Russian Federation, as well as to develop a regulatory mechanism and propose new promising tools for their development within the framework of the neo-endogenous model.

The information base for the study consists of data from Rosstat, scholarly works, analytical reports, and reports from government bodies of the Russian Federation, foreign countries, and international organizations, focusing on

the theoretical, methodological, and practical aspects of rural development.

We used monographic, critical analysis, synthesis, generalization, and comparison methods in the research.

Trends in the development of rural areas in Russia

The development of rural areas in modern Russia is characterized by a large number of problems and negative trends, which are noted not only by representatives of the scientific community but also by government bodies³. At the same time, most of the problems, as previously emphasized, are chronic in nature, i.e., they have been observed for more than 20 years. Among them, the following can be distinguished.

1. In the demographic sphere, it is: a decrease in the rural population. For instance, overall, in the Russian Federation, between 1990 and 2025, it decreased by 6.7% (from 38.9 to 36.2 million people; *Tab. 1*), while the population of working-age and pre-working-age people decreased by 9.8% between 1989 and 2023 (from 10.4 to 27.4 thousand people). However, it is important to understand that these are average estimates for the country; in most constituent entities of the Russian

Table 1. Dynamics of the rural population of the Russian Federation

Indicator	1990*	2000**	2010	2020	2025***	2025 to 1990 ****, %, +/- p. p.
1. Number of rural population, million people	38.9	39.5	37.6	37.4	36.3	93.3
2. Share of rural population in the total population of the Russian Federation, %	26	27	26	25	25	-1
3. Population of the rural area of working age and below working age, in millions of people	30.4	30.0	29.2	27.6	27.4	90.2
4. Share of population of working age and below working age in the total rural population, %	77.9	77.4	77.9	74.1	74.6	-3.3
Note. Only for indicators 3–4: * – 1989, ** – 2002, *** – 2023, **** – 2023 compared to 1989. According to: Rosstat data.						

³ See, for example: Putin commented on the problem of poor infrastructure in rural areas in Russia. *Parlamentskaya Gazeta*. Available at: <https://www.pnp.ru/economics/putin-prokommentiroval-problemu-neblagoustroennosti-syol-v-rossii.html> (accessed: 27.04.2026); Matvienko called on regions to pay more attention to maintaining rural schools and roads. *TASS*. Available at: <https://tass.ru/obschestvo/20790823> (accessed: 27.04.2026).

Federation, the problem of depopulation is much more acute. For example, in the Vologda Region, the rural population decreased by 35.2% between 1990 and 2025 (from 467.6 to 303.1 thousand people), and its share in the total population of the region decreased by 7.3 percentage points (from 34.5% to 27.2%). All of this leads to an accelerated transformation of the region's settlement pattern due to its simplification – an increase in the role of cities as settlement hubs, coupled with an increase in the number and share of depopulated rural settlements.

2. In the social sphere, it is: the level and quality of life of rural population are relatively low compared to the level and quality of life of urban residents. For example, the gap between urban and rural areas in terms of life expectancy at birth in the Russian Federation increased from 1.6 to 1.8 years between 2000 and 2023, in favor of the former (73.9 years versus 72.1 years in 2023).

The gap in the level of disposable household resources per capita between 2014 and 2024 increased from 9,500 to 14,200 rubles (46,500 in urban areas versus 32,300 rubles in rural areas in 2024; *Tab. 2*). For comparison, in the Vologda Region, it increased from 9,200 to 9,800 rubles.

3. In the economic sphere, it is: the destruction of the economic base of rural areas

located far from key centers of economic growth at the regional and interregional levels (large cities – administrative centers, nuclei of urban agglomerations, etc.). For example, the average per capita volume of shipments of products, goods, and services in fully rural municipalities of the Vologda Region is almost six times lower than the regional average: 203 thousand rubles versus 1,209 thousand rubles in 2023⁴. For comparison: in 2016, the gap was 4.4 times (189.0 vs 824.7 thousand rubles).

4. In the infrastructure sector, it is: a high degree of wear and tear of public and household infrastructure, or its complete absence. For example, according to Rosstat, in 2024, only 47% of the rural housing stock was equipped with both water supply and sewage systems, heating and hot water supply, gas or floor-standing electric stoves.

These aspects do not reflect the full range of problems and negative trends in the development of rural areas, but they do demonstrate their diversity across different spheres, as well as the scale and duration of their impact. This, in turn, necessitates a review of the very model of rural development that has taken shape in Russia up to the present time.

Table 2. Level of disposable resources of households, on average per household member per month, rubles

Indicator	Urban households			Rural households			Resources of urban households exceed those of rural households	
	2014	2024	2024 to 2014, %	2014	2024	2024 to 2014, %	2014	2024
RF	25347.5	46484.4	1.8	15802.3	32325.2	2.0	9545.2	14159.2
Vologda Region	27566.1	47936.7	1.7	18353.5	38130.4	2.1	9212.6	9806.3
Note: data are presented in current prices. According to: Rosstat data.								

⁴ Uskova T.V., Voroshilov N.V. (Eds). (2024). Socio-economic development of the municipal entities of the Vologda Region. 2000–2023: Information and analytical bulletin. Issue 11. Vologda: VolRC RAS. 132 p.

Conceptual foundations for the development of rural areas in Russia based on neo-endogenous model.

Among the wide variety of concepts and theories in regional and spatial economics, the theoretical foundation for the formation and implementation of a neo-endogenous model of rural development in the Russian Federation can be based on the concepts of a supporting framework⁵ and the rural-urban continuum⁶. It is within these frameworks that the village and the city are understood as interconnected and mutually reinforcing elements of the regional socio-economic space, and the sources of their development are sought both from within and from outside. However, the mechanism can additionally integrate the following provisions:

- the concepts of spatial (economic, social, institutional, and other) proximity, which determine

the nature of interaction between various entities (Zamyatina, Pilyasov, 2017; Torre, Rallet, 2005).

- theories of inclusive growth, in terms of the involvement of all population groups, representatives of the authorities, and businesses in the development of territories, and ensuring their equal access to the achievements and benefits of the economy (Rodina, 2019).

Figure 1 schematically shows the key ideas and principles of each of them, which are used in constructing the neo-endogenous model.

However, it seems advisable to define the conceptual framework of the mechanism (goals, objectives, priorities) primarily through Russia's key strategic planning documents. These include: Presidential Decree 474, dated July 21, 2020, "On the National Development Goals of the Russian Federation for the Period up to 2030"; Presidential Decree 400, dated July 2,

Neo-endogenous model of rural development			
↑	↑	↑	↑
Support frame concept	Concept of the rural-urban continuum	Concept of spatial proximity	Theories of inclusive growth
The ideas about the role and significance of rural areas are not just about viewing them as part of the "fabric" of space (as some secondary, auxiliary element in comparison with cities), but as an important system-forming element that performs a whole range of economic functions (demographic, production-related, etc.).	The ideas of the interconnection and interdependence of the development of cities and rural areas, and the absence of a clear boundary between them due to the presence of zones that combine features of urban and rural lifestyles (suburban areas, small towns, etc.).	The idea of a multifaceted (economic, social, institutional, transport-related, and other) proximity between the city and the countryside, which determines the complex nature of their interaction.	The idea of involving all groups of the population, representatives of the authorities, businesses, non-profit organizations, and other actors in the development of rural areas, and ensuring their equal access to the achievements and benefits of the economy.

Figure 1. Theoretical foundation for the development and implementation of neo-endogenous model for the development of rural areas.

Source: own compilation.

⁵ The concept of supporting framework is one of the fundamental concepts in regional and spatial economics. Its founders (N.N. Baransky, G.M. Lappo, B.S. Khorev, etc.) examined territories through the lens of key elements, which were most often cities, and the linear elements connecting them – roads. At the same time, modern researchers note that currently, key elements can include not only cities but also large rural settlements that play a supporting role / perform the functions of an economic, social, and infrastructure center for the surrounding territories. In addition, considerable attention is paid to the impact of cities on the development of surrounding rural areas.

⁶ The concept of the rural-urban continuum (pioneered by P.A. Sorokin, K. Zimmerman, R. Redfield, etc.) involves examining a territory through the lens of a smooth and gradual transition from urban settlement forms to rural ones, and the co-development of cities and rural areas.

2021 “On the National Security Strategy of the Russian Federation”; and the Strategy for the Spatial Development of the Russian Federation for the Period up to 2030. It appears that only such a comprehensive approach – focused on achieving high-level goals that are common to all government bodies – can have a positive impact on the development of rural areas and the country as a whole.

The transition to the neo-endogenous model of rural development should be implemented gradually, without a fundamental overhaul of the existing model, which to a certain extent already integrates certain aspects of both exogenous and endogenous development models⁷. The strategic steps for such a transition are as follows:

I. Improving the system of state regulation of rural development in terms of implementing principles, methods, and tools, as well as establishing institutions for neo-endogenous development.

II. Organizational, financial, legal, and other forms of state support for network interaction projects in the “rural–rural” and “urban–rural” formats, across various spheres of public life (economic, sociocultural, infrastructural, etc.), with the active involvement of the local population and the business community, government bodies and local self-government authorities, and other interested parties.

Taking into account these steps and the theoretical framework mentioned above, a mechanism for regulating the development of rural areas within the framework of the neo-endogenous model has been developed (Fig. 2). Its implementation is deemed appropriate on the basis of the updated Strategy for the Sustainable Development of Rural Areas of the Russian Federation for the period up to

2030 (hereinafter referred to as the Strategy), which was approved on February 2, 2015, by Government Order 151-r and has been edited only once as of March 2026 (in 2017). This is due to the fact that developing and approving a new strategy would require relatively higher resource and time expenditures, which, overall, seems inadvisable.

In our view, the interpretation of the sustainable development of rural areas set out in the Strategy should initially be updated: “stable socio-economic development of rural areas, an increase in the volume of agricultural production, an increase in the efficiency of agriculture, achieving full employment of the rural population and an improvement in their standard of living, and the rational use of land.” The proposed interpretation is: “socio-economic development of rural areas, which is characterized by a steady improvement in the level and quality of life of rural population, the development of the rural economy, the rational use of natural resources, and which contributes to achieving national goals and ensuring the national security of the Russian Federation”. In fact, while maintaining the socio-ecological and economic focus of the sustainable development concept, the new interpretation:

a) moves away from the narrow agrarian specialization of rural areas, which is extremely important for Russia, with its vast territories featuring diverse natural and climatic, demographic, cultural, and other characteristics.

b) clarifies the rather vague interpretation of “stable socio-economic development of rural areas” and eliminates the controversial task of achieving full employment among rural population.

⁷ Among the features of the exogenous model, we can highlight the preservation of food and raw material production for the urban economy as the main function of rural areas, the focus on modernizing agriculture and forestry as part of the development of the rural economy, and the absence of rural development strategies in most Russian regions, etc. (Petrakova, 2022). Among the features of the endogenous model are the presence of specific tools for diversifying the rural economy (grants, subsidies for the development of rural tourism, etc.), and increasing the activity and interest of the rural community in solving local problems (for example, through participatory budgeting, etc.).

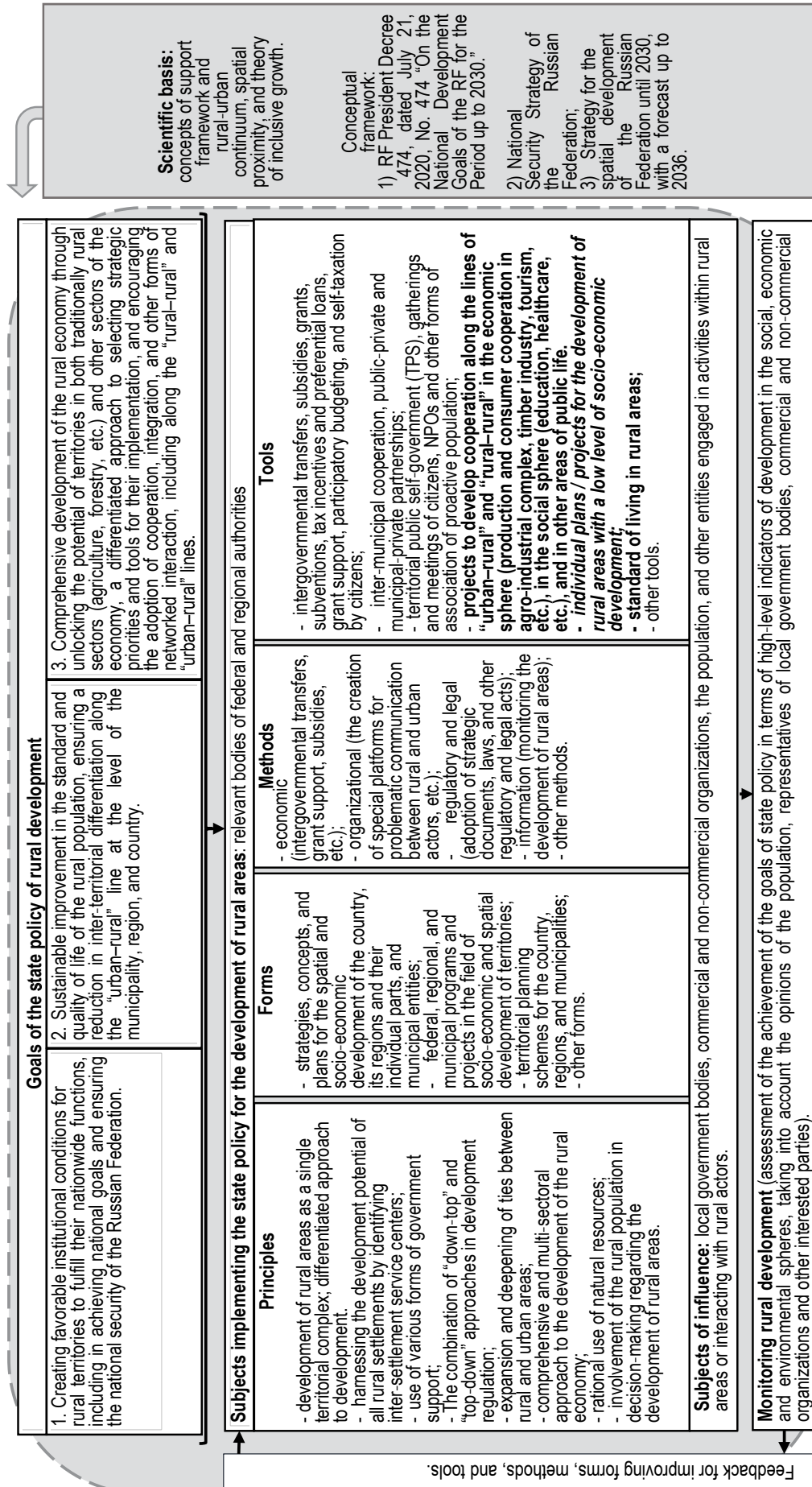


Figure 2. Mechanism for regulating the development of rural areas within the framework of the neo-endogenous model

Note: the tools that, in our opinion, have not received sufficient distribution are highlighted in bold.

Source: own compilation.

c) establishes a link between the development of rural areas and the achievement of national goals and the обеспечения of the national security of the Russian Federation, which is extremely important from the perspective of positioning the role and place of the Russian countryside and its significance for Russian society.

It also seems necessary to adjust the goals of the state policy in the field of ensuring the development of rural areas. Thus, Goal 1 set out in the Strategy has a vague formulation (“creating favorable socio-economic conditions...”) and is effectively elaborated in Goals 2–4.

Goal 2, which involves stabilizing the rural population and creating conditions for its growth, appears to be difficult to achieve and may even be unattainable; in light of the global trend toward urbanization, population growth can only be observed in a limited number of rural settlements, for example, those located in the zone of large and largest urban agglomerations, in the suburbs. Moreover, combating the migration outflow of the rural

population may even be counterproductive; for example, it may hinder the transition to a new technological order. In light of this, Goal 3, which is related to improving the level and quality of life, seems more appropriate.

Goal 4 is characterized by a narrow “agrarian” view of the specialization of the rural economy.

Taking into account foreign experience and the scientific foundations of neo-endogenous development of rural areas, it seems reasonable to set goals in three areas: creating favorable institutional conditions (management sphere; *Tab. 3*), improving the level and quality of life (social sphere), and comprehensively developing the rural economy (economic sphere).

At the same time, the main entities responsible for implementing the state policy on the development of rural territories in the three areas mentioned above are the relevant bodies of federal and regional authorities: the Ministry of Agriculture of the Russian Federation and the relevant ministries/departments of the

Table 3. Goals of state policy in the field of rural development

Goals set out in the Strategy for the Sustainable Development of Rural Areas of the Russian Federation for the period up to 2030	Suggestions for adjusting goals
1. Creating favorable socio-economic conditions for rural areas to fulfil their nationwide functions and address territorial development challenges.	1. Creating favorable institutional conditions for rural areas to fulfill their national functions, including in achieving national goals and ensuring the national security of the Russian Federation.
2. Ensuring the stabilization of the rural population and creating conditions for its growth through reducing mortality, increasing life expectancy, and reducing migration outflow.	2. Sustainable improvement in the level and quality of life of the rural population, ensuring a reduction in inter-territorial differentiation along the “city–rural” line at the level of municipality, region, and country.
3. Ensuring employment, improving the standard and quality of life of rural population in line with modern requirements and standards.	
4. Improving the efficiency of agriculture and the contribution of rural areas to the socio-economic development of the country.	3. Comprehensive development of the rural economy through the unlocking of the potential of territories, both in traditionally rural sectors (agriculture and forestry) and in other economic sectors, a differentiated approach to selecting strategic priorities and tools for their implementation, and the promotion of cooperation, integration, and other forms of interaction, including along the “rural–rural” and “urban–rural” lines.
Source: own compilation in accordance with the provisions of the Strategy for the Sustainable Development of Rural Areas of the Russian Federation for the period up to 2030: approved by Government Order 151-r, dated February 2, 2015 (as amended on January 13, 2017).	

constituent entities of the Russian Federation. In addition, other bodies of state and regional authorities may and should be involved in achieving the goals of rural development within the scope of their powers and competencies, for example: the Ministry of Transport in terms of addressing infrastructure-related issues; the Ministry of Labor and Social Protection in terms of promoting employment and increasing the labor productivity of the rural population.

The object of influence within the framework of our mechanism is the multidimensional socio-economic space of rural territories. The subjects of influence are local self-government bodies, commercial and non-commercial organizations, the population, and other entities that carry out activities in the space of rural territories or interact with rural actors. At the same time, a feedback system must be established between the subjects implementing state policy and the entities whose functioning this policy is aimed at. It would be advisable for it to be based on the results of regularly conducted monitoring of rural development, which consists of assessing the achievement of state policy goals in terms of high-level indicators of development in the social, economic, and environmental spheres (the objective side, since the data source may be official statistics) and the opinions

of the population, representatives of local government bodies, commercial and non-profit organizations, and other interested parties (the subjective side; the information source may be surveys conducted via the public services portal or by specialized agencies – scientific, expert, or analytical).

The policy for the development of rural areas, as well as any other territories, sectors, and industries of the economy, should be based on certain principles. At the same time, within the framework of the neo-endogenous model of rural development, it seems necessary to adjust the principles set out in the Strategy for Sustainable Rural Development: on the one hand, to reduce their number, leaving only the key, upper-level ones, on the other hand, to add the principles on which the policies of the European Union and China are based (*Tab. 4*). It is important that these principles are reflected in other documents of the spatial and socio-economic development of the country (for example, in the Spatial Development Strategy of the Russian Federation for the period up to 2030, if adjusted; strategies for the development of agriculture, manufacturing, etc.) and its regions, national projects, government programs and other documents related to rural development.

Table 4. Principles of state policy in the field of rural development

Principles set out in the Strategy for the Sustainable Development of Rural Areas of the Russian Federation for the period up to 2030	Suggestions for adjusting the principles
1. Development of rural areas as a single territorial complex that has developed historically, performing important socially significant functions and making a significant contribution to the comprehensive socio-economic development of the Russian Federation.	Adjust: the development of rural areas as a single territorial, historically established complex that performs socially significant functions and makes a substantial contribution to the comprehensive socio-economic development of the Russian Federation, the achievement of national goals, and ensuring the national security.
2. Ensuring the constitutional rights of citizens living in rural areas, including ensuring the accessibility and quality of state and municipal services.	Exclude, as this principle is a task derived from the provisions of the Constitution of the Russian Federation.
3. Creating conditions to improve the accessibility and quality of other socially significant services provided to rural residents on a paid basis.	Exclude, since this principle is more of a task.

End of Table 4

Principles set out in the Strategy for the Sustainable Development of Rural Areas of the Russian Federation for the period up to 2030	Suggestions for adjusting the principles
4. Use of various forms of state support to ensure favorable conditions for the socio-economic development of rural areas and the comprehensive use of the existing economic and socio-demographic potential.	Retain.
5. Partnership between the state, local self-government bodies, businesses, and the rural population to ensure the sustainable development of rural areas.	Adjust: a combination of “bottom-up” and “top-down” approaches in defining goals, prospects, priorities, and developing strategies for the development of territories in partnership between the state, business, and the rural population.
6. Leveraging the development potential of all rural settlements by identifying inter-settlement service centers.	Retain.
7. Differentiated approach to the development of rural areas, taking into account the existing territorial characteristics and their impact on the socio-economic development potential of rural areas, aimed at reducing interregional and intra-regional disparities in the level and quality of life of rural population.	Retain.
8. Using advantages of rural lifestyle in implementing youth and demographic policy measures in rural areas.	Exclude, as it is not a top-level component.
9. Expanding and deepening the ties between rural areas and cities, integrating rural areas into a single overall economic system based on agro-industrial integration and cooperation, and developing modern, economically efficient forms of organizing the economic activities of organizations of all property forms.	Adjust: to expand and deepen the ties between rural areas and cities through the development of networked and non-networked forms of interaction in the economic sectors (agriculture, forestry, circular economy, etc.), infrastructure, culture, and other areas of public life.
10. Development of local self-government, civil society institutions, and all forms of cooperation in rural areas, as well as increasing the participation of the rural population in decision-making regarding the development of rural territories.	Retain.
11. Rational use of natural resources, preservation and improvement of traditional agrolandscapes, and careful management of non-renewable natural resources.	
12. Ensuring the epizootic well-being of rural areas.	Exclude, as it is not a top-level issue, it is rather a task.
13. Implementing investment projects in agro-industrial sector in rural areas, which are interconnected with providing the settlements where they are implemented with social and engineering infrastructure facilities.	Adjust: a comprehensive and multi-sectoral approach to the development of the rural economy, focused on supporting and developing not only “traditionally rural” sectors – agriculture and forestry – but also other economic sectors, including taking into account global challenges and trends.
14. Creating additional high-tech jobs in agro-industrial enterprises in rural areas.	
15. Existence of measures to stimulate the involvement of extrabudgetary sources for the comprehensive development of social and engineering infrastructure and the improvement of housing conditions in rural areas.	Exclude, as it is not a top-level component.
Source: own compilation taking into account the provisions of the Strategy for the Sustainable Development of Rural Territories of the Russian Federation for the period up to 2030, approved by Government Order 151-r, dated February 2, 2015 (as amended on January 13, 2017).	

In our view, the key role in implementing the neo-endogenous model is assigned to the use of existing tools and the introduction of new tools for the development of rural areas. At the same time, most of these tools are comprehensive, as they can influence the achievement of not just one, but several development goals (Fig. 3).

Among the entire array of tools, special attention should be paid to those that have either not yet been implemented or are only sparingly used in Russian practice.

1) individual plans / projects for the development of rural areas with a low level of socio-economic development;

2) quality of life standards in rural areas;

3) projects to develop cooperation along the “urban–rural” and “rural–rural” lines in the economic, social, and other spheres of public life.

For instance, it appears possible to develop and implement individual development plans/projects (IDP) for rural areas with a low level

of socio-economic development at the level of constituent entities of the Russian Federation, by analogy with the individual development plans approved for the Kurgan and Pskov regions, the Altai Territory, and the republics of Altai, Adygea, Kalmykia, Karelia, Mari El, Tuva, and Chuvashia, by Government orders in accordance with the instruction of the Chairman of the Government of the Russian Federation DM P16–4600r, dated June 5, 2019. At the same time, scholars refer to the IDP applicable to the regions as the only measure of federal regional policy that simultaneously involves “a competitive selection of regions and an individualized selection of measures for each specific entity”; at the same time, “regional authorities are directly involved in the development of the programs, their opinions are taken into account, and thus the regions can at least prioritize (albeit under conditions predetermined by the federation)

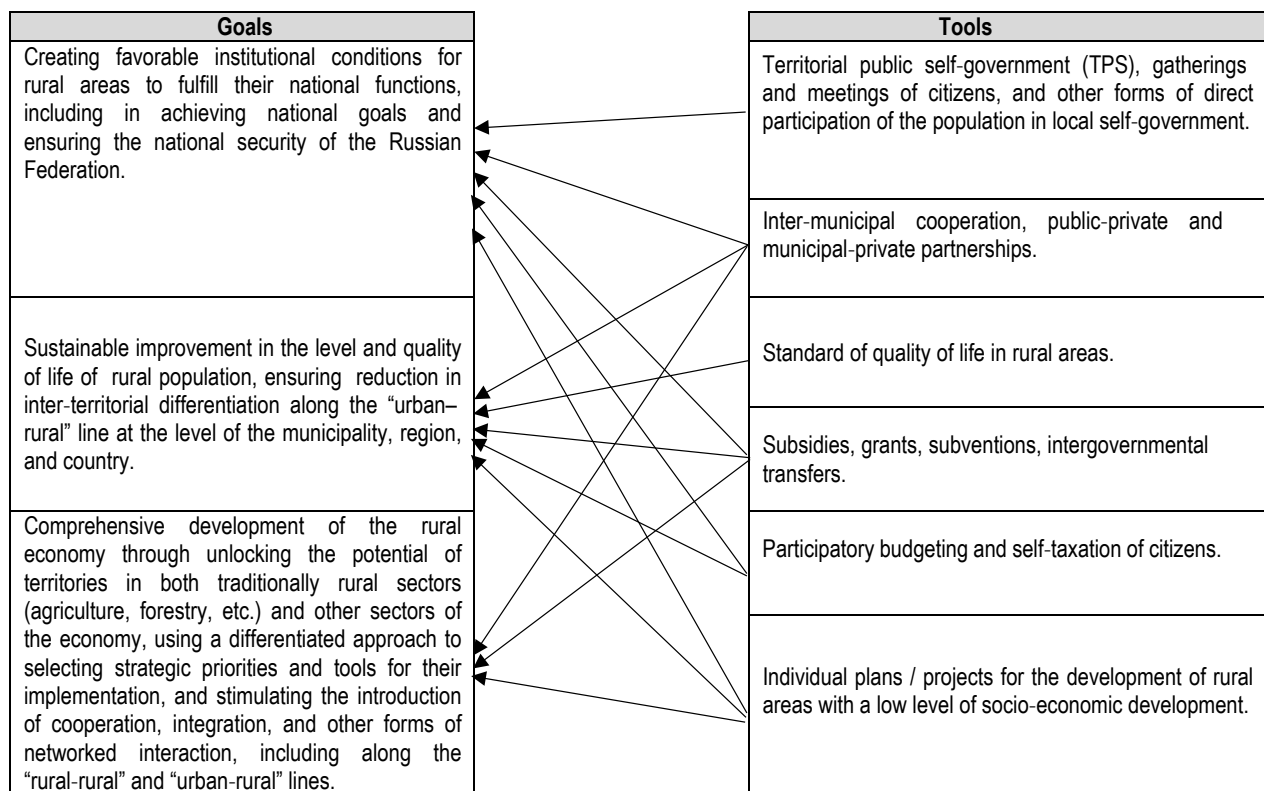


Figure 3. The impact of certain tools on achieving the state policy goals in the field of rural development

Source: own compilation.

program projects in accordance with the vector of domestic regional policy chosen by themselves” (Zemlyansky et al., 2024).

Taking into account the Methodological Recommendations for organizing work on the development of individual programs for the socio-economic development of constituent entities of the Russian Federation with a low level of socio-economic development (approved by Order 698 of the Ministry of Economic Development of Russia, dated October 25, 2019) and the report of the Accounts Chamber of the Russian Federation “Analysis of the effectiveness of implementing programs for individual development plans for territories with a low level of socio-economic development”⁸, it is possible to identify the points that need to be taken into account when scaling up such a tool as the IDP to the local level:

- a list of the key IDP activities from the “economy,” “living environment,” and “social sphere” areas, and also to include activities aimed at developing the municipalities’ own sources of income.

- practice of developing the IDP should be extended to individual rural areas⁹ that are lagging behind in terms of development, which will ensure targeted financing; at the same time, the role and powers of municipalities and regions in the process of implementing the IDP should be clearly defined.

- upon completion of the implementation of the IDP, a transitional period for the measures or other mechanisms to support the territory should be introduced to maintain the positive dynamics of the territory’s development.

It appears that the development and implementation of the IDP can have a positive impact on achieving all three aforementioned goals for the development of rural areas, as it provides the opportunity to finance measures for social development (construction and modernization of medical and educational facilities, etc.) and economic development (promoting the creation of new jobs through the development of industries, etc.) in rural areas, provided that these areas are involved in the planning, development, and implementation processes. This is because the measures to be implemented are proposed from below, rather than being determined by higher authorities.

No less interesting, but not yet used in Russian practice, is the standard for the quality of life in rural areas. It seems that representatives of federal authorities (the Ministry of Agriculture of the Russian Federation, the Ministry of Culture of the Russian Federation, the Ministry of Digital Development and Mass Communications of the Russian Federation, the Ministry of Health of the RF, etc.), the authorities of the constituent entities of the RF, and local self-government bodies should be involved in developing such standards – norms / requirements / prescriptions for the development of rural settlements, the quality of social and other services provided to rural residents, etc. The opinions of representatives of scientific organizations, the business community, and the rural population as a whole should also be taken into account.

Standards should be differentiated depending on the types of rural areas, i.e., they should take into account natural and climatic features, economic and geographical location,

⁸ Bulletin of the Accounts Chamber of the Russian Federation. Regional Development. 2024. No. 1. 135 p. Available at: <https://ach.gov.ru/statements/bulletin-sp-1-2024?Highlight-search-result> (accessed: 26.05.2026).

⁹ For example, in the Vologda Region, potentially such programs/projects can be implemented in Babushkinsky, Vozhegodsky, Kichmengsko-Gorodetsky, Ust-Kubinsky, Nikolsky, and Belozersky municipal districts (the first four are completely rural), which are characterized by a low level of socio-economic development according to the results of a monitoring study by scientists of VolRC RAS (Socio-economic development of municipal formations of the Vologda Region. 2000–2024 (2025): Information and analytical bulletin. Issue 12. edited by T.V. Uskova, N.V. Voroshilov. Vologda: VolRC RAS. 96 p.). The approach of VolRC RAS to ranking territories based on the values of the integral indicator of socio-economic development can be replicated in other regions of the Russian Federation.

sociocultural aspects of the local community, etc. At the same time, as Russian researchers note, standards should not be a narrow list of minimum provisions that could provoke competition for financial resources for the development of territories; their task is to stimulate the process of social and economic convergence of territories (Polushkina et al., 2022).

Another potential tool could be projects aimed at developing networked and non-networked cooperation along the “urban–rural” and “rural–rural” lines in economic (production and consumer cooperation in the agro-industrial complex, timber industry, tourism, etc.), social (education, healthcare, etc.) and other spheres of public life. This kind of interaction can and should develop both within a single specific municipality and between different municipalities within one or several regions of the Russian Federation, provided there are “points of contact”: common problems or development prospects, the presence of complementary or similar natural resources, socio-cultural proximity, complementary functions of locations (for example, place of residence — place of work — place of recreation¹⁰), etc. At the same time, it can initially be assumed that the most active, stable, and equitable connections may be established within a single municipal entity or between municipal entities within the same region, which will be facilitated by their territorial, social, and institutional proximity.

Projects can be initiated by local business structures and non-profit organizations, local government bodies, the population, and even external actors (scientific, educational organizations, etc.) and may address issues related to the improvement of territories, the implementation of cultural events, or the development of joint economic activities (necessarily taking into account the sectoral

specifics of the territories and enterprises). Such projects can and should be taken into account by regional authorities to explore opportunities to provide organizational, financial, legal, and other support “from above” and to replicate them in the event of successful experience.

Conclusion

The study substantiates the need to change the current model of rural development in Russia, which is characterized by a combination of the principles of exogenous and endogenous models, in favor of the neo-endogenous model. In this context, we worked out a mechanism for regulating the development of rural areas, which is based on the principles of neo-endogenous development (utilizing not only external and internal development resources but also the potential for cooperation between territories) and assumes the use of both existing and new promising tools. Among the latest proposals are individual plans / projects for the development of rural areas with a low level of socio-economic development; standards for the quality of life in rural areas; projects for developing cooperation along the “urban–rural” and “rural–rural” lines in the economic, social, and other spheres of public life. The scientifically grounded elaboration of the principles and mechanisms for using these tools, taking into account the specifics of local communities and networks, local resources, and local control – the fundamental significance of which is described in detail in the work (Kostyaev, 2023) – determines the prospects for further research.

The research results can be used by representatives of government bodies to improve the policy for the development of rural areas, and by researchers to substantiate the strategic prospects and barriers to implementing the neo-endogenous model for the development of rural areas.

¹⁰ The significance of migration ties in strengthening spatial connectivity and addressing the issue of balanced territorial development is reflected in the work (Koreshkova et al., 2025).

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КОНЦЕПТУАЛЬНЫЕ ОСНОВЫ РАЗВИТИЯ СЕЛЬСКИХ ТЕРРИТОРИЙ РОССИИ НА БАЗЕ НЕОЭНДОГЕННОЙ МОДЕЛИ

Обеспечение устойчивого развития сельских территорий было и остается актуальной задачей для России, так как, несмотря на реализацию комплекса государственных программ и проектов на федеральном и региональном уровнях, в развитии села сохраняется большое число экономических, социально-демографических, инфраструктурных проблем, ставших уже хроническими. Это обуславливает необходимость не просто разработки новых и совершенствования уже существующих мер и инструментов, а пересмотра самой модели развития сельских территорий, сложившейся в стране к настоящему времени. Цель исследования состоит в обосновании концептуальных основ развития сельских территорий России на базе неэндогенной модели для последующей их имплементации в практику государственного управления. В рамках ее достижения разработан механизм регулирования развития сельских территорий, который базируется на принципах неэндогенного развития и предполагает использование как уже существующих, так и новых перспективных инструментов. В числе последних: индивидуальные планы / проекты развития сельских территорий с низким уровнем социально-экономического развития; стандарты качества жизни на сельских территориях; проекты развития сотрудничества по линиям «город – село» и «село – село» в экономической, социальной и иных сферах общественной жизни. Результаты работы вносят вклад в формирование представлений о перспективах развития российского села и могут быть использованы научными сотрудниками при проведении исследований схожей тематики, органами государственной власти при совершенствовании документов стратегического планирования и разработке конкретных проектов развития сельских территорий.

Сельские территории, неэндогенная модель развития, механизм, сотрудничество, кооперация.

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DOI: 10.15838/ptd.2026.4.144.6

UDC 332.85

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SPATIAL INTERCONNECTEDNESS OF LOCAL HOUSING MARKETS IN THE TYUMEN REGION

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The work investigates the spatial interconnectedness of local housing markets in the Tyumen Region – a polycentric area marked by pronounced differentiation both between and within its constituent parts. The empirical base draws on official statistics and analytical materials covering the period from March 2011 to 2026. The research methods include an analysis of the average selling price of housing in the Tyumen Region and its quarterly dynamics, aimed at identifying cyclical patterns in the regional market; a characterization of the institutional environment specific to the Tyumen Region; a Pearson correlation analysis between the subregions of the Tyumen Region (the Khanty-Mansi Autonomous Area – Yugra and the Yamal-Nenets Autonomous Area); a statistical analysis of the dynamics of price indices on the primary and secondary municipal housing markets of the Tyumen Region (excluding the autonomous areas); and Johansen cointegration tests for primary

For citation: Romashkina G.F., Osokin O.I. (2026). Spatial interconnectedness of local housing markets in the Tyumen Region. *Problems of Territory's Development*, 30(4), 84–106. DOI: 10.15838/ptd.2026.4.144.6

and secondary housing prices in Tyumen, Tobolsk, and Yalutorovsk. The findings show that the housing markets of the Tyumen Region, KhMAA-Yugra, and YaNAA are not interconnected. Within the Tyumen Region excluding the autonomous areas, the spatial organization of the housing market exhibits a hierarchical character. The anchoring role of the city of Tyumen is established, as is the asynchronous dynamics of the peripheral markets, driven by differences in market scale, liquidity, and sensitivity. The second-tier medium-sized cities of Tobolsk and Ishim possess a shallower market depth but retain relative autonomy thanks to their local labor markets. The region's small towns, Yalutorovsk and Zavodoukovsk, are characterized by limited liquidity and a comparatively greater role of the secondary segment and individual housing construction. The region's municipal districts retain the character of peripheral settlement, the secondary nature of which had already taken shape in previous periods. The results obtained attest to a high degree of coherence in the price dynamics of the primary housing markets between the regional center and the secondary cities, albeit with differing speeds and amplitudes of reaction among the local markets within the Tyumen Region excluding the autonomous areas. For the secondary markets, no cointegration was detected. The paper concludes that spatial interconnectedness must be taken into account when designing regional housing policy and housing construction programs.

Housing market, region, periphery, interconnectedness, price differentiation.

Introduction

In Russia, real estate has traditionally been viewed by the public as the most reliable form of investment. According to R.M. Nureev and O.A. Gulyaeva, by the first quarter of the 21st century more than 90% of the population had their own housing (Nureev, Gulyaeva, 2021). The demand for homeownership is shaped by historical and institutional factors rooted in the Soviet legacy. The problem of housing provision remains a focus of state attention yet is still acute in present-day Russia (Chashchina, 2024). For Russians, confidence in the future is closely tied to owning their own home. Property ownership in Russia is so important that it gives rise to a new form of segregation – housing inequality – in which a narrow circle of property owners derives rental income while others face housing precarity (Litvintsev, 2024). In 2019, 54% of Russians lived in their own apartment, 31% in their own house or townhouse, and 13% in rented housing; by 2025 the corresponding figures were 48%, 30%, and 16%¹.

As M.A. Lyubarskaya and K.V. Glazkov note, the real estate market comprises land, housing, commercial, and industrial property markets; constant changes in the legal framework, financing conditions, and forms of ownership make all its segments turbulent while preserving their interconnectedness (Lyubarskaya, Glazkov, 2023). The authors, however, did not test their theoretical claims against concrete, current data.

The object of this study is the local segment of the housing market. The aim is to identify and quantify the interconnectedness of local housing markets in the Tyumen Region as a spatially linked system in which price changes and shifts in supply and demand parameters in some municipalities are statistically and economically related to the dynamics of others. At present, data on local housing market segments are scattered across sources, often difficult to compare, and their availability is steadily declining, making quantitative assessments of local market processes increasingly difficult. Information

¹ Data of linear distributions – VCIOM Navigator. Available at: <https://bd.wciom.ru/datasets> (accessed: 21.02.2026).

asymmetry and methodological gaps in the study of local housing market segments determine the scientific novelty and relevance of this research. The paper develops and tests a methodological approach to identifying interrelations between price changes and supply and demand parameters at the local level.

The housing market simultaneously performs a multitude of functions. On the one hand, it provides housing for the population, serves as a vehicle for saving and capital allocation, and transmits monetary conditions. On the other, it depends on effective demand and demographic conditions, which are in turn influenced by the standard of living in the region and by various federal and regional institutional support programs. Despite the considerable attention paid to the housing market, its submarkets remain insufficiently studied.

For the Tyumen Region, the interconnectedness of local submarkets is especially pronounced, owing to the polycentric structure of settlement and economic activity inherited from the period of oil and gas development in the mid-20th century. The region can serve as a model for assessing intra-regional differentiation because of the history of its spatial development, shaped by oil and gas and transport and logistics specialization. The regional capital and largest city, Tyumen, absorbs the bulk of housing demand, which affects both price competition and the quality of available real estate. The medium-sized cities of Tobolsk and Ishim historically developed as relatively independent local markets, and the dynamically growing regional oil and gas cluster is attracting new migration flows to them. The small towns of Yalutorovsk and Zavodoukovsk are less deeply integrated into the oil and gas

cluster, which is reflected in the more limited potential of their consumer markets. The high dynamism and volatility of the housing sector are confirmed by statistical data. Thus, in 2024 the region commissioned a record 2,603 square meters of housing². Since 2025, however, the housing construction market has entered a risk zone. Analysts point to signs of crisis driven by a slowdown in construction, saturation of demand for new housing, and price gaps between the primary and secondary markets³.

The relevance and significance of this article are also due to the fact that housing market studies are generally limited to the aggregate level, overlooking the interconnectedness of local markets. Such fragmentation reduces the quality of conclusions for regional policy. Given inter-municipal “spillovers” of demand, migration, and mortgage financing, local decisions (for example, targeted stimulation of housing completions or infrastructure) can produce effects in neighboring territories, altering the equilibrium of prices and transaction volumes beyond the target area.

A further methodological challenge lies in the difficulty of empirically analyzing the mechanisms of mutual influence among local housing markets. In practical terms, these mechanisms operate through persistent transmission channels: the mortgage channel (changes in credit availability and debt service burden shift demand and price expectations), the migration and labor channel (the redistribution of population in response to employment and income changes alters the territorial structure of demand), and the investment and construction channel (the flow of development activity and supply between territories affects market balance and the pace of housing completions).

² The Tyumen Region retained leadership in apartment building completions: analytical publication. RBC Tyumen. Available at: <https://t.rbc.ru/tyumen/13/03/2025/67d28ddf9a794718e8162d32> (accessed: 01.02.2026).

³ Market of multi-apartment residential buildings. State Budgetary Institution of the Tyumen Region “Center for Cadastral Valuation and Storage of Technical Inventory Documentation”. Available at: <https://cko.72to.ru/public/uploads/documents/analytics/mkd3kv-2024tmn.pdf> (accessed: 02.02.2026).

Theoretical and methodological foundations of the analysis

The traditional combination of social, investment, and institutional factors in the housing market is constantly shifting. Housing markets are characterized by positive spatial dependence: neighboring territories exert a statistically significant mutual influence on key indicators, and ignoring spatial effects leads to biased estimates and undermines the validity of regulatory measures (Zhu et al., 2013).

Pronounced interregional differences in housing prices remain a hallmark of interregional disparities in living standards and quality of life. The housing market serves as an important indicator of the economic conjuncture, reflecting the state of the construction industry, the financial sector, and consumer demand (Bochenina, 2019), as well as external factors such as the pandemic. At the regional level, this role is reinforced by the territorial heterogeneity of household incomes, employment structures, and investment activity (Sternik, Gareev, 2021).

The housing market occupies a special place in the system of regional markets, combining the functions of a social good, an investment asset, and an infrastructural factor of economic development (Volkov, 2022). The dynamics of the housing sector are strongly influenced by mortgage lending parameters, federal support programs, and regional policy measures (Volkov, 2022; Bedin, 2022; Demidova et al., 2024)⁴.

For Russia as a whole, VAR-based analysis has shown that the housing market is sensitive to macroeconomic shocks and that rising interest rates lead to a decline in the housing price index (Nikitina, 2023). Also of interest is a methodology that incorporates the economic policy uncertainty index into

housing price variation; according to N.S. Nikitina, it explains up to 10% of the variance. We may hypothesize that the influence of COVID-related shocks on housing price growth identified through conventional regression models could be offset by policy uncertainty, while traditional macroeconomic indicators may lose their significance. This effect could explain the weakening influence of the dollar exchange rate and oil prices on the housing market. Such an assumption, however, requires further testing, which we plan to carry out in future work.

According to V.N. Berdnikova, the cyclicity of the residential real estate market reflects a transformation from non-market pricing mechanisms in recessionary periods to monopolistic competition during growth phases, while “the protection of participants in shared-equity construction through the introduction of escrow accounts and the implementation of subsidized lending programs for new-build housing have led to an increase in transaction volumes and a doubling of housing prices” (Berdnikova, 2024).

The findings of S.M. Glukhova and A.Yu. Chernov confirm that the influence of the dollar exchange rate on the Russian real estate market has been declining, pointing to the growing importance of domestic factors (Glukhova, Chernov, 2024) or to the effect of non-market forces. Non-market effects, however, may stem not only from government intervention but also from socio-demographic and sociocultural factors. M.Yu. Virtsev draws attention to the fact that the growing attractiveness of real estate in general, and housing in particular, depends on the quality of urban infrastructure (Virtsev, 2025). Research has confirmed that the introduction of escrow

⁴ Housing affordability in cities, urban agglomerations, and regions of Russia: analytical report. Institute for Urban Economics Foundation. Available at: https://www.urbanecomomics.ru/sites/default/files/dostupnost_zhilya_ieg_2025.pdf (accessed: 03.02.2026).

accounts had a substantial impact on housing market supply and demand (Shchepina, 2025). Rising mortgage rates, the shrinking number of subsidized mortgage programs, and the decline in overall effective demand have reduced the attractiveness of real estate investment (Starovoitova et al., 2025).

The methodology for quantifying territorial unevenness and building spatially connected regression models was substantially advanced in the study of the 2009 housing crisis transmission. The literature, however, has focused mainly on macro-regions or interconnected economies (Zhu et al., 2013). For example, a study of 19 regional housing markets in the United States for 1995–2009 showed how crisis shocks propagate across geographically diverse regions (Hong, Wójcik, 2025). Evidence that interactions among geographically interconnected submarkets determine housing prices can be found, for instance, in the authoritative study by M. Helbich and co-authors (Helbich et al., 2025). S. Jeongseop showed, using the U.S. example, how banks influence local housing markets through localized lending policies (Jeongseop, 2025).

The processes that led to global housing market crises taught regulators and banking networks many lessons. Yet the disparity between housing supply and demand cannot be fully eliminated because of the particular social sensitivity of the problem⁵. On the one hand, migration flows expand housing demand, adjusting territorial imbalances. On the other, effective demand raises the acceptable level

of housing prices, while falling real incomes make demand more dependent on mortgage conditions (Jayawardena et al., 2025). High interest rates and stagnant household incomes create a risk of stagnation for the housing construction industry in Russian regions⁶.

Methodology for analyzing housing market interconnectedness

This study combines spatial and institutional approaches, drawing on methods of statistical analysis. The empirical base relies on data from the Federal State Statistics Service for the period from the first quarter of 2014 to 2026; analytical materials and reporting of relevant agencies at the regional level; data from the territorial statistical office (Tyumenstat) on the socio-economic characteristics of municipalities; materials from the Unified Information System for Housing Construction; analytical reviews of the housing market by Dom.RF⁷; and Bank of Russia statistics on the volume and terms of mortgage lending⁸. The key indicator is the average price of one square meter of housing (by market segment). To compare the dynamics of spatial effects, we also examine the regional markets of the Khanty-Mansi Autonomous Area – Yugra, the Yamal-Nenets Autonomous Area, and the Tyumen Region (excluding the autonomous areas) over the period from 2011 to 2025.

Pearson correlation coefficients were used to assess the spatial interconnectedness of housing markets. Spatial analysis is employed to investigate the territorial differentiation of the housing market and to identify spatial patterns in the distribution of real estate prices across the

⁵ Residents of the Tyumen Region save more and borrow less: Press release. Available at: <https://www.cbr.ru/press/regevent/?id=64943> (accessed: 13.05.2026).

⁶ Results of monitoring the market of multi-apartment residential buildings. Available at: <https://cko.72to.ru/public/analytics> (accessed: 13.05.2026).

⁷ Sell-through rates and construction readiness of residential construction projects: analytical data from the Unified Housing Information System. DOM.RF. Available at: <https://xn--80az8a.xn--d1aqf.xn--p1ai/аналитика/распроданность-стройготовность?repYear=2025&repMonth=12> (accessed: 13.05.2026).

⁸ Review of the housing mortgage lending market. Available at: https://cbr.ru/statistics/bank_sector/mortgage/Indicator_mortgage/1224/ (accessed: 13.05.2026).

subregions and municipalities of the Tyumen Region (excluding the autonomous areas).

The study consisted of four stages. In the first stage, we analyzed the average sale price of housing in the Tyumen Region and its quarterly dynamics to identify the cyclical character of the regional market, and we characterized the institutional environment specific to the Tyumen Region. Next, we examined the dynamics of price indices in the primary and secondary housing markets in the three subregions of the Tyumen Region and assessed the spatial interconnectedness of housing markets at the interregional level using correlation analysis.

The interconnectedness analysis included the assessment of means and dispersion measures between the subregions of the Tyumen Region, the Khanty-Mansi Autonomous Area – Yugra (KhMAA-Yugra), and the Yamal-Nenets Autonomous Area (YaNAA); correlation linkages between subregional markets and municipal markets (market interconnectedness); the assessment of price differentiation factors; and the interpretation of effects through the lens of spatial economics.

Next, we analyzed the dynamics of price indices in the primary and secondary housing markets of Tyumen, Tobolsk, Ishim, Yalutorovsk, Zavodoukovsk, and Tyumensky District.

To identify the factors behind price differences across municipal markets, Johansen cointegration tests with lags of 1–4 were performed for primary and secondary housing prices in Tyumen (V02 and V03), Tobolsk (V04 and V05), and Yalutorovsk (V06 and V07), expressed in rubles per square meter.

The model includes 181 observations (twice a month) for the period from March 21, 2019, to March 10, 2026. The observation dates are irregular (holidays are omitted and there are shifts), so the time periods are numbered from 1 to 181.

For the markets of Tyumensky District, Ishim, and Zavodoukovsk, the data contain many gaps, which makes it impossible to construct reliable cointegration functions from these series. For testing purposes, the dynamic variables were log-transformed ($\ln_V$), where V denotes the corresponding local market.

Results

General characteristics of the housing market in the Tyumen Region (broken down by subregions)

The average cost of housing construction is one of the key factors shaping prices in the primary housing market, determining the lower bound of developers' price expectations and the viability of development projects. Analyzing the dynamics of average construction costs makes it possible to assess the influence of inflationary processes, changes in building material prices, labor costs, and financial conditions on housing supply. *Figure 1* presents the dynamics of the average construction cost per square meter of housing in the Tyumen Region (excluding the autonomous areas) for the period from 2014 to 2026.

The dynamics of the average cost show three clearly distinguishable stages. The first period is one of stability (2014–2018), when the average cost rose at rates close to inflation (3–5% per year). The market was saturated, and prices for the main construction materials (concrete, rebar) did not undergo sharp fluctuations. The turning point came in 2020 under the pressure of the pandemic, which disrupted traditional logistics chains and boosted demand for more expensive suburban housing. The shift to project financing and escrow accounts added bank interest to the cost, triggering explosive growth between the third quarter of 2019 and the first quarter of 2020 (21% per quarter), followed by a correction in the growth rates in 2021–2023. In 2021, the official standard cost per square meter was set above 48,000 rubles, while the

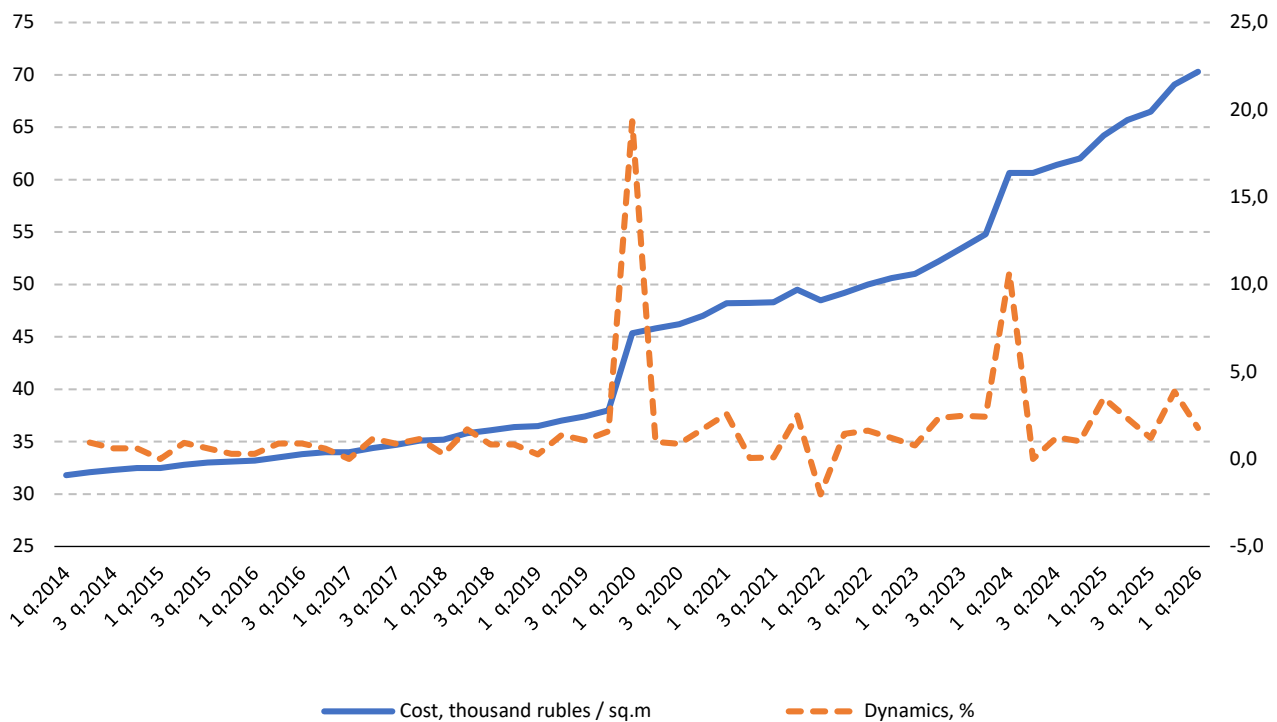


Figure 1. Average sale price of housing in the Tyumen Region (left axis) (excluding the autonomous areas) and quarterly dynamics, thousand rubles per sq. m, % of previous period

Calculated from: <https://rosstat.gov.ru/storage/mediaban>; <https://tyumen.restate.ru/graph/ceny-prodazhi-kvartir>; <https://tobolsk.restate.ru/graph/ceny-prodazhi-kvartir>; <https://yalutorovsk.restate.ru/graph/ceny-prodazhi-kvartir>; <https://xn--d1aqf.xn--p1ai/price-index/?inflation=y>; The Tyumen Region retained leadership in apartment building completions: analytical report // RBC Tyumen. Available at: <https://t.rbc.ru/tyumen/13/03/2025/67d28ddf9a794718e8162d32> (accessed May 13, 2026).

actual market sale price crossed the threshold of 80,000–90,000 rubles owing to labor shortages and rising logistics costs. The next cost shock occurred in the first quarter of 2024 (10.4%). By March 2026, the average cost in the mass segment had risen by more than 120% compared with the 2014 level, which is broadly in line with inflation, yet the dynamics of market housing prices far outpace consumer inflation.

According to A. Popov, head of analytics at CIAN, the housing market of the Tyumen Region in 2025 is developing under a combination of restraining and compensating factors⁹. On the one hand, high mortgage lending rates and persistent inflation are putting pressure on buyer activity, reflected in a decline in the number of transactions in the primary housing

market. The expert estimates that the number of new-build purchase transactions in the region fell by roughly 37%, while the volume of unsold space in apartment buildings rose by 25.6%. Moreover, in the first months of 2025, housing completions were almost half the level recorded in the same period a year earlier.

On the other hand, the expert emphasizes the absence of pronounced crisis phenomena in the market as a whole. Despite reduced activity in the new-build segment, demand has partially shifted to the secondary market, where the intensity of transactions remains relatively high, pointing to a redistribution of demand between segments rather than its outright contraction. At the same time, the most vulnerable segment in the current environment is the suburban real

⁹ A non-standard region: Alexei Popov on the housing market in the Tyumen Region: Interview. RBC Tyumen. Available at: <https://t.rbc.ru/tyumen/24/07/2025/687f31d29a79472f84dc5758> (accessed: 13.05.2026).

estate market, where the combination of high rates and investment risks weighs more heavily on the financial stability of developers. Taken together, the statistical evidence confirms the specificity of the Tyumen Region as a region with a stable but structurally heterogeneous housing market that is sensitive to changes in financial conditions and the segmental structure of demand (Fig. 2).

For a generalized assessment of spatial differences, the *Appendix* presents summary indicators of price differentiation. The data indicate a persistent gap between the regional center and peripheral territories, accompanied by a slight decline in price variation, showing signs of convergence against the backdrop of a general slowdown in mortgage activity and the adaptation of markets to the new financial conditions.

Let us consider the Pearson correlation (interconnectedness) of price indices in the primary (PM) and secondary (SM) housing markets between the Khanty-Mansi Autonomous Area

(KhMAA-Yugra), the Yamal-Nenets Autonomous Area (YaNAA), and the Tyumen Region (TR, excluding the autonomous areas) for the period from 2011 to 2025 (annual data) to assess market interconnectedness (Tab. 1). Price indices are expressed as % of the previous period, $N = 15$. Descriptive statistics are provided in the *Appendix*.

The interconnectedness of prices between the primary and secondary housing markets in the Tyumen Region (excluding the autonomous areas) is clearly visible, with $\rho = 0.803^{***}$. Weak interconnectedness is observed in the KhMAA housing market ($\rho = 0.559^*$), while the primary and secondary housing markets in the YaNAA are asynchronous (ρ not significant). In the YaNAA, the large share of dilapidated and old housing, along with the high cost of the primary market due to its narrowness, leads to a mismatch between the primary and secondary housing markets. The secondary market of the YaNAA is more closely tied to the primary market of the KhMAA-Yugra; this may reflect

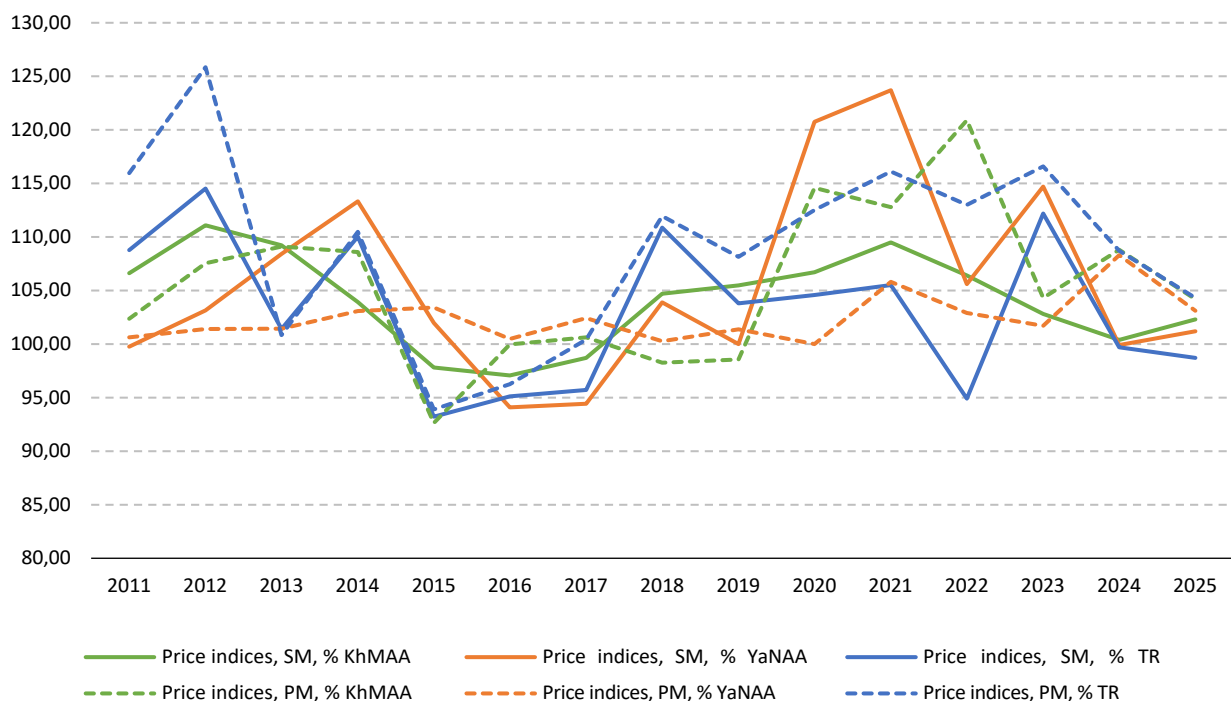


Figure 2. Dynamics of price indices in the primary (PM) and secondary (SM) housing markets in three subregions of the Tyumen Region (KhMAA–Yugra, YaNAA, TR), % of previous period

Source: https://72.rosstat.gov.ru/ofs_cen_hmao; https://72.rosstat.gov.ru/ofs_cen_ynao; https://72.rosstat.gov.ru/ofs_cen_to; <https://www.fedstat.ru/indicator/30925>; https://tochno.st/datasets/regions_collection (accessed: 13.05.2026).

Table 1. Pearson correlation matrix (rho) of price indices in the secondary (SM) and primary (PM) housing markets of the Tyumen Region, KhMAA-Yugra, YaNAA, and two-tailed significance of correlations (sign)

		KhMAA, SM	YaNAA, SM	TR, SM	KhMAA, PM	YaNAA, PM	TR, PM
KhMAA, SM	rho	1	.541*	.604*	.559*	-0.155	.734**
	sign		0.037	0.017	0.03	0.581	0.002
YaNAA, SR	rho	.541*	1	0.424	.561*	0.091	0.446
	sign	0.037		0.115	0.029	0.748	0.095
TR SM	rho	.604*	0.424	1	0.077	-0.258	.803***
	sign	0.017	0.115		0.784	0.354	0.000
KhMAA, PM	rho	.559*	.561*	0.077	1	0.231	0.48
	sign	0.03	0.029	0.784		0.407	0.07
YaNAA, PR	rho	-0.155	0.091	-0.258	0.231	1	-0.033
		0.581	0.748	0.354	0.407		0.908
TR, PM	rho	.734**	0.446	.803**	0.48	-0.033	1
	sign	0.002	0.095	0	0.07	0.908	

* sign <0,05; ** sign <0,01; *** sign <0,001.

Compiled from: https://72.rosstat.gov.ru/ofs_cen_hmao; https://72.rosstat.gov.ru/ofs_cen_ynao; https://72.rosstat.gov.ru/ofs_cen_to; <https://www.fedstat.ru/indicator/30925>; https://tochno.st/datasets/regions_collection (accessed: 13.05.2026).

demand for less expensive housing from shift workers, migrants, and their families. However, this effect requires closer examination, since no interconnection with the market of the south of the Tyumen Region is observed here. The interregional interconnectedness of price indices in the northern constituent entities of the Russian Federation that form part of the Tyumen Region as subregions is very weak. We note the interconnectedness of price indices between the secondary housing markets of the KhMAA-Yugra and the Tyumen Region ($\rho = 0.604^*$), but no such interconnection exists in the primary market.

Spatial differentiation of local housing markets in the Tyumen Region (excluding the autonomous areas)

The interconnectedness of local housing markets is understood as the presence of stable and reproducible linkages between price dynamics and supply and demand parameters in different municipalities of the same region. Under such interconnectedness, changes in

one market are partially transmitted to other territories, ruling out their isolated functioning.

One form of spatial interconnectedness in housing markets is price convergence or divergence. Convergence reflects the narrowing of price levels or price growth rates between territories, whereas divergence is associated with the steady widening of price gaps. At the empirical level, these processes are identified through the analysis of price ranges, the coefficient of variation, and indicators of spatial autocorrelation.

Declining housing affordability in central locations is accompanied by a redistribution of demand and investment flows. Rising prices and tightening purchase conditions are pushing part of effective demand into more affordable territories. This is accelerating price growth and construction activity in towns with populations below 250,000, where, in 2024 and 2025, the ratio of completed to sold housing was higher than in cities with more than 250,000 residents¹⁰. At the same time, applied

¹⁰ Sell-through rates and construction readiness of residential construction projects: analytical data from the Unified Housing Information System. DOM.RF. Available at: <https://xn--80az8a.xn--d1aqf.xn--p1ai/аналитика/распроданность-стройготовность?repYear=2025&repMonth=12> (accessed: 01.02.2026).

Russian housing market research tends to focus on institutional changes, mortgage lending, and interregional heterogeneity, whereas the neglect of the municipal level of analysis and the spatial organization of the market limits the applicability of findings to regional housing policy (Shchepina, 2025). We also corroborate the conclusion that restrictions produced by housing policy and mortgage-cooling measures prompt households to adapt, pushing them toward social stratification (Chen, Li, 2025).

The housing market of the Tyumen Region is shaped by relatively high household incomes, the region's attractiveness to migrants, and the sectoral structure of its economy. According to official federal statistics, per capita monetary income rose by 15% in 2024 compared with 2023, providing a stable foundation for effective demand¹¹. Migration processes exert an additional influence on housing demand. According to official data, the region recorded positive net migration in 2023–2024, which has driven demand primarily in urban centers¹².

The spatial organization of the housing market in the Tyumen Region (excluding the autonomous areas) is hierarchical in nature. The city of Tyumen serves as the regional center, concentrating the bulk of construction, mortgage lending, and investment demand. The second-tier medium-sized cities of Tobolsk and Ishim have less market depth but retain relative autonomy because of their local labor markets. The small towns of Yalutorovsk and Zavodoukovsk are characterized by limited liquidity and a greater role of the

secondary segment and individual housing construction. The region's municipal districts retain the character of peripheral settlement, a secondary status that emerged in earlier periods. The towns and outlying districts of the region continue to serve as areas of resettlement for pensioners and other eligible categories of citizens from the oil- and gas-producing regions of the Khanty-Mansi Autonomous Area – Yugra and the Yamal-Nenets Autonomous Area under the ongoing “Cooperation” program, which was first approved back in 2005¹³ and continues to be supported by the regional governments. These preferential programs support resettlement, thereby further heating up prices in the primary and secondary housing markets in the south of the Tyumen Region.

Given the limited availability of municipal statistics, we use average monthly data for the municipalities of the Tyumen Region for March 2018–2026. As in the region as a whole, the housing market of the Tyumen Region developed amid changing mortgage regimes and cyclical demand fluctuations. To assess intra-regional price differentiation, *Figure 3* presents a fragment of housing price dynamics for the region's main municipal centers.

The empirical analysis aims to identify the nature and degree of interconnectedness among the local housing markets of the Tyumen Region. The information base consists of monthly monitoring data on the secondary market of multi-apartment residential buildings by municipality of the region for 2018–2025, published by the State Budgetary Institution of the Tyumen Region “Center for

¹¹ Living standards. Rosstat. Available at: <https://rosstat.gov.ru/folder/13397> (accessed: 03.02.2026).

¹² Results of the city's socio-economic development. Administration of the City of Tyumen. Available at: <https://www.tyumen-city.ru/vlast/administratsiya/struktura-administratsii-goroda-tumeni/departamenty/departament/napravleniya/sotsialno-ekonomicheskie-rezervi-gtumeni/itogirazvitiia/> (accessed: 13.05.2026).

¹³ The “Cooperation” program. Official portal of the government authorities of the Tyumen Region. Available at: https://admtumen.ru/ogv_ru/finance/house_policy/program.htm (accessed: 13.05.2026); The “Cooperation” resettlement program from the Yamal-Nenets Autonomous Area to Tyumen. Tyumen Center for Work with Participants of Social Programs. Available at: <https://sotrudnichestvo72.ru> (accessed: 13.05.2026).

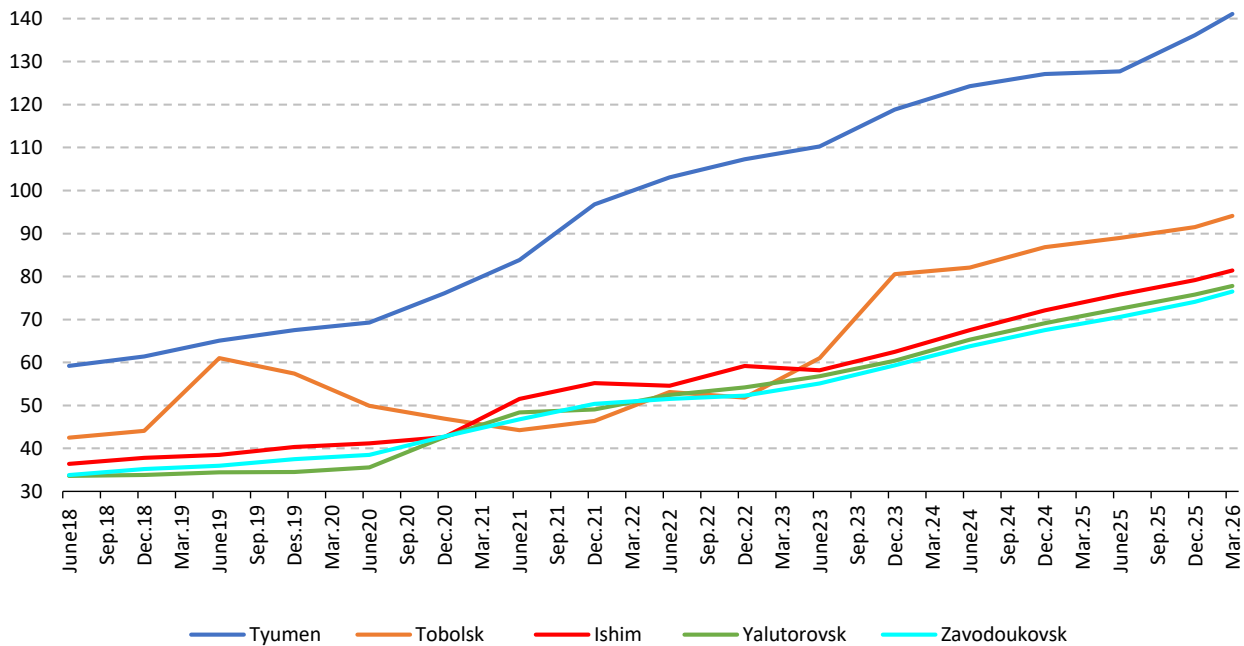


Figure 3. Housing price dynamics in the municipal centers of the Tyumen Region (secondary market), March 2018–2026, thousand rubles per sq. m

Calculated from: rosstat.gov.ru/storage/mediaban; <https://tyumen.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://tobolsk.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://yalutorovsk.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://xn--d1aqf.xn--p1ai/price-index/?inflation=y>; The Tyumen Region retained leadership in apartment building completions: analytical report // RBC Tyumen. Available at: <https://t.rbc.ru/tyumen/13/03/2025/67d28ddf9a794718e8162d32> (accessed:01.02.2026).

Cadastral Valuation and Storage of Technical Inventory Documentation” on the municipal statistics website of the regional authorities¹⁴. The main price indicator is the average asking price for housing (rubles per sq. m), aggregated by municipal centers. The calculations were performed in SPSS Statistics (v32). For the analysis, the data were averaged monthly, and the dynamic series were computed quarterly.

Interconnectedness in the municipal market of the Tyumen Region (excluding the autonomous areas) was tested using a matrix of pairwise Pearson correlation coefficients for the city of Tyumen, Tyumensky District, the city of Tobolsk, the city of Ishim, the city of Yalutorovsk, and Zavodoukovsky Urban Okrug for the period from March 1, 2014, to March 10, 2026 (weekly data). The correlations between primary and secondary market prices in Tyumen exceed 0.9,

and within the other municipal areas they exceed 0.8; therefore, we examine only the correlations of secondary housing market prices (*Tab. 2*).

The high correlation coefficients indicate that price dynamics in the regional center and the secondary cities move in the same direction, pointing to the existence of a single regional price circuit. The small towns of Yalutorovsk and Zavodoukovsk in the south of the Tyumen Region exhibit strong mutual interconnectedness and form an agglomeration that stands out in the regional market for its considerably lower prices, high relative volatility, and linkages with the region’s medium-sized cities and the regional capital.

To assess differences in the speed of response of local markets, we calculated the rates of change in average prices for the period from the first half of 2023 to 2025 (*Tab. 3*).

¹⁴ Market of multi-apartment residential buildings. Available at: <https://cko.72to.ru/public/uploads/documents/analytics/mkd3kv-2024tmn.pdf> (accessed: 03.02.2026).

Table 2. Correlation matrix of average prices in the secondary housing market of the Tyumen Region (excluding the autonomous areas), Pearson's rho*

Market	Tyumen	Tyumensky District	Tobolsk	Ishim	Yalutorovsk
Tyumen	1				
Tyumensky District	0.98	1			
Tobolsk	0.85	0.98	1		
Ishim	0.91	0.99	0.98	1	
Yalutorovsk	0.84	0.78	0.89	0.87	1
Zavodoukovsk	0.82	0.81	0.71	0.79	0.97

* All correlations are significant at $p < 0.001$.
 Calculated from: <https://tyumen.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://tobolsk.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://yalutorovsk.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://www.realtymag.ru/tyumenskaya-oblast/zavodoukovsk/kvartira/prodazha/prices/2024/>; <https://mirstat.ru/ishim/kvartiry.html>; <https://cko.72to.ru/public/analytics> (accessed: 13.05.2026).

Table 3. Rates of change in the average price in the secondary housing market for 2023–2025

Municipal market	2023, thousand rubles / sq. m	2024, thousand rubles / sq. m	2025, thousand rubles / sq. m	Average change 2024 vs. 2023, % of 2023*	Average change 2025 vs. 2024, % of 2024*
Tyumen	112.0	124.1	129.5	10.8	4.3
Tyumensky District	100.4	115.3	120.4	14.9	4.4
Tobolsk	66.1	82.9	88.3	25.4	6.5
Ishim	60.4	69.8	77.5	15.7	11.0
Yalutorovsk	62.0	72.9	78.3	17.7	7.4
Zavodoukovsk	57.2	65.7	72.4	14.8	10.2

* Average change in the average price over the period, % of the price in the base year.
 Calculated from: <https://tyumen.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://tobolsk.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://yalutorovsk.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://www.realtymag.ru/tyumenskaya-oblast/zavodoukovsk/kvartira/prodazha/prices/2024/>; <https://mirstat.ru/ishim/kvartiry.html>; <https://cko.72to.ru/public/analytics> (accessed: 13.05.2026).

Despite the high correlation of price levels, growth rates differ markedly, pointing to the asynchronous response of local markets. Secondary cities show higher housing price elasticity than the regional center, which can be interpreted as the result of demand shifting toward more affordable markets when mortgage conditions change and prices rise in the “anchor” city.

Let us turn to the results of Johansen cointegration testing with lags of 1–4 for primary and secondary housing prices in Tyumen (V02 and V03), Tobolsk (V04 and V05), and Yalutorovsk (V06 and V07), expressed in rubles per square meter. At the first stage,

cointegration was tested for all local markets using six variables (primary and secondary housing in the three cities). The hypothesis of cointegration was rejected. At the second stage, we sequentially excluded problematic variables. Reliable cointegration was ultimately confirmed for the primary housing markets of Tyumen (V02), Tobolsk (V04), and Yalutorovsk (V06) with lags of up to four. The Johansen test identified two cointegrating relationships at rank $r = 2$ (trace test, $p = 0.0116$).

Let us now provide an economic interpretation of the results obtained from testing the cointegration of primary housing prices in Tyumen, Tobolsk, and Yalutorovsk.

The first cointegrating vector describes the dynamics of primary housing prices in Tobolsk:

$$\ln_V04 \text{ (Tobolsk)} = 0.91148 \times \ln_V02 \text{ (Tyumen)} + 0.060868 \times \ln_V06 \text{ (Yalutorovsk)}.$$

Thus, a 1% increase in Tyumen prices leads, in the long run, to a 0.91% increase in Tobolsk prices. A 1% increase in Yalutorovsk prices raises Tobolsk prices by only 0.06%. Tobolsk prices almost fully replicate Tyumen's dynamics, with an elasticity coefficient close to unity. Yalutorovsk's influence on Tobolsk is negligible. Tobolsk's primary housing market is thus a satellite of the Tyumen market.

The second cointegrating vector describes the dynamics of primary housing prices in Yalutorovsk:

$$\ln_V06 \text{ (Yalutorovsk)} = 0.44107 \times \ln_V04 \text{ (Tobolsk)} + 1.6518 \times \ln_V02 \text{ (Tyumen)}.$$

A 1% increase in Tobolsk prices raises Yalutorovsk prices by 0.44%. A 1% increase in Tyumen prices raises Yalutorovsk prices by 1.65%. Yalutorovsk thus exhibits a super-elastic response to price changes in Tyumen (coefficient > 1). This may be explained, first, by a catch-up effect: the cheaper market grows faster amid a general rise in prices (see Tab. 3; Appendix). Second, since Yalutorovsk lies within the Tyumen agglomeration at a relatively short distance from the regional center, a demand impulse is at work: buyers who cannot find affordable housing in Tyumen switch to Yalutorovsk, creating additional demand.

The Johansen test also makes it possible to assess how quickly and which city responds to deviations of the price level from long-run equilibrium, using the adjustment coefficients (alpha) (Tab. 4).

The adjustment coefficients confirm the hierarchical structure of the markets. Tyumen acts as the price leader. Tyumen barely adjusts when deviations from equilibrium occur ($\alpha \approx -0.018$), which means that it is Tyumen that sets the long-term price trend for primary housing in the region. Shocks in the Tyumen market propagate to other cities, but not the reverse. Tobolsk acts as a fast follower of the regional capital's dynamics, actively responding to deviations ($\alpha = -0.225$). When the price in Tobolsk is above its equilibrium level relative to Tyumen, it falls. When the price in Tobolsk is below that in Tyumen, it rises. Full adjustment of primary housing prices in Tobolsk takes about 4–5 periods. Yalutorovsk acts as a moderate follower. Its primary housing market adjusts at a moderate speed ($\alpha \approx -0.055$ and -0.080), responding to both equilibrium relationships. Full adjustment takes about 12–18 periods, which is characteristic of markets that function less stably.

Interregional interconnectedness is statistically confirmed for the secondary markets of the KhMAA-Yugra and the Tyumen Region, but not for the YaNAA or for the primary markets. Changes in construction costs in the primary market have only a weak effect on secondary market prices. There is

Table 4. Interpretation of adjustment coefficients (alpha) for municipal primary housing markets

City	α_1 (for vector 1)	α_2 (for vector 2)	Speed of adjustment
Tyumen	-0.018	-0.009	Low (weakly exogenous)
Tobolsk	-0.225	0.027	High (22.5% per period)
Yalutorovsk	-0.055	-0.080	Moderate (5.5–8.0% per period)

Source: own calculations.

clear differentiation by market type, which differs significantly across levels of analysis. A hierarchy of the primary housing market is thus formed among the region's large, medium-sized, and small cities (*Fig. 4*).

Comparative analysis of model specifications with lags of 1–4 showed that the fourth lag is the best. Real estate markets are inertial, so prices respond to shocks with a delay. Lag 4 better captures the actual economic processes.

At the next stage, we tested Johansen cointegration for the secondary housing markets and for the combined primary and secondary markets of the three cities. No statistically significant cointegration was found in the secondary housing markets of Tyumen, Tobolsk, and Yalutorovsk. The trace test for $r = 0$ yields a p-value of $0.0770 > 0.05$, → the null hypothesis is not rejected. The Lmax test for $r = 0$ yields a p-value of $0.1205 > 0.05$, → the null hypothesis is not rejected. At the 10% significance level ($p = 0.077$), there is weak evidence of interconnectedness, but under the strict scientific approach ($\alpha = 0.05$), cointegration is not confirmed.

For Tobolsk, the trace test for $r = 0$ yields a p-value of $0.0670 > 0.05$, → the null hypothesis is not rejected; the Lmax test for $r = 0$ yields a p-value of $0.1580 > 0.05$, → the null hypothesis

is not rejected. For Yalutorovsk, the trace test for $r = 0$ yields a p-value of $0.1265 > 0.05$, → the null hypothesis is not rejected; the Lmax test for $r = 0$ yields a p-value of $0.2805 > 0.05$, → the null hypothesis is not rejected. At the 10% significance level, $p = 0.059$ is observed for $r = 1$, but this pertains to the hypothesis of a second cointegrating vector, which is meaningless in the absence of the first. Controlling for the influence of the Tyumen market as an exogenous variable ($\ln_V02$, $\ln_V03$) does not allow the null hypothesis to be rejected. Both eigenvalues are small, indicating a weak link between the series within each of the local primary and secondary markets.

Unlike the secondary market, the primary market is cointegrated. The primary market is formed top-down (developers → prices → buyers), which is why it is integrated (*Tab. 5*). The primary market is populated by large institutional actors (developers), operates under public rules of the game, and has highly transparent prices. The secondary market is a network of atomized actors, where each seller and buyer acts on the basis of local knowledge and limited information. Cointegration is unlikely in such a system because there is no mechanism that would transmit Tyumen prices to Tobolsk and Yalutorovsk.

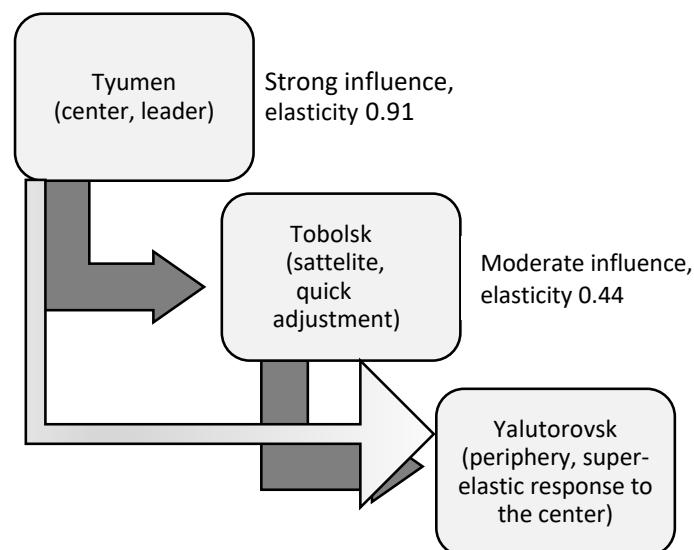


Figure 4. Pattern of price influence in the primary housing market

Source: own calculations.

Table 5. Comparison of interconnectedness for the municipal primary and secondary housing markets of Tyumen, Tobolsk, and Yalutorovsk

Characteristic	Primary market	Secondary market
Variables	I_V02, I_V04, I_V06	In_V03, In_V05, I_V07
Presence of cointegration	Yes ($r = 2$)	No
Price leader	Tyumen ($\alpha \approx 0$)	–
Speed of adjustment of Tobolsk	High	–
Behavior of Yalutorovsk	Anomalous	–
Pricing	Developers	Individual sellers
Transaction costs	Relatively standardized	High (bargaining, valuation, condition)
Influence of local factors	Lower (developer's brand)	Higher (neighborhood, floor, renovation, neighbors)
Demand structure	Investors, young families	Diverse categories (including immobile residents)
Liquidity	High	Variable

Source: own calculations.

The primary and secondary markets of Tyumen are not cointegrated. In Yalutorovsk, as in Tyumen and Tobolsk, the primary and secondary housing markets do not exhibit a long-run equilibrium relationship. This confirms the systemic nature of this phenomenon. Unlike the primary market, where clear cointegration was found with Tyumen acting as the price leader, the secondary markets of these cities do not form a single long-run equilibrium system. Each city has its own independent dynamics of secondary housing prices.

In addition, several other effects should be noted. The development and behavior of the market depend on the size and location of the city within the hierarchical settlement system. City size does not affect cointegration between the primary and secondary segments (*Tab. 6*). Even in a large regional center (Tyumen), the two markets

are functionally autonomous. Forecasting housing prices therefore requires separate modeling of the primary and secondary segments.

Discussion of results

The housing market in the Tyumen Region, including the Khanty-Mansi Autonomous Area – Yugra and the Yamal-Nenets Autonomous Area, developed steadily, but problems were accumulating at the same time. The dynamics of housing prices in the region from 2014 to 2024 roughly matched inflation (1–5%), with two shock growth periods: in the first quarter of 2020 (19%) and the second quarter of 2024 (11%). These shock periods were driven by factors external to the market, but ultimately market housing prices exceeded consumer inflation, creating signs of overheating. This overheating was partially offset by the close interconnectedness between the

Table 6. Comparative analysis of the three cities

Characteristic	Tyumen	Tobolsk	Yalutorovsk
Population	~850 thousand	~100 thousand	~40 thousand
Primary market	Developed	Weak	Very weak
Secondary market	Active	Moderate	Weak
Cointegration (primary vs. secondary)	No	No	No
p-value (trace)	0.2924	0.0670	0.1265
Strength of association	Very weak	Weak	Weak

Source: own calculations.

primary and secondary housing markets in the Tyumen Region. In the KhMAA and the YaNAA, no such strong interconnectedness exists, which is most likely due to higher incomes that raise the threshold of marginal utility for buyers. A weak (or absent) territorial interconnectedness is observed among housing market prices in the three subregions (the Tyumen Region, the KhMAA-Yugra, and the YaNAA), which requires more in-depth study.

Local interconnectedness was studied for the Tyumen Region excluding the autonomous areas. The pace of housing completions in the region has been declining over the past three years, raising construction costs and widening the imbalance between supply and demand. The territorial unevenness of the housing market intensified throughout the study period, as local submarkets lag far behind the regional center in the scale of effective demand. The deterioration of housing affordability in such centers was generally accompanied by a redistribution of demand toward more affordable second-tier cities and suburban areas, which led to accelerated price growth in the corresponding local markets¹⁵.

Within the subregion, Tyumen serves as the regional center of attraction, owing to its large labor market and higher incomes. Tyumen shapes expectations about housing prices.

The spatial configuration of the housing market in the Tyumen Region follows the pattern typical of Russian regions, in which the central market functions as the price benchmark and peripheral markets adjust to it with a time lag and varying intensity. The existence of stable inter-municipal linkages means that the housing market should be viewed as a single regional system rather than as a collection of

autonomous local markets. In practical terms, this implies moving away from the isolated analysis of municipalities toward spatially coordinated monitoring.

Consequently, when assessing the state of the housing market, it is necessary to consider not only absolute price levels but also indicators of spatial differentiation and the rates of price change by type of territory. This makes it possible to detect a redistribution of demand between markets at an early stage, especially during periods of changing mortgage conditions.

The management of housing supply (the volume and location of new construction, infrastructure support for projects) must take inter-territorial effects into account. Uncoordinated expansion of supply can lead to local imbalances that do not reflect the actual structure of regional demand. In this context, it is reasonable to use indicators of sell-through rates and construction readiness published in the Unified Housing Information System DOM.RF¹⁶.

Measures aimed at supporting demand and housing construction development require territorial differentiation, with regard to the role of each municipality in the regional settlement system. Ignoring the spatial interconnectedness of housing markets, in turn, can lead to the formation of persistent imbalances.

As mortgage demand cools, the risk of a mismatch between the volume of housing completions and the population's real purchasing power increases, raising the likelihood of an accumulation of unsold units in particular territories.

It should be noted that there is still no unified system for collecting and presenting housing market data at the municipal level,

¹⁵ Housing affordability in cities, urban agglomerations, and regions of Russia: analytical report. Institute for Urban Economics Foundation. Available at: https://www.urbanecomics.ru/sites/default/files/dostupnost_zhilya_ieg_2025.pdf (accessed: 13.05.2026).

¹⁶ Sell-through rates and construction readiness of residential construction projects: analytical data from the Unified Housing Information System. DOM.RF. Available at: <https://xn--80az8a.xn--d1aqf.xn--p1ai/аналитика/распроданность-стройготовность?repYear=2025&repMonth=12> (accessed: 13.05.2026).

even though its relevance is beyond doubt. Data exist, but they are fragmented and often mutually inconsistent. In our study, we excluded data that deviated excessively (by more than 10%) from the average dynamics. An exception was made for the municipal market of the city of Tobolsk, whose housing market dynamics are heavily dependent on the operations of Sibur, which pays its builders and employees wages that are atypically high for the region. Combined with an unstable work regime, this directly affects the rapid rise in housing costs and strong volatility. The figure below summarizes the methodological foundations and applied orientations of the study, characterizing the region's housing market as a spatially interconnected system of local markets and defining directions for monitoring, housing construction planning, and the differentiation of regional housing policy measures (Fig. 5).

The study's findings confirm the advisability of moving from local regulation to a spatially oriented housing policy based on inter-territorial linkages and differences in how housing markets respond to economic and financial changes. The nonlinear relationships between housing construction and migration trends (Kotlyarova et al., 2025) call for flexible approaches to urban planning and investment policy in the housing sector. For the Tyumen Region, this means taking housing market price parameters into account when designing migration policy from resource-based to non-resource local markets. For example, support for the resettlement of pensioners under the "Sotrudnichestvo" [Cooperation] program could be reoriented from the regional center toward the interconnected peripheral towns of Zavodoukovsk and Yalutorovsk and Tyumensky District. Strengthening institutional channels could revive housing markets and, in turn, local labor markets.

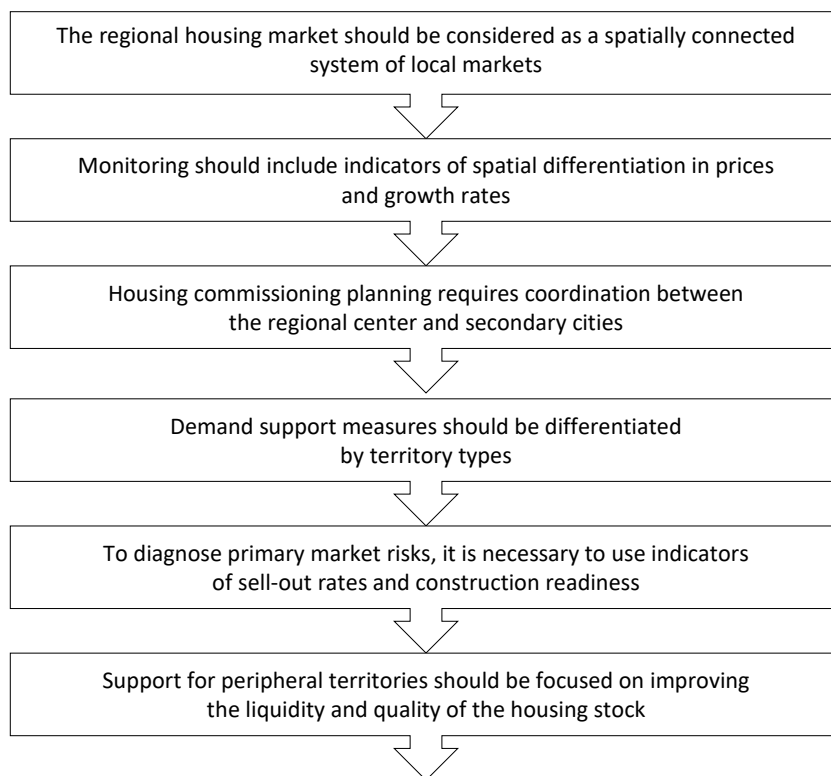


Figure 5. Key managerial implications in light of the spatial interconnectedness of housing markets

Source: own compilation.

Conclusion

In this study, the housing market of the Tyumen Region is examined as a spatially linked system of local markets in which price dynamics and supply and demand parameters are formed not in isolation but in interaction among municipalities. The empirical results show a high degree of alignment in the direction of price changes between the regional center and secondary cities, along with differing speed and amplitude of response across territories. The primary housing market has a regional hierarchical structure, with Tyumen exercising price leadership. The secondary market is fragmented both across cities and across segments within the same city. The primary and secondary segments are functionally autonomous and do not form a single long-run equilibrium system even within the same municipality.

The study establishes the anchoring role of the city of Tyumen, which sets the overall price contour for the primary housing market, as well as the asynchrony of secondary and peripheral market dynamics, reflecting differences in market scale, liquidity, and sensitivity to financial and migration factors.

For example, in settlements with populations below 250,000, housing sells more actively because these markets are less sensitive to the financial factors that weigh more heavily on large cities such as Tyumen, where the share of housing sales relative to peripheral markets is lower. These findings confirm that spatial price differentiation coexists with stable inter-territorial linkages, a fact that must be taken into account in analyzing and regulating the regional housing market.

Prospects for further research lie in deepening the spatial econometric analysis by extending the time horizon and moving from aggregated price indicators to actual transaction data, as well as in separately modeling the primary and secondary housing market segments. In addition, future work plans to examine methods of coordinating housing completions planning between the regional center and secondary cities; measures and instruments for supporting housing demand and their differentiation by type of territory; and mechanisms and instruments for supporting peripheral territories with a view to improving the liquidity and quality of the housing stock.

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Table 1. Spatial interregional differentiation of housing market price indices in the Khanty-Mansi Autonomous Area – Yugra, the Yamal-Nenets Autonomous Area, and the Tyumen Region (TR) (annual data, 2011–2025), % of previous period

Descriptive statistics	Minimum	Maximum	Mean	Std. deviation	Skewness	Kurtosis
Secondary market price indices, %, KhMAA	97.07	111.09	104.18	4.32	-0.20	-0.89
Secondary market price indices, %, YaNAA	94.09	123.70	105.66	8.88	0.80	-0.13
Secondary market price indices, %, TR	93.22	114.52	103.27	6.96	0.09	-1.33
Primary market price indices, %, KhMAA	92.63	120.90	105.55	7.29	0.35	0.12
Primary market price indices, %, YaNAA	100.00	108.30	102.42	2.22	1.52	2.58
Primary market price indices, %, TR	93.90	125.85	109.00	8.59	-0.10	-0.18
Compiled from: https://72.rosstat.gov.ru/ofs_cen_hmao ; https://72.rosstat.gov.ru/ofs_cen_ynao ; https://72.rosstat.gov.ru/ofs_cen_to ; https://www.fedstat.ru/indicator/30925 ; https://tochno.st/datasets/regions_collection (accessed: 13.05.2026).						

Table 2. Spatial differentiation of prices in the secondary housing market of the Tyumen Region (2019–2026)

Year		Tyumen	Tobolsk	Ishim	Yalutorovsk	Zavodoukovsk
2019	Mean	65.8	54.3	39.2	34.5	36.8
	Variance	611.6	43914.2	39522.8	35570.5	32013.4
	Minimum	64.6	48.2	32.5	21.8	22.3
	Maximum	67.1	66.3	48.4	33.8	23.7
2020	Mean	69.8	50.8	41.9	48.8	48.6
	Variance	6535.2	36282.5	32654.3	29388.8	26450.0
	Minimum	62.6	47.0	32.5	22.7	15.9
	Maximum	76.1	82.4	48.4	33.8	23.7
2021	Mean	85.6	45.7	53.4	50.8	51.0
	Variance	33258.7	1670.5	23281.1	16296.7	11407.7
	Minimum	77.1	43.7	48.4	33.8	23.7
	Maximum	96.8	71.6	68.3	66.1	61.5
2022	Mean	102.7	52.3	56.9	33.6	51.9
	Variance	9405.4	17458.8	12221.2	13967.1	9776.9
	Minimum	97.0	46.9	22.4	33.0	21.5
	Maximum	107.3	65.3	58.8	65.7	59.1
2023	Mean	112.0	66.1	60.4	62.0	57.2
	Variance	11216.6	65584.9	52468.0	128691.2	115822.1
	Minimum	107.9	55.1	32.4	34.4	28.9
	Maximum	118.8	80.5	69.1	72.4	71.8
2024	Mean	124.1	82.9	69.8	72.9	65.7
	Variance	5586.8	2994.4	3593.2	9084.0	898.3
	Minimum	119.2	80.9	42.1	65.1	39.5
	Maximum	127.4	86.8	79.2	77.3	71.2
2025	Mean	129.5	88.3	77.5	78.3	72.4
	Variance	5851.5	7468.2	10455.5	11169.4	9708.7
	Minimum	127.0	84.4	71.2	73.0	45.9
	Maximum	136.2	94.2	81.8	83.3	79.6

End of Table 2

Year		Tyumen	Tobolsk	Ishim	Yalutorovsk	Zavodoukovsk
Bcero	Mean	100.3	64.4	65.6	68.0	62.9
	Variance	578634.0	300256.2	390333.0	217598.0	360307.4
	Minimum	62.6	43.7	22.4	33.0	22.3
	Maximum	141.1	94.2	77.5	83.3	72.3

Calculated from: rosstat.gov.ru/storage/mediaban/; <https://tyumen.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://tobolsk.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://yalutorovsk.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://xn--d1aqf.xn--p1ai/price-index/?inflation=y>; Market of multi-apartment residential buildings // State Budgetary Institution of the Tyumen Region "Center for Cadastral Valuation and Storage of Technical Inventory Documentation." Available at: <https://cko.72to.ru/public> (accessed: 13.05.2026).

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ПРОСТРАНСТВЕННАЯ ВЗАИМОСВЯЗАННОСТЬ ЛОКАЛЬНЫХ РЫНКОВ ЖИЛЬЯ В ТЮМЕНСКОЙ ОБЛАСТИ

В работе исследуется пространственная взаимосвязанность локальных рынков жилья в Тюменской области как полицентричном регионе с выраженной дифференциацией как между регионами, так и внутри региона. Эмпирическая база сформирована на основе данных официальной статистики, аналитических материалов за март 2011–2026 гг. Методы исследования включают анализ средней стоимости продажи жилья в Тюменской области и ее поквартальной динамики для выявления характера цикличности на региональном рынке, а также характеристику институциональной среды, специфичной для Тюменской области, корреляционный анализ по Пирсону между субрегионами Тюменской области (Ханты-Мансийский автономный округ – Югра, Ямало-Ненецкий автономный округ). Выполнен статистический анализ динамики индексов цен на первичном и вторичном муниципальных рынках жилья Тюменской области (без автономных округов), проведены тесты на коинтеграцию Йохансена для цен на первичное и вторичное жилье в Тюмени, Тобольске, Ялutorовске. Показано, что рынки жилья Тюменской области, ХМАО-Югры и ЯНАО не взаимосвязаны. Внутри Тюменской области без автономных округов пространственная организация рынка жилья имеет иерархический характер. Установлена якорная роль города Тюмени, а также асинхронность динамики периферийных рынков, обусловленная различиями в масштабах рынка, ликвидности и чувствительности. Средние города второго уровня Тобольск и Ишим обладают меньшей глубиной рынка, но сохраняют относительную самостоятельность за счет локальных рынков труда. Малые города региона Ялutorовск и Заводоуковск характеризуются ограниченной ликвидностью, более высокой ролью вторичного сегмента и индивидуального жилищного строительства. Муниципальные районы региона сохраняют характер периферийного расселения, вторичность которого сложилась еще в прошлые периоды. Полученные результаты свидетельствуют о высокой согласованности ценовой динамики первичных рынков жилья между региональным центром и вторичными городами при различающейся скорости и амплитуде реакции локальных рынков

внутри Тюменской области без автономных округов. Для вторичных рынков коинтеграция не обнаружена. Сделан вывод о необходимости учета пространственной взаимосвязанности при разработке региональной жилищной политики и программ жилищного строительства.

Рынок жилья, регион, периферия, взаимосвязанность, ценовая дифференциация.

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LIFE QUALITY AND HUMAN POTENTIAL OF TERRITORIES

DOI: 10.15838/ptd.2026.4.144.7

UDC 332.8 | LBC 65.441

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FEATURES AND TRENDS IN THE DEVELOPMENT OF HOUSING SECTOR IN THE VOLOGDA REGION MUNICIPALITIES



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The housing sector is a key indicator of the quality of life and requires regular monitoring at the municipal level for effective management of regional development. The aim of this article is to identify the features and trends in the development of the housing sector in the municipalities of the Vologda Region. The main research methods included statistical analysis, grouping, comparative and spatial analysis. The information base comprised data from Vologdastat disaggregated by municipality for the period 2010–2024. The study revealed persistent territorial disparities in the level of housing provision, degree of housing improvement and deterioration, as well as in the volume and structure of new housing construction, including the share of individual housing construction. The research was conducted using a typology of municipalities based on the share of rural population, which made it possible to identify consistent systemic patterns: the urbanrural divide, characteristic features of suburbanization, and the

For citation: Sekushina I.A., Belkin A.N. (2026). Features and trends in the development of housing sector in the Vologda Region municipalities. *Problems of Territory's Development*, 30(4), 107–129. DOI: 10.15838/ptd.2026.4.144.7

specific features of rural municipalities. The scientific novelty lies in the systematic analysis of the housing sector at the municipal level of the Vologda Region, taking into account the age structure of the housing stock and its technical condition. The findings may be used by regional government authorities and local selfgovernment bodies in the development of housing programs and spatial development strategies.

Housing sector, municipalities, Vologda Region, housing provision, housing improvement, housing deterioration, housing construction.

ACKNOWLEDGMENT

The article was prepared in accordance with the state assignment for the Vologda Research Center of the Russian Academy of Sciences on the topic FMGZ-2025-0013 “Factors and tools for ensuring balanced spatial development of Russian regions in the face of increasing challenges”.

Introduction

The housing sector is one of the key subsystems of regional and municipal economies, exerting a direct impact on the quality of life, demographic dynamics, migration processes, and social stability of territories (Sekushina, 2020; Buzulutsky, 2024). Housing availability directly determines reproductive decisions of households (Domnich, 2026). In the context of growing competition between settlements, the availability of comfortable and safe housing and the level of improvement of the housing stock are becoming key factors in the attractiveness of municipal entities, especially small and medium-sized cities, which are losing population to large agglomerations (Emel'yanova, Chapargina, 2020).

For Russians, housing has exceptionally high subjective value, which is why inequality in this area is traditionally perceived as painful. Paradoxically, however, the majority of the population does not consider the housing problem to be one of the most pressing issues. Over the previous two decades, the share of people who do not own their own housing has decreased, and among those who still do, confidence in acquiring housing has grown. Nevertheless, a set of factors that exacerbate housing inequality for certain groups remains, as indirectly evidenced by the high demand

among citizens for improved housing conditions (Kolennikova, 2024).

Currently, the Russian Federation is implementing a whole range of state measures aimed at developing the housing sector in the country's regions, including private housing construction, shortening the investment and construction cycle, and increasing the affordability of housing for the population. The national project “Housing and Urban Environment” was implemented from 2019 to 2024; it included state programs (federal projects) “Mortgage”, “Housing”, “Creating a Comfortable Urban Environment”, and “Ensuring a Sustainable Reduction of Uninhabitable Housing Stock”. The implementation of a new national project has begun since 2025, which is aimed in part at developing the housing sector – “Infrastructure for Life”.

Among the many socially oriented state programs included in the structure of the new major national project are “New Construction Rhythm”, “Housing”, “Mortgage”, “Infrastructure Development in Settlements”, “Modernization of Utility Infrastructure”, and “Creating a Comfortable Urban Environment”. Among the objectives of the national project is to renew the housing stock by 2030 by at least 20% compared to 2019¹.

¹ The Ministry of Construction has demanded that regions be fully prepared for the new national project. Interfax News Agency. Available at: <https://www.interfax.ru/russia/985935> (accessed: 18.11.2025).

At the regional level, measures to support the development of the housing sector are also being implemented. In particular, the Vologda Region has a regional targeted program 9 “Resettlement of citizens from dilapidated housing stock in the municipal entities of the Vologda Region for 2025–2026”². The key criterion is that the house should have been designated as dilapidated after January 1, 2017, due to physical deterioration. The program includes 55 dilapidated houses in 11 municipalities of the region, with a total area of approximately 11,600 square meters, where approximately 670 people live. The share of dilapidated and unsafe housing in the region’s housing stock is about 6.1%, while the average for Russia is approximately 1.1%.

It is important to note the existing dynamics: the region has actively implemented resettlement programs in recent years (including within the framework of the “Housing and Urban Environment” national project), and the volume of the emergency housing stock has been gradually decreasing. For example, in 2024, the region achieved record results: more than three thousand families were resettled. As of the end of 2024, more than 21,000 families (including single individuals) were on the register across the entire region.

The picture is uneven when viewed by municipality. Based on an analysis of Vologdastat data for 2024, we can conclude that there are significantly more people on the waiting list in large cities – Vologda and Cherepovets. In municipal districts and regions, the figures are significantly lower, but in some areas, for example, in Babaevsky, Veliky Ustyugsky, and Sokolsky okrugs, the level of need is also quite high.

At the same time, an unexpected contrast can be observed between the population decline and the pace of housing construction. For instance, in recent years, the Vologda Region has been experiencing a steady natural population

decline, and overall, the rate of population decrease over a number of years has exceeded the national average. Over five years, the rate of population decline in the Vologda Region exceeded 3.4%, while the national average was 0.4%. At the same time, the volume of housing construction in the region was increasing. For example, in 2023, 746,000 sq. m of housing was commissioned (an increase of 15.1% compared to 2022). In 2024, the planned target (440,000 sq. m) was even exceeded – in fact, 682,700 sq. m of housing was commissioned.

Thus, it can be stated that the region is experiencing positive dynamics in terms of the commissioning of residential space in the context of depopulation. This divergence in trends suggests that regional authorities are trying to address the problem of demographic decline by improving housing conditions, or that housing construction is determined by other factors, in particular, the fulfillment of obligations to socially vulnerable groups (orphans, large families) within the framework of existing federal and regional programs.

The systematic development of the housing sector in the Russian Federation is impossible without taking into account the specific features of its constituent entities: their socio-economic situation, infrastructure capabilities, climatic conditions, and other differences. In this sense, the specifics of the Vologda Region are of particular interest for research. The region, which is typical of the Northwestern Federal District and combines industrially developed cities (Vologda, Cherepovets) with vast rural peripheral areas, faces a range of problems in the housing sector: the aging of the housing stock, a high degree of wear and tear of multi-apartment buildings, uneven commissioning of new housing, and a low level of amenities in a number of municipal entities. At the same time, the region is experiencing

² On the regional targeted program 9 “Resettlement of citizens from emergency housing stock in the municipal entities of the Vologda Region for 2025–2026”: Government Resolution 1231 of the Vologda Region, dated August 29, 2025. Official Internet Portal of Legal Information pravo.gov.ru. Available at: <https://clck.ru/skMcx> (accessed: 09.07.2026).

active private housing construction, which is shaping new trends in the development of the housing sector. However, comprehensive studies that simultaneously cover housing availability, the technical condition of the housing stock, and the dynamics of construction across all municipal entities of the Vologda Region have been unavailable until now.

The aim of the study is to identify the features and trends in the development of the housing sector in the municipal entities of the Vologda Region. To achieve this aim, the following tasks were solved: 1) to conduct an analytical review of current scientific literature on the development of the housing sector in the regions, with a focus on non-metropolitan and depressed areas; 2) to assess the level of housing provision for the population and its dynamics across the municipal entities of the Vologda Region; 3) to analyze the technical condition of the housing stock, including the level of amenities, distribution by year of construction and degree of wear and tear; 4) to analyze the dynamics of housing construction volumes, including the share of private housing construction; 5) to identify the specific features of housing sector development in different types of municipal entities.

The object of the research is the housing sector in the Vologda Region, and the subject is the trends and territorial characteristics of the development of the housing stock in the region's municipalities.

The novelty of the work lies in the systematic analysis of the housing sector across all municipal entities of the Vologda Region, which made it possible to identify not only general trends but also persistent territorial disparities between urban and peripheral rural areas. Another element of scientific novelty is the typology of the region's municipal entities based on the nature of housing and construction dynamics. For the first time in the region, based on a set of indicators (housing construction per capita, population dynamics,

and the level of wear and tear of the housing stock), three zones have been identified: growth, stagnation, and depression.

The practical significance of the study lies in the fact that its results can be used by the state authorities of the Vologda Region and local self-government bodies when developing and adjusting regional and municipal housing programs, spatial development strategies, as well as when allocating budget funds for the modernization and construction of housing.

Theoretical foundations of the research

The housing sector is a complex multi-level system that includes the housing stock, the housing market, the housing and utilities system, and management and financing institutions. In foreign literature, approaches to comparing housing systems at the national level predominate (André, Chalaux, 2018; Arbaci, 2019), whereas in Russian science, due to the legacy of the planned economy, a tradition has developed of detailed ranking and typologization of regions based on a set of housing indicators (Nozdrina, 2009; Pilipenko, 2024). At the same time, as I.V. Pilipenko notes that the housing sector in Western countries is among the least regulated areas by the state, where the laws of supply and demand are perceived as an objective reality – which fundamentally distinguishes them from the Russian approach, which has retained elements of state planning (Pilipenko, 2024).

In global practice, when discussing the concept of housing affordability, scholars consider it in terms of five components: overall affordability, purchase affordability, mortgage affordability (repayment), affordability from the perspective of income, and affordability from the perspective of commercial rental. The criteria for affordability are actively discussed, but the most widely recognized indicator remains the ratio of housing cost to income, based on the neoclassical theory of consumer choice. The threshold values range from

25 to 50% of income allocated to housing, which allows for the identification of three groups: “normal” ($\leq 30\%$), “acceptable” (30–50%), and “stressful” affordability ($\geq 50\%$). A study conducted in a country with a developing economy (Nigeria) found that 40% of respondents spent up to 30% of their household income on housing; 44.7% spent between 30.1% and 50%; and 12.9% spent more than 50% (Adegoke, Agbola, 2020).

It is worth noting that this indicator has traditionally been high in the Vologda Region. Families have to save for quite a long time to buy a typical two-room apartment in a new building. This takes the situation beyond the “normal” level of affordability ($\leq 30\%$ of income) and brings it closer to the “acceptable” and “stressful” levels. The region has federal and regional preferential programs (for example, for families with children), which partially alleviates the situation. However, a standard mortgage is available only to those who have savings and a sufficiently high current income. At the same time, income stratification in the region is quite noticeable.

Local self-government bodies in the Russian Federation are vested with broad powers in the field of housing and utilities, including the management of the municipal housing stock, the provision of housing under social tenancy agreements to low-income citizens, the organization of landscaping, and the regulation of tariffs. The activities of housing and utilities bodies in a municipality constitute a process-based mechanism aimed at addressing issues of local importance that are enshrined in law (Kirillova, 2020). The priority goal of municipal policy is to establish a balance between the interests of producers, consumers, and regulators of utility services.

At the same time, researchers note that the state has effectively transferred a significant portion of the responsibilities for ensuring the constitutional right to housing to the municipal level, which, given the limited financial resources, leads to low efficiency: only a small share

of needy citizens receive housing (Semyashkin, 2022). This creates a fundamental contradiction between the assigned powers and the real capabilities of local budgets.

The scientific literature also includes a number of studies devoted to the issues of housing sector development across different municipal entities. The work (Churilova, Churilov, 2025) presents the dynamics of prices in the primary and secondary housing markets in St. Petersburg based on a statistical analysis of time series from 2010 to 2024, identifies the periods of lowest housing affordability (2010, 2022–2023), and substantiates the existence of a correlation between rising prices and an increase in rent, with a time lag. In practical terms, the authors formulate several measures that can help alleviate the severity of the problem. Among them is the development of housing leasing (renting an apartment with the option to buy it).

Using the example of the Republic of Karelia, A.V. Fedorova and co-authors developed a typology of municipal districts based on the rate of commissioning of individual residential buildings, and identified four groups of territories from intensively developing to showing downward dynamics. The authors associate the active development of residential housing with the implementation of government programs (“Hectare in the Arctic”, preferential mortgages) and note the steady growth of construction in rural areas since 2017 (Fedorova et al., 2023).

The focus of research by scientists at the Udmurt State Agrarian University is the problems of managing housing and communal services in rural areas. Based on materials from Malopurginsky District of the Republic of Udmurtia, such problems have been identified as the wear and tear of water supply and wastewater networks, the presence of ownerless property, and the water quality not meeting the requirements. The authors note that within the framework of the “Integrated Development of Rural Areas” program, considera-

ble attention is paid to housing construction in rural areas, but the amount of budget funds allocated for these purposes is insufficient. As measures to improve management, it is proposed to strengthen the oversight of local government bodies over the activities of housing and communal services enterprises, carry out comprehensive modernization of facilities, and attract private investment through concession agreements and energy service contracts (Gainutdinova et al., 2022).

Of particular interest is the study by M.V. Shchukina and co-authors, which focuses on assessing the effectiveness of municipal programs in Perm. The researchers found no direct correlation between the volume of budget expenditures and the quality of achieving target indicators. A particular problem is the sharp fluctuations in effectiveness in the area of housing policy. It has been established that programs involving extrabudgetary funding sources show more stable results (Shchukina et al., 2025).

D.D. Bakharev emphasizes its low effectiveness in his study devoted to the issues related to the implementation of municipal housing policy in Perm. In particular, the author notes the low rates of resettlement from dilapidated housing and the provision of housing for orphans and low-income individuals, which lag behind the planned targets, and the utilization of budget funds is hampered by rising housing prices. The existing mechanisms (purchases on the secondary market, queue-based distribution) are not sufficiently effective and need to be replaced with new approaches. The author proposes the development of the social rental housing institution and the construction of specialized buildings as a promising solution (Bakharev, 2022).

T.R. Lukashenok and E.G. Efimova identify the following as the main barriers to the development of housing construction in municipalities across various regions of Russia: rising housing prices, the high cost of building materials, a shortage of qualified personnel, and an imbalance in infrastructure

development. The authors show that, despite the positive dynamics in housing commissioning and the growing availability of square meters per capita, housing affordability remains limited. In their view, the solution lies in shaping housing policy based on coordinated interaction between federal and regional levels of governance. To improve the efficiency of the sector, a model for organizing housing construction is proposed that would ensure cyclical data exchange, monitoring, and coordination of support measures (Lukashenok, Efimova, 2023).

The availability of energy resources also demonstrates significant spatial differentiation. The study (Cheshmehzangi, 2020) identifies three types of territories using China as an example: urban (multi-storey enclosed complexes with good infrastructure and high energy consumption), suburban (low-rise development with a growing load on the grid), and rural (low-rise housing with low energy consumption, often using firewood and coal, which indicates an extremely low level of infrastructure) (Cheshmehzangi, 2020). It should be noted that in the Vologda Region, the spatial differentiation in the availability of energy resources largely mirrors the situation in China. In urban areas (especially in Vologda and Cherepovets), there is a high concentration of multi-storey housing, dense development, and well-developed infrastructure. Overall energy consumption is high. In addition to apartments, there are commercial facilities, offices, and industrial zones that also consume electricity. However, there are also individual locations with an imbalance in capacity – for example, some areas in cities are overloaded. This creates risks regarding electricity supply, even if the region's overall generation capacity is sufficient.

The suburban type in the Vologda Region can be represented by settlements where individual development is actively spreading. Here, based on the existing capacity, the load on the networks is increased, since private houses are usually larger in area than apartments, and in the absence of gas,

they are heated using electrical appliances – in other words, the infrastructure does not always keep up with the pace of development.

In rural areas, especially in ungazified northern and eastern municipal districts, low-rise construction predominates, and the level of centralized infrastructure is lower; therefore, a significant portion of households still use traditional means of heating their homes (firewood).

A review of studies by Russian authors makes it possible to identify several persistent trends and problems characteristic of Russia's regions and municipal entities in the housing sector.

1. The imbalance between quantitative and qualitative indicators. On the one hand, there is an increase in the total housing area per capita – from 19.2 sq. m in 2000 to 28.8 sq. m in 2023 (Minchenko et al., 2025). At the same time, it is important to understand that this growth is often due not so much to construction as to a reduction in the population (Sekushina, 2020). The integrated index of housing sector quality, calculated by M.N. Minchenko and co-authors using eight indicators, revealed that only 11 regions have a high level (more than 0.6), 17 have a level above average, 46 have a level below average, and 11 have a low level (less than 0.4). At the same time, more than half of the country's population (50.7%) lives in regions with a “below average” and “low” level of quality (Minchenko et al., 2025).

2. Regional and inter-municipal differentiation. The interregional analysis conducted by O.V. Rabchevich and I.V. Yugova revealed significant disparities in the development of the housing sector (Rabchevich, Yugova, 2020). High housing construction volumes are characteristic of a limited number of leading regions (Moscow Region, Krasnodar Territory), while in most constituent entities of the Russian Federation, especially in the northern and Arctic territories, the indicators are significantly lower than the national average (Emel'yanova, Chapargina, 2020). In another study (Vavilina, Komarova, 2024), the

authors reach similar conclusions: it has been established that only 10 constituent entities of the Russian Federation can be classified as successful in terms of the level of housing construction. As a rule, these are either regions with cities with a population of over a million (Moscow, Moscow Region, Krasnodar Territory) or territories involved in oil production and refining (Tyumen Region, Republic of Tatarstan, Republic of Bashkortostan). The remaining constituent entities of the Russian Federation demonstrate low absolute and relative indicators of housing commissioning (Vavilina, Komarova, 2024).

3. Decline in housing affordability. The housing affordability ratio in 2023 averaged 3.33 years across Russia. Housing is affordable (less than 3 years) only in 30 regions; it is not entirely affordable in 42 regions; purchasing it is seriously complicated in 10 regions; and it is significantly unaffordable in 3 regions (Minchenko et al., 2025).

4. The growing role of private housing construction. Studies show that its share in the total housing supply has increased in 61 regions, and in urban areas — in 51 constituent entities of the Russian Federation. In 2023, the population built 431.5 thousand residential houses with a total area of 58.7 million sq. m. (53 % of the total supply). The average size of private housing construction projects (136 sq. m) is almost twice as large as the average size of apartments in multi-apartment buildings (76 sq. m). At the same time, in the multi-apartment building segment, the area of apartments being commissioned decreased in 79 out of 85 regions. The development of private housing construction can be considered a promising area for improving housing provision, especially in small towns and rural areas (Pilipenko, 2024).

M.S. Oborin's study, based on materials from the Perm Territory, reveals the influence of key groups of factors on the regional housing construction market. The analysis showed that the demographic situation is characterized by a decline

in population size despite an increase in housing availability, which indicates a change in household composition rather than the overcoming of the housing shortage. From an economic perspective, despite rising incomes, a significant proportion of citizens remain below the poverty line, which limits the real demand for housing. Transport, infrastructure, and social factors manifest themselves in the problem of occupying facilities before the completion of social and engineering infrastructure construction, which makes integrated development of territories a mandatory condition. Among the organizational and legal factors, the author highlights the transition to project financing using escrow accounts and the acute problem of defrauded equity holders (Oborin, 2021).

In the modern scientific paradigm, the housing sector is considered not only as a social sphere but also as a key economic subsystem that ensures the sustainability and resilience of territories (Buzulutsky, 2024). Five main aspects of the housing sector's impact on the municipality's economy are identified: economic (multiplier effect, job creation, attracting investment); social (population retention, reducing tensions, encouraging higher birth rates); environmental (implementation of "green" standards); institutional (creating a stable investment climate); and technological (digitalization and new materials that increase the durability of buildings).

Furthermore, the housing sector is one of the factors of spatial development. An analysis of spatial development concepts shows that urbanization is the key mechanism for transforming the territorial structure of society. It creates new economic and social centers. Classical theories of urbanization identify six stages of its development – from pre-urbanization to deconcentration, starting with the point concentration of population and ending with complex agglomerations and macro-regions. In modern science, spatial development is viewed as the interaction between large urban centers and peripheral areas. In the process of this interaction,

agglomerations become self-organizing systems that stimulate socio-economic growth.

Different models of urbanization are represented in the practices of Japan, China, and India. Japan is an example of compact urbanization in the information age, China is an example of rapid industrial urbanization with the unique phenomenon of "urban villages," and India is an example of developing urbanization with a strong traditionally agrarian focus (Salitskii, Chubarov, 2022).

Russian urbanization is characterized by high concentration of population in cities with population of over one million, which brings it closer to the Japanese model. In particular, the Japanese model of compact agglomerations with well-developed public transport and integration of suburbs is relevant for Moscow and Saint Petersburg agglomerations in Russia. At the same time, Russian cities differ from the Chinese model in that they have significantly lower growth rates. In China, urbanization is accompanied by the mass relocation of peasants to cities, while in Russia, internal migration between regions and suburbanization – the growth of suburbs around large cities – predominate (Garnaga, 2021). The Indian scenario, with its preservation of close ties between city and countryside, may reflect the specific features of Russia's small towns and single-industry towns.

The spatial development of the Vologda Region is closely linked to the nationwide models of urbanization, but it also has its own regional specifics. The region has traditionally developed two urbanized zones: Vologda and Cherepovets agglomerations. This is not a unique case, but it is exceptionally rare among the constituent entities of the Russian Federation, since in most regions of Russia there is one major socio-economic, financial, and industrial center, which is usually the administrative center of the respective constituent entity.

An analysis of foreign studies (Chatterjee, 2023; Miller et al., 2011; Abraham, 2025; Yao,

2015) allows concluding that, first, housing prices and construction dynamics are not just sectoral indicators, but active factors influencing local economic growth, employment, and consumer demand. Second, a significant portion of the variation in housing prices is explained by local supply factors (zoning, land availability, construction regulations), which makes municipal policy a key tool for regulating housing affordability. Third, the behavioral characteristics of consumers (risk tolerance, level of information) and institutional features (cultural norms, migration flows) create significant differences even between geographically close areas.

Overall, the theoretical review conducted allows stating that there is a significant scientific gap. The vast majority of studies, both Russian and foreign, have been conducted at the macro level (countries, regions), leaving the municipal level – the key platform for implementing housing policy – poorly studied.

Materials and methods

The study analyzed the literature of Russian and foreign scholars working on the problems of developing regional and macro-regional housing markets, statistical documents from the Territorial Body of the Federal State Statistics Service for the Vologda Region (Vologdastat), broken down by municipal entities, and data from the Unified Interdepartmental Information and Statistical System (EMISS), as well as from the information and analytical system “Digital Environment of the Project Directorate of the Ministry of Construction of Russia” (CSPDM). We used open data from the Ministry of Construction of the Vologda Region and the Main Strategic Directorate of the Administration of the Governor of the Vologda Region, articles from scientific journals, and Internet resources.

We defined a time interval from 2010 to 2024 to analyze the dynamics of development in the housing sector in the Vologda Region. This choice is due to the fact that by 2010, the housing market in Russia had relatively stabilized after the global financial crisis of 2008, which was characterized by a sharp decline in construction and the suspension of large-scale long-term projects. Thus, 2010 can be considered the starting point of a new cycle in the development of the housing sector, when developers’ activity resumed and previously deferred projects began to be implemented. During this period, significant economic shocks occurred that substantially influenced the state of the market: the structural crisis of 2014–2015, caused by sanctions pressure and exchange rate volatility; and the COVID-19 pandemic in 2020, which disrupted traditional supply chains and led to a temporary halt in construction projects. By the end of the period, a large-scale transformation of the economy had taken place in 2022 against the backdrop of unprecedented external restrictions. All these events disrupted the industry’s upward dynamics while simultaneously acting as catalysts for further development – through the revision of regional developers’ strategies, the reshaping of the construction materials market, the development of government support programs for the housing sector, and so on.

Thus, the analysis of the period from 2010 to 2024 is scientifically effective, since it covers the full economic cycle – from crisis recovery through a series of external shocks to the formation of a new economic reality. This allows not only identifying a linear trend in the development of the Vologda Region housing sector, but also assessing the degree of its resilience to external shocks of various nature.

The main indicators studied include statistical data on the population’s housing provision, and the level of amenities in houses and apartments has been analyzed in terms

of the availability of water supply, sewage systems, and central heating. Data on the degree of wear and tear of residential buildings have been examined, as well as data on the total annual housing commissioning in the region, including housing built by the population, and data on annual housing commissioning per 1,000 people.

The theoretical aspects of the study are based on the method of scientific generalizations and an analytical review of domestic and foreign scientific literature. The main research

results are formulated based on the principles of systems analysis, as well as the method of collecting information about the subject of the study. We used the chronological method, the method of scientific generalizations, and statistical and comparative analysis to process the statistical data.

Results of the research

In the first stage of the study, we analyzed the population of the municipal entities of the Vologda Region (*Tab. 1*). On average across the region, the

Table 1. Dynamics of population size and total area of residential premises per resident in the municipal entities of the Vologda Region

Municipality (okrug)	Population, people			Housing provision, m ² per person		
	2010	2024	2024 / 2010	2010	2024	2024 / 2010
Kichm.-Gorodetsky	18,355	14,079	76.7	27.8	56.1	By 2 times
Vologdsky	50,471	51,950	102.9	22.9	35.5	155.0
Babushkinskiy	13,149	9,307	70.8	32.1	47.8	148.9
Ustyuzhenskiy	18,617	15,048	80.8	35	49.8	142.3
Vologda*	310,033	317,822	102.5	22.5	32	142.2
Vashkinsky	8,010	5,872	73.3	33.4	47.5	142.2
Kharovsky	16,318	12,618	77.3	35.7	50.3	140.9
Chagodoshchensky	13,795	10,732	77.8	30.6	42.8	139.9
Ust-Kubinskiy	8,040	7,154	89.0	38.1	53.1	139.4
Tarnogsky	12,781	10,250	80.2	35.1	48	136.8
Vytegorsky**	27,042	21,686	80.2	26	34.6	133.1
Belozersky	17,141	12,978	75.7	34.7	45.7	131.7
Nikolsky**	22,293	18,390	82.5	27.9	36.4	130.5
Sheksninskiy**	33,211	28,791	86.7	24.4	31.7	129.9
Kirillovsky	15,759	13,795	87.5	35.3	45.6	129.2
Verkhovazhsky	13,823	12,287	88.9	30.3	39	128.7
Cherepovets*	312,903	298,160	95.3	23.1	29.4	127.3
Cherepovetsky**	40,745	39,308	96.5	27.8	35.3	127.0
Kaduysky	17,085	16,316	95.5	36.5	45.3	124.1
Sokolsky	51,257	44,172	86.2	28.8	35.5	123.3
Gryazovetsky	35,637	31,398	88.1	28.8	35.4	122.9
Mezhdurechenskiy	6,057	4,740	78.3	34.4	42	122.1
Totemsky	23,855	21,802	91.4	28.1	34.2	121.7
Vozhegodsky	16,634	13,416	80.7	30.8	37.1	120.5
Syamzhensky	8,869	7,880	88.8	34.7	41.4	119.3
Velikoustyugsky	57,832	48,563	84.0	27.7	32.4	117.0
Babaevsky	21,791	18,541	85.1	34.2	38.7	113.2
Nyuksensky	9,687	8,316	85.8	33.4	30.4	91.0
Average for region	1,201,190	1,115,371	92.9	30.7	40.5	131.9

* – urban okrug; ** – municipal district.
According to: Rosstat data.

indicators decreased by 7.1% between 2010 and 2024. This indicates prolonged depopulation, which is characteristic of many regions of Russia's North-West. At the same time, there are trends of spatial polarization: population growth is observed only in two locations: Vologda (+2.5%) and Vologdsky District (+2.9%).

The most significant population decline was recorded in remote rural municipal districts: Babushkinsky, Kichmengsko-Gorodetsky, Vashkinsky, Kharovsky, and Ust-Kubinsky municipal okrugs (decrease of more than 20%). For the industrial center of the region, Cherepovets, a slight decline (-4.7%) is characteristic, which, given the overall decline, can be considered relatively stable, although the city's migration attractiveness is decreasing compared to Vologda.

On average, housing availability in the region increased from 30.7 sq. m per person in 2010 to 40.5 sq. m in 2024 (+31.9%). Formally, this is a positive trend, but to a large extent it is due not to the commissioning of new housing, but to a reduction in the population. In particular, the most significant increase in housing availability was recorded in the Kichmengsky-Gorodetsky okrug (more than doubling, from 27.8 to 56.1 m² per person), which occurred against the backdrop of a substantial population decline (by 22.3 %).

In Vologda and Cherepovets, the level of housing provision (32 and 29.4 m²/person, respectively) remains below the regional average (40.5 m²/person), which is typical for cities with high building density and an influx of migrants who are not provided with new square meters. It is worth noting that Vologdsky okrug and Vologda are the only municipalities where the growth in housing provision is of an investment and construction nature: the pace of housing construction outpaces or is comparable to population growth. Against the backdrop of all municipal entities, Nyuksensky Municipal okrug stands out: its population has decreased by 14.2%, and housing availability has fallen by 9%, which may indicate that the

obsolete housing stock is being decommissioned in quantities exceeding the population decline.

The results of the analysis of the housing stock improvement level as a whole indicate that the level of improvement is higher in urban municipal entities, but it is also high in some rural areas, mainly in those located close to large cities (Sheksninsky district, Vologdsky, Kaduysky municipal okrugs, see *Tab. 2*).

When examining the indicators over time, we can conclude that the region is demonstrating steady progress. The average indicators for the region have increased across all types of utilities: water supply (+14 p.p.), sewage (+15.9 p.p.), and central heating (+10.2 p.p.), which indicates systematic work to modernize the utility infrastructure.

In Nyuksensky district, a sharp increase in the level of improvement was recorded due to the water supply and sewage networks, from 25–17% in 2010 to 100% in 2024, which is linked to the implementation of the state policy on modernizing the utility infrastructure. It was during these years that the federal project “Clean Water” under the national project “Housing and Urban Environment” was actively implemented. By the end of the period, construction of main water supply networks with a length of more than 8 km and modernization of another 17 km of distribution networks, including the installation of 94 wells in the village of Nyuksenitsa, had been completed. In addition, in 2020, the reconstruction of the wastewater drainage system along Kultury Street in the district center was carried out under the state program “Integrated Development of Rural Territories”. On the other hand, the sharp statistical jump can also be explained by the specifics of how the “level of improvement” indicator is recorded: as soon as water supply, pumping, and treatment facilities are put into operation, the formal percentage of population coverage (derived from the calculated capacity of the infrastructure facilities themselves) rapidly reaches its

Table 2. Housing stock improvement level – share of area equipped with water supply, wastewater disposal (sewerage), and centralized heating

Municipality (okrug, district)	Water supply			Water disposal (sewage)			Heating (centralized)		
	2010	2024	2024 / 2010	2010	2024	2024 / 2010	2010	2024	2024 / 2010
Vologda*	96.5	99.3	2.8	96.8	99.3	2.5	96	89.5	-6.5
Cherepovets*	99.2	97.9	-1.3	99.2	97.9	-1.3	97.6	95.3	-2.3
Babaevsky	32.6	40.3	7.7	27.4	28.2	0.8	24.8	23.1	-1.7
Belozersky	25.7	31	5.3	25.7	23.3	-2.4	14.7	13.1	-1.6
Velikoustyugsky	53.4	64.9	11.5	40	51.2	11.2	20.3	29.2	8.9
Gryazovetsky	61.8	64.3	2.5	52	54.9	2.9	51.3	47.6	-3.7
Kaduysky	49.2	61.8	12.6	50.8	61.4	10.6	48.8	47.1	-1.7
Kirillovsky	21.8	66.3	44.5	16.2	57.3	41.1	19.5	26	6.5
Sokolsky	60.9	60	-0.9	57.3	56.2	-1.1	58.7	57.2	-1.5
Ustyuzhenskiy	29.7	40.9	11.2	23.8	31.1	7.3	23.2	22.4	-0.8
Kharovsky	38.6	33.8	-4.8	34.6	30.1	-4.5	34.9	28.3	-6.6
Chagodoshchensky	64.4	73.9	9.5	45.6	64.6	19	37.1	36.3	-0.8
Sheksninsky**	64.1	64.6	0.5	63.6	49.6	-14	52	42.1	-9.9
Vozhegodsky	23	23.6	0.6	18.1	21.9	3.8	14.6	17.3	2.7
Vytegorsky**	22.1	28	5.9	17.8	21.7	3.9	15.9	18	2.1
Nikolsky **	13.6	38.5	24.9	10	38	28	9.2	9.4	0.2
Totemsky	47.4	65.8	18.4	34.3	42.7	8.4	33.4	39.8	6.4
Babushkinskiy	49.2	55.1	5.9	1.9	5.4	3.5	0.4	0	-0.4
Vashkinsky	12.6	14	1.4	8.8	10.8	2	8.2	10	1.8
Verkhovazhsky	17.5	35.6	18.1	10.8	35.6	24.8	3.5	3	-0.5
Vologdsky	56.8	62.1	5.3	52.8	60.1	7.3	51.3	50.2	-1.1
Kichm.-Gorodetsky	5.6	4.8	-0.8	0.5	1.2	0.7	0.6	0.3	-0.3
Mezhdurechenskiy	72.6	80.6	8	23.2	27.5	4.3	15.8	17	1.2
Nyuksensky	25.3	100	74.7	17.6	100	82.4	11.8	22.5	10.7
Syamzhensky	17.5	38.4	20.9	11.9	13.8	1.9	12.2	8.9	-3.3
Tarnogsky	70.4	75.1	4.7	11.7	50.3	38.6	16.3	5	-11.3
Ust-Kubinsky	36.2	45.9	9.7	16.1	40.1	24	21.6	3.1	-18.5
Cherepovetsky**	49	44.9	-4.1	48.9	40.1	-8.8	47.1	33.7	-13.4
Average for region	60.9	74.9	14	54.3	70.2	15.9	50.4	60.7	10.3
* – urban okrug; ** – municipal district. According to: Rosstat data.									

maximum. In addition, the administrative status of the territory has changed – Nyuksensky district was one of the first in the Vologda Region to be transformed into a municipal district, which centralized accounting.

At the same time, the polarization of territories is intensifying: against the backdrop of high average indicators, a group of areas (Kichmengsko-Gorodetsky, Vashkinsky, and Babushkinsky okrugs) stands out, where the level of amenities remains extremely low, and in some cases even deteriorates. At the same time,

these municipalities are characterized by the maximum decline in population.

The gap between the leaders and the outsiders is widening. The most problematic area is central heating. For instance, despite the growth in the average regional indicators, a sharp decline in the level of centralized heating is observed in a number of okrugs (Ust-Kubinsky, Tarnogsky, Sheksninsky, Cherepovetsky). This may be due both to modernization (the transition to autonomous heating) and to the degradation of the network infrastructure.

We should also note that there is an imbalance between the types of amenities. In a number of districts (Babushkinsky, Tarnogsky, Mezhdurechensky), water supply has been provided for a significant portion of the housing stock, but sewage and central heating are virtually absent, which creates environmental and sanitary-epidemiological risks.

Overall, we can conclude that the quality of housing conditions (level of amenities) is more differentiated than the quantitative indicators of housing availability, and it is the level of amenities that serves as a more accurate indicator of the actual living conditions and quality of life at the municipal level.

The analysis of the structure of the housing stock by the year of construction of buildings makes it possible to assess the nature of historical development and the degree of physical deterioration of the houses. More than 70% of residential construction in the Vologda Region took place between 1946 and 1995 (Khrushchev-era and Brezhnev-era buildings). The share of modern housing (built after 1995) is only 26.1%, which indicates relatively low rates of housing stock renewal. At the same time, in a number of municipalities, a significant portion of the housing stock is over 80 years old, which indicates critical wear and tear of engineering systems, low energy efficiency, and high maintenance costs. The situation is particularly acute in Kirillovsky (21.2% of the stock is over 80 years old) and Totemsky (19.5%) okrugs. In addition, peripheral rural areas are characterized by a low share of modern housing (9–15%), with the bulk of it dating back to 1946–1970 (in many municipalities, the share is 27–44%) – a fund established in the post-war decades, which is currently in a critical condition.

Urban okrugs of Vologda and Cherepovets, as well as Cherepovetsky and Sheksninsky suburban areas, and Vologdsky and Kaduysky okrugs, demonstrate the highest share of modern hous-

ing. In addition, Ust-Kubinsky okrug stands out due to its abnormally high share of new residential stock (35.8%). This is due to the area's growing appeal in terms of developing upscale suburban real estate. Cottages, including premium ones with particularly large living areas, are being actively built near the municipality's main recreational facilities (primarily the extensive mouth of the Kubena River). At the same time, it is worth mentioning the municipality's participation in the regional program for relocating citizens from dilapidated and unsafe housing stock. In particular, under the program, five apartment buildings with 67 residential units were constructed in the district³.

It is worth noting that the low level of housing amenities is observed alongside a high share of the old housing stock. In districts where more than 15% of housing was built before 1945 (Kirillovsky, Totemsky, Kharovsky), the level of access to water supply and sewage systems is significantly lower than the regional average.

As part of the study, we also analyzed the distribution of the housing stock by degree of wear and tear. Overall, in the region, more than half (57%) of the housing stock is in satisfactory condition (wear and tear up to 30%). At the same time, nearly 11% of the houses have high and critical wear and tear, which corresponds to the large-scale problem of dilapidated and unsafe housing.

The housing stock in large cities is characterized by a low level of wear and tear. Cherepovets stands out in particular, where 89.5% of the housing stock has a wear and tear level of up to 30%, and the share of dilapidated housing is zero. Mezhdurechensky okrug (almost half of the housing stock is over 66% worn out, and 22% is in excessively poor condition), Babaevsky District (41.5% and 14.8%, respectively), Kichmegsko-Gorodetsky District (37.5% and 32.8%), Nikolsky, and Vytegorsky okrugs are in the critical risk zone (more than a third of the housing stock has high or critical wear).

³ On the approval of the Strategy for the Socio-Economic Development of the Ust-Kubinsky Municipal District for the Period up to 2030: Decision 77 of the Representative Assembly of the Ust-Kubinsky Municipal District, dated 18.12.2018. Available at: <https://clc.li/ybmtS>

Most areas with high wear and tear are characterized by a high proportion of pre-war and post-war housing. However, Mezhdurechensky district demonstrates critical wear and tear even with a relatively small share of old housing, which indicates systemic problems with operation and the lack of major repairs in the housing stock built between 1971 and 1995.

To assess construction activity, we also analyzed the commissioning of residential buildings, including the calculation of indicators per 1,000 people and the share of private housing construction. Over 14 years, the average absolute indicators of housing commissioning in the region increased 1.67-fold, and per capita, they increased 1.79-fold. However, the increase in construction activity in the region was extremely uneven. Vologda, Cherepovets, and Vologdsky and Cherepovetsky okrugs account for 71.4% of all housing commissioning in the region. This confirms the previously identified trend toward polarization: construction activity is concentrated in the regional center, a large industrial city, and suburban areas.

At the same time, Mezhdurechensky, Babushkinsky, Kichmengsko-Gorodetsky, Kharovsky, Syamzhensky, and Vashkinsky okrugs, which belong to the group with the highest depopulation and the greatest wear and tear of the housing stock, demonstrate minimal volumes of new construction, which confirms their depressed state. In districts with a high degree of wear (> 66%) – Mezhdurechensky (48.7%), Babaevsky (41.5%), Kichmengsko-Gorodetsky (37.5%) – the new housing units per 1,000 people amount to 215–343 sq. m, which is insufficient to compensate for the loss of dilapidated housing stock. In Mezhdurechensky district, with a wear rate of 48.7%, the new housing units amount to only 215 sq. m. per 1,000 people, which means that the stock of dilapidated housing will continue to accumulate. Sokolsky district is showing anomalous growth – housing construction has increased tenfold, but this is due to the low base effect from 2010 (1.9 thousand sq. m.).

Vologda and Cherepovets naturally have a low share of private housing construction, as the main construction activity here is concentrated on multi-apartment residential complexes. In peripheral rural areas, multi-apartment construction is virtually non-existent. Any new housing here is built by the local population themselves. This is largely due to the predominance of the private sector and the lack of investment attractiveness for developers.

Belozersky, Gryazovetsky, Kaduysky, Kharovsky, Ustyuzhensky municipal okrugs and Vytegorsky district demonstrate high volatility in the share of residential housing, which is explained by the implementation of single projects for the construction of multi-family housing (for example, the construction of a house for displaced persons) or the lack of regular housing construction: any input, whether it is one apartment building or several individual, dramatically changes the proportions.

To identify the specific features of the development of the housing sector in different types of municipal entities, an analytical review was conducted, combining all previously considered indicators (population size, housing provision, level of amenities, age structure of housing stock, wear and tear, housing commissioning, and share of private housing construction) within the framework of typology of municipalities based on the share of the rural population⁴. This indicator serves as an integral characteristic of the territory, reflecting the degree of urbanization, which, in turn, is linked to the type of housing stock, the pattern of settlement, and the availability of infrastructure. The choice is also driven by the availability of the indicator for all the municipalities under consideration and its comparability with official statistics data.

The results of the analysis made it possible to identify a number of features and differences between urban and rural areas in terms of the development of the housing sector (*Tab. 3*).

⁴ Uskova T.V., Voroshilov N.V. (Eds). (2024). Socio-economic development of municipal entities in the Vologda Region, 2000–2023: Information and analytical bulletin. Issue 11. Vologda: VolRC RAS. 132 p.

Table 3. Typology of municipal entities in the Vologda Region and key indicators of housing sector development

Type of municipality	Municipalities	Population dynamics, 2024 to 2010, %	Housing provision for the population (2024)	Housing improvement level, %			Share of housing built after 1995, %	Share of housing stock with wear level exceeding 66%, %	Housing commissioning per 1,000 people (2024)	Share of private residential housing, %
				Water supply	Sewage system	Central heating				
Urban districts	Vologda, Cherepovets	-1.1	30.7	98.6	98.6	92.4	32.3	1.1	449.5	19.7
Mostly urban	Babaevsky, Belozersky, Velikoustyugsky, Gryazovetsky, Kaduysky, Kirillovsky, Sokolsky, Ustyuzhensky, Kharovsky, Chagodoshchensky, Sheksninsky	-15.2	41.2	54.7	46.2	33.9	18.6	20.1	576.3	74.6
Mostly rural	Vozhegodsky, Vytegorsky, Nikolsky, Totemsky	-16.2	35.6	39	31.1	21.1	18.4	29.4	347.9	80.1
Rural	Babushkinsky, Vashkinsky, Verkhovazhsky, Vologodsky, Kichm.-Gorodetsky, Mezhdurechensky, Nyuksensky, Syamzhensky, Tarnogsky, Ust-Kubinsky, Cherepovetsky	-9.9	43.3	50.6	35	14	19.2	20.4	823.3	90.7

The issue of population decline is most acute in predominantly rural municipalities (-16.2% compared to 2010) and predominantly urban municipalities (-15.2%). In the group of rural municipalities, the situation is offset by the indicators for Vologdsky okrug, where the population increased by 3% over the period under consideration.

Negative demographic trends have largely become the main reason for the increase in housing availability. According to data from 2024, in rural areas of the region, there were 43.2 sq.m. of living space per person. In cities, the availability is noticeably lower (30.7 sq.m. per person) due to the higher population density and a smaller share of the private sector.

Urban areas are almost completely well-developed. In all other groups, the level of development is significantly lower, with the lowest indicators in predominantly rural districts (Vytegorsky, Vozhedsky, Nikolsky, Totemsky), where only 39 % of housing is equipped with running water, 31.1 % with sewage systems, and 21.1 % with central heating.

The largest share of modern housing is in cities (32.3%), which is due to active multi-apartment construction. Accordingly, the problem of dilapidated and unsafe housing is virtually non-existent in cities. In other groups, the share of new housing is lower, and in predominantly rural municipalities it is minimal (18.4%), which indicates a lack of housing stock renewal. As a result, this category also has the highest share

of housing with high wear and tear (29.4% of housing has a wear and tear of over 66%).

An analysis of the state of the construction industry allows concluding that the highest rates of housing commissioning are typical for rural municipalities (823.3 square meters per 1,000 people). However, this is solely due to the inclusion of Vologdsky and Cherepovetsky okrugs in this group. If we exclude these two suburban areas, then the rest of the rural areas (Babushkinsky, Vashkinsky, Verkhovazhsky, Kichm.-Gorodetsky, Mezhdurechensky, Nyuksensky, Syamzhensky, Tarnogsky, Ust-Kubinsky) will be only 500 sq. m. per 1,000 people, which is below the regional average. In predominantly rural areas (Vozhegodsky, Vytegorsky, Nikolsky, Totemsky), the new construction is minimal (347.9 sq. m. per 1,000 people), which carries serious risks, given that these municipalities have the highest levels of housing stock wear and tear.

Private housing construction dominates in all groups except for urban areas. In rural areas, private housing construction accounts for more than 90% of the new construction, which confirms the complete dependence of the renewal of the housing stock on the population's capabilities.

An important point that needs to be emphasized is the presence of differentiation within the group of rural municipal entities. It can be divided into two subgroups: 1) suburban districts (Vologdsky, Cherepovetsky), which are zones of active suburbanization; 2) deeply peripheral, depressed rural areas (Kichm.-Gorodetsky, Mezhdurechensky, Babushkinsky, Vashkinsky, etc.). The first subgroup is characterized by population growth, maximum housing commissioning per capita (>2,200 square meters/1 thousand people), modern housing stock (27% built after 1995), low level of depreciation of housing stock (share >66% is only 15.1%). The second subgroup shows the maximum population decline (-19.1%), an outdated housing stock (82.5% of housing was built before 1995), and

consequently, a high level of wear and tear on the housing stock (Kichmengsko-Gorodetsky district — 37.5%, Mezhdurechensky district — 48.6%), as well as an extremely low level of amenities (Kichmengsko-Gorodetsky district: 4.8% have water supply, 1.2% have sewage systems).

Thus, a pronounced polarization is observed in the spatial structure of rural areas. Suburban zones demonstrate dynamic development, transforming into residential areas of large cities. In contrast, peripheral rural municipalities are in a state of deep depression: their housing stock is characterized by physical and moral deterioration, and new construction is virtually non-existent.

Conclusion

Our study made it possible to draw the following conclusions.

From the perspective of housing sector development, the Vologda Region municipal entities are developing extremely unevenly. Conventionally, we can distinguish three groups:

1) the growth zone: urban districts of Vologda, Cherepovets, Vologdsky okrug, and Cherepovetsky district; the population is growing here, housing is being actively built, the housing stock is in good condition, and the level of housing amenities is high.

2) the stagnation zone: primarily urban areas and some rural ones (Velikoustyugsky, Sheksninsky, Kaduysky okrugs, etc.); here, the population is declining moderately, construction is underway, but the wear and tear of the housing stock and issues related to improvement require attention.

3) the depression zone: predominantly rural areas (Vozhegodsky, Totemsky okrugs, Nikolsky, Vytegorsky districts) and peripheral rural areas (Kichmengsko-Gorodetsky, Mezhdurechensky, Babushkinsky, Vashkinsky okrugs, etc.); here, the population is declining the fastest, housing stock is deteriorating to the extent that 50 %

of it is worn out, infrastructure is minimal, and new construction is almost non-existent.

Formal indicators of housing provision mask the actual quality of life. The highest housing provision is observed in rural municipalities, but this is more a consequence of depopulation than of comfortable living conditions. The actual quality of housing (level of amenities and wear and tear of the housing stock) in these areas is the worst.

Private housing construction forms the basis of housing policy outside large cities. In suburban and rural areas, private housing construction accounts for 80–90% of new construction. This means that the renewal of the housing stock depends on the financial capabilities of the population, not on the investors and developers. In depressed areas, even private housing construction is minimal due to low purchasing power and population outflow.

Suburban areas are developing due to suburbanization, which carries certain risks. The high pace of private housing construction in Vologdsky okrug and Cherepovetsky district requires the accelerated development of engineering infrastructure (water supply, sewage), which is currently lagging behind the pace of development.

Currently, there is an urgent need to implement targeted measures in regional housing policy, as uniform approaches have proven to be ineffective.

In our view, it seems advisable to integrate the proposed typology into the existing system of regional program-targeted management

of the housing sector. For depressed areas and deeply peripheral territories, the priority mechanisms are those enshrined in Federal Law 185-FZ⁵ and the regional targeted program⁶ — resettlement from dilapidated housing using funds from the Housing and Utilities Fund. For growth and stagnation areas, the focus should be on the mechanisms of the state program “Providing the population of the Vologda Region with affordable housing...”⁷ and the regional program for the modernization of utility infrastructure⁸.

The research results make it possible to adjust the current logic for implementing certain specialized state programs in accordance with the specific characteristics of the Vologda Region. In particular, to enhance the effectiveness of achieving the target indicator of “updating the housing stock by 20% by 2030” under the national project “Infrastructure for Life,” it is essential to take into account the scale of the problem related to wear and tear.

The region has a significant share of the old housing stock, so regional documents should include broader programs not only for demolition but also for the comprehensive modernization of the old but not dilapidated housing stock – for example, by insulating facades, replacing windows, and installing new equipment.

At the same time, it is important to ensure synchronization with other existing strategies, in particular with plans for the development of key settlements (there are 27 of them in the region). For example, housing renovation should be necessarily linked to the construction or high-quality modernization of utility infra-

⁵ On the Fund for Assistance in the Reform of Housing and Communal Services: Federal Law 185-FZ, dated July 21, 2007 (as amended on December 28, 2025). pravo.gov.ru. Available at: <https://clck.su/Dkkfc> (accessed: 09.07.2026).

⁶ On the regional targeted program No. 8 “Resettlement of citizens from dilapidated housing stock in the municipal entities of the Vologda Region for 2019–2025”: Vologda Region Government Resolution 322, dated April 1, 2019. vologda-oblast.ru. Available at: <https://clck.su/MJRBS> (accessed: 09.07.2026).

⁷ On the regional targeted program 8 “Resettlement of citizens from dilapidated housing stock in the municipal entities of the Vologda Region for 2019–2025”: Vologda Region Government Resolution 322, dated April 1, 2019. vologda-oblast.ru. Available at: <https://clck.su/Oqzvn> (accessed: 09.07.2026).

⁸ On the approval of the regional program for the modernization of utility infrastructure systems in the Vologda Region for 2023–2027: Vologda Region Government Resolution 321, dated March 13, 2023. vologda-oblast.ru. Available at: <https://clck.su/nBHgZ> (accessed: 09.07.2026).

structure and the development of the social sector. Special attention should be paid to rural areas (we can state that currently the main focus of national projects is on cities).

Monitoring the implementation of the tasks set out in state programs should be carried out on the basis of comprehensive monitoring system that tracks not only final indicators (housing commissioning, percentage of budget funds utilization, etc.) but also production stages, for example, the selection of land plots, design, etc. This will make it possible to promptly adjust the programs, including in terms of their quantitative indicators.

It is also necessary to encourage private housing construction in suburban areas, with the parallel development of transport and social infrastructure, and to link the allocation of land plots to obligations for connecting to utility networks or to subsidizing autonomous systems.

Furthermore, it is impossible to ignore that, for obvious reasons, virtually all state measures currently in place in the region to develop the housing sector are closely linked to addressing demographic challenges. Therefore, assistance in resolving housing issues is primarily provided to officially registered young families with children and to large families.

The following federal-level measures are in effect in the Vologda Region:

- preferential family mortgage with 6% rate;
- the provision of social payment (subsidy) for the purchase or construction of housing under the state program “Providing accessible and comfortable housing and utility services for citizens of the Russian Federation”.

Regional-level measures are the following:

- preferential mortgage lending program for large families, young families with a child born no earlier than 2018, and young professionals (under 35 years of age) – subsidizing 4.5% of the loan interest rate.

- regional maternity (family) capital for improving housing conditions (for the third or subsequent child).

- compensation for expenses incurred by large families registered as needing housing for procurement of timber for house construction.

- provision of a land plot for private housing construction or personal household farming, as well as dacha construction plot, free of charge, or one-time monetary payment to large families and participants in the special military operation.

Starting in 2025, a new regional support measure has been in effect – a one-time payment of 500,000 rubles upon the birth of a third child or subsequent children (not earlier than January 1, 2024).

In this regard, proposals for improving support measures in the housing sector at this stage may consist only of adjustments or additions to the terms of existing programs. In particular, it seems advisable to consider extending the scope of family mortgages to young families without children, as well as to establish a progressive scale of loan subsidies depending on the number of children.

Furthermore, it is necessary to regulate the application of family mortgages for secondary housing in a more differentiated manner. The program applies to the secondary market only in cases where no more than two multi-apartment buildings are commissioned in a settlement per year. Currently, there are 13 such settlements in the Vologda Region (the register is maintained by DOM.RF). While fully understanding the rationale behind such measures aimed at stimulating the construction of new, high-quality housing in Russia, it is necessary to somewhat soften the terms of family mortgages for secondary housing. It is quite obvious that this will have beneficial consequences for small settlements experiencing population outflow, at least in terms of improving the socio-economic situation of citizens who, for various reasons, do not intend to leave their established homes.

The research results empirically confirm the applicability of the core-periphery model to the analysis of the housing sector at the level of a constituent entity of the Russian Federation and supplement it with specific quantitative characteristics of the differentiation of municipalities in the Vologda Region. Furthermore, the identification of a subgroup of “peripheral rural territories” makes it possible to refine the model, showing that even within the periphery there is its own gradation – the most remote,

depopulating territories require special regulatory mechanisms that differ from those applicable to rural areas as a whole.

Further research on the subject under consideration will involve formalizing the typology of municipal entities using cluster analysis methods and determining the quantitative thresholds for assigning entities to each group, as well as conducting a comparative analysis with other constituent entities of the Russian Federation based on a unified methodology.

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ОСОБЕННОСТИ И ТЕНДЕНЦИИ РАЗВИТИЯ ЖИЛИЩНОЙ СФЕРЫ В МУНИЦИПАЛЬНЫХ ОБРАЗОВАНИЯХ ВОЛОГОДСКОЙ ОБЛАСТИ

Жилищная сфера является ключевым индикатором качества жизни населения и требует регулярного мониторинга на муниципальном уровне для эффективного управления региональным развитием. Цель работы – выявление особенностей и тенденций развития жилищной сферы в муниципальных образованиях Вологодской области, основные методы исследования – статистический анализ, метод группировок, сравнительный и пространственный анализ. Информационной базой послужили данные Вологдастата в разрезе муниципальных образований за период 2010–2024 гг. В результате выявлены устойчивые территориальные диспропорции по уровню обеспеченности населения жильем, степени благоустройства и износа жилого фонда, а также по объемам и структуре ввода нового жилья, включая долю индивидуального строительства. Исследование проводилось в разрезе типологии муниципалитетов по удельному весу сельского населения, что позволило выявить устойчивые системные тенденции: дифференциацию между городом и селом, характерные черты субурбанизации, а также особенности сельских муниципальных образований. Научная новизна заключается в системном анализе жилищной сферы на муниципальном уровне Вологодской области с учетом возрастной структуры фонда и его технического состояния. Результаты исследования могут быть использованы органами государственной власти региона и местного самоуправления при разработке жилищных программ и стратегий пространственного развития.

Жилищная сфера, муниципальные образования, Вологодская область, обеспеченность жильем, благоустройство жилого фонда, износ жилья, жилищное строительство.

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DOI: 10.15838/ptd.2026.4.144.8

UDC 338.331 | LBC 65.248

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ASSESSMENT OF LEGAL LABOR MIGRATION IN RUSSIAN REGIONS



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The relevance of the study is due to the growing role of external labor migration in the staffing of the Russian economy during the period 2022–2024. The research problem lies in identifying approaches to detecting the features of the territorial distribution of legal labor migrants and accordingly adjusting existing perceptions of migration flows based on official data on the employment of foreign workers in Russia's regions. The aim of the study is to identify the flow of international labor migration carried out within the framework of legal labor relations and, on this basis, to

For citation: Plakhin A.E., Ogorodnikova E.S., Rostovtsev K.V. (2026). Assessment of legal labor migration in Russian regions. *Problems of Territory's Development*, 30(4), 130–147. DOI: 10.15838/ptd.2026.4.144.8

provide quantitative estimates of the employment of foreign workers in the regions of the Russian Federation. The information source used was official tax reporting data, which, in contrast to migration registration indicators, allow for a comprehensive picture of the results of labor activities carried out on a legal basis in the regions of the Russian Federation. The main findings show that the highest concentration of foreign workers is in the economic centers of the federal districts, while there is a significant increase in the employment of foreign workers in the regions of the Far Eastern Federal District, both in terms of numbers and total migrant income. The data obtained expand the scientific understanding of the distribution of foreign labor resources in Russia and make it possible to take migration flows into account when shaping the demographic and social policies of the regions.

Labor migration, foreign workers, Russia, regions, demographic policy, migrant income, territorial distribution.

Introduction

Amid tightening external economic sanctions and growing migration risks, there is an increasing need for a balanced migration policy that can ensure Russian industries are supplied with the labor resources they require (Rubinskaya, 2025). The importance of this issue stems from the large-scale employment of foreign nationals in key sectors of the economy: construction, agriculture, and services (Karabchuk, Salnikova, 2018; Sapryka et al., 2025). The favorable migration conditions created in recent decades have led to a rise in the number of foreign workers in the domestic labor market. According to the Russian Ministry of Internal Affairs, more than six million foreign citizens were permanently present in the country in 2024 (Babkin et al., 2024). At the same time, expert estimates suggest that the total number of migrants staying in Russia (including those in violation of employment legislation) exceeds 10 million, and according to several specialists, up to half of all migrants work illegally (Kuprina, 2015; Altonji, Card, 2018; Alecu, Drange, 2019).

The research problem lies in the use of irrelevant sources of information on the

number and territorial distribution of legal labor migrants in Russia's regions. In practical terms, for regional authorities, inflated statistics based on data on migrants entering a region for "work" purposes lead to an erroneous assessment of the labor force actually available to the economy, distortions in forecasting when compiling the labor balance, and poor justification of a territory's investment potential. This creates uncertainty regarding the possibilities and forms of including foreigners in the guaranteed provision of social benefits in the region where they are employed. Accounting for legal labor migration makes it possible to weigh the benefits derived from foreign workers against the costs of providing them with benefits through the regional social system (Krivenko, 2024).

It should be emphasized that relying solely on data from the Ministry of Internal Affairs and Rosstat on the number of issued work permits and patents does not allow an objective assessment of the scale of legal employment of foreign citizens in Russia's regions. Permits or patents alone do not

guarantee subsequent formal employment, nor do they account for cases in which migrants obtain documents but never actually start work or continue working outside the legal framework. As a result, statistics based on these indicators overstate the number of foreign workers, creating the illusion of a higher level of legal employment than actually exists. A substantial share of illegal migration remains outside the scope of official estimates, which hampers the development of adequate measures to regulate migration flows and effectively manage socioeconomic processes at the regional level.

Accordingly, we formulate the research hypothesis that using official tax reporting data as a source of information will provide an objective picture of legally employed foreign citizens in terms of their regional distribution, in contrast to data on border crossings and migration registration indicators. These figures lay the foundation for quantifying the contribution of labor migrants to the regional economy and for shaping regional demographic and social strategies.

The aim of the study is to identify the flow of international labor migration occurring within formal labor relations and, on this basis, to quantify the employment of foreign workers in Russian regions.

Theoretical and methodological foundations of the study

The free movement of foreign workers from certain countries and simplified hiring procedures were intended to help offset labor shortages in Russia's regions and thereby support economic development. However, findings from several studies show that the main flow of labor migrants concentrates in

the country's central regions – Moscow, the Moscow Region, the Leningrad Region, and others – where newcomers predominantly work in trade and services (Krasinets, 2023; Druzhinin, 2025). Migration processes have an ambiguous impact on the economic situation of recipient regions: competition in the labor market intensifies, income disparities widen, the burden on social infrastructure grows (leading to a decline in the quality and accessibility of education and healthcare), and problems of social adaptation and intercultural interaction of foreign guests emerge. Disproportions in migration pressure across Russian regions increase the strain on social systems, fuel informal employment and social tension, including the emergence of ethnic enclaves and the spread of xenophobia (Mentesoglu Tardivo, 2025).

Russia has several key mechanisms that allow foreign citizens to enter the Russian labor market legally (*Fig. 1*).

Free employment for citizens of the Eurasian Economic Union (EAEU), the Republic of Armenia, the Republic of Belarus, the Republic of Kazakhstan, and the Kyrgyz Republic exempts workers from these countries from obtaining work permits and effectively equates them with Russian citizens in matters of employment (Galas, 2020). A foreigner becomes eligible for employment without additional permits if he or she already holds a temporary residence permit or a residence permit. In this case, migrants enjoy the same labor rights as Russian citizens. Foreign students enrolled in full-time and part-time programs at Russian institutions of higher and secondary vocational education are also entitled to formal employment (Rostovskaya, Vasil'eva, 2023).

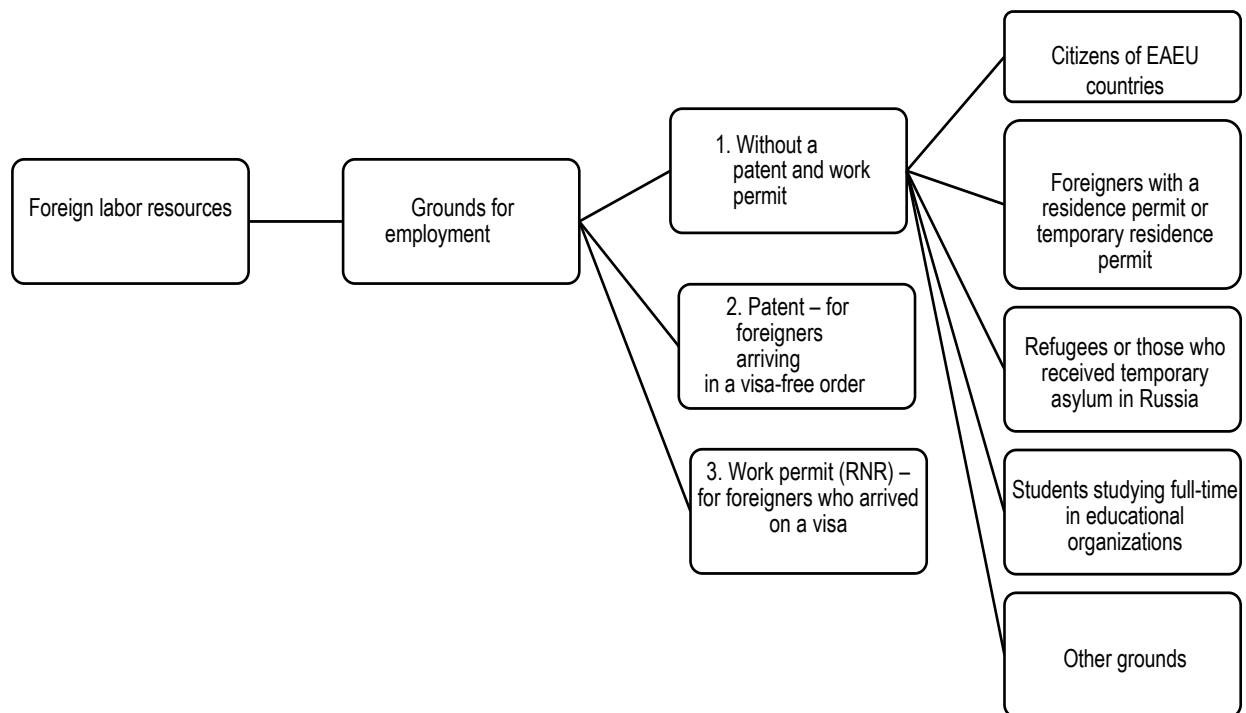


Figure 1. Grounds for legal employment of foreign citizens

Source: own compilation.

In addition to the above categories, certain groups of foreigners are exempt from special authorization procedures, including employees of diplomatic and consular missions, representatives of international organizations, accredited journalists, and other professions covered by special provisions.

A simplified procedure for obtaining the right to work in the form of a patent applies to citizens of the Republic of Uzbekistan, the Republic of Tajikistan, the Republic of Azerbaijan, the Republic of Moldova, and Ukraine, who do not need a visa to enter the Russian Federation.

For citizens of countries that require a visa to enter Russia, a quota system for attracting foreign labor is in place, under which the employer must obtain prior approval to hire an employee for an approved position. Employment outside the quota for residents of visa-required countries is possible on the basis of a list of professions, specialties, or

positions recognized as in demand. Highly qualified specialists are also employed outside the quota. If a foreign citizen receives an invitation from a Russian employer and meets the established qualification and salary requirements, he or she may work without quota restrictions.

The analysis of methodological approaches to obtaining data on the scale of legal migration in Russian regions is based on publications in leading Russian journals in the fields of Demography and Economics.

In her article, N.V. Smirnova provides quantitative estimates of migration flows based on Ministry of Internal Affairs (MVD) data on migration registration (Smirnova, 2023). She highlights the methodological limitations of this data source: “When analyzing the data, one notices differences in the methodology of collecting and recording statistical data used by the MVD over different periods. For example, before 2020,

the number of incoming migrants by purpose was counted only on the basis of primary registrations of foreign citizens and stateless persons at their place of stay, whereas after 2020 migration registration statistics began to be kept based on all facts of registration of foreign citizens and stateless persons at their place of stay over the period” (Smirnova, 2023). This means that, in addition to uncertainty about the actual employment of foreign workers, there is also a lack of control, allowing a single individual to be registered multiple times. Consequently, the number of foreign workers is overstated, and MVD estimates exceed 10 million people per year, while Federal Tax Service data for the same period show a figure ten times lower.

In their article, V.V. Fauzer and co-authors present the results of a study of foreign migration flows to the regions of the Russian North (Fauzer et al., 2026). The main data source for the recent period is the Rosstat statistical bulletin “Population and Migration in the Russian Federation” for 2018–2023. A description of this source shows that migration data are derived from processing statistical records of arrivals and departures submitted by territorial bodies of the Ministry of Internal Affairs of the Russian Federation. These records are compiled at the time of registration and deregistration of the population at their place of residence, as well as when registering at a place of stay for a period of nine months or more. Accordingly, this source has limitations for assessing foreign labor in a region, related both to verifying actual employment and to the possibility of multiple registrations over the year, which overstates the number of migrants. Similar data sources are used in the work of S. Kalyugina and co-authors and E.S. Krasinets (Kalyugina et al., 2018; Krasinets, 2022; 2023).

Some studies use an approach that relies on MVD data on the patents and work permits obtained by migrants (Lifshits, 2016; Topilin, Maksimova, 2020; Kur’yan, Motrich, 2025). This approach makes it possible to determine the region where a foreign citizen is employed, since permit documents are valid within the constituent entity for which the document is issued. However, this data source does not guarantee the reliability of information about formal employment, because MVD data on patents and work permits reflect only the number of foreign citizens who have obtained the relevant documents, not actual formal employment figures. In addition, a significant group of potential workers – those arriving from EAEU countries, those holding temporary residence permits or residence permits, and foreign students – are not reflected in MVD data. Moreover, the validity period of work permit documents can be less than a year, leading to multiple counts of the same foreign worker who obtains permits several times a year. Thus, using MVD data on patents and work permits allows only a partial assessment of the scale of legal labor migration and does not reflect the full picture of formal employment of foreign citizens in the Russian Federation.

Some authors adopt a comprehensive approach to selecting information sources: data from the Federal State Statistics Service based on entries into the Russian Federation with the stated purpose “Work”; data from the Border Service of the FSB of Russia; MVD data on migration registration, patents, and work permits; indicators from sample surveys based on sociological questionnaires; values from recruitment agencies; and expert estimates (Florinskaya, 2022; Sedlov, 2024; Ryazantsev, Pismennaya, 2025; Bedrina et al., 2025).

In the article by E.L. Andreyanova, the incoming flow of foreign workers to the regions of the Siberian Federal District is assessed on the basis of data from a sample statistical survey of migrant labor. In describing the research procedure, the author notes that more than 130,000 households with residents aged 15 and older were surveyed across all constituent entities of the Russian Federation (0.24% of the total number of households). This means the information does not describe the general population, which makes it difficult to use this source as the main basis for quantitative estimates of migration flows.

In the study by V.I. Mukomel', survey data were used with a maximum number of 8,033 respondents. Given a total study population of 3.5 million employed migrants, the reliability of such data is extremely low (Mukomel', 2024). In the article by E.A. Edinak and D.M. Ksenofontov, the authors use data from the already mentioned Labor Force Survey, which is also the result of questionnaire-based research (Edinak, Ksenofontov, 2023).

Using data from the Federal State Statistics Service provides an overall picture of population movements but fails to capture the specifics of formal employment or the status of migrants. The limitations of this source for assessing legally employed foreign workers lie in the fact that information on entries for the purpose of "Work" does not reflect actual employment. Migration statistics also do not allow one to assess the distribution of foreign workers across the country's regions. This method yields only an approximate number of foreign nationals entering for employment purposes and does not reflect the real level of legal employment in Russia's regions.

To obtain an objective picture of the scale of labor migration, it is advisable to rely on Federal Tax Service data, which

reflect the actual number of foreign workers who received income on the territory of the Russian Federation. The source is the "Report on the tax base and the structure of personal income tax accruals, based on information provided by tax agents." This source makes it possible to assess the real number of legally employed foreign citizens in a given region and the amount of income they received, which in turn makes it possible to include foreign workers in the system of guaranteed social benefits. The reliability of the information is supported by a set of administrative procedures, including migration registration, employment of foreign workers, payroll accounting, tax reporting, and control. Missing or incomplete data can be compensated through appropriate requests to specialized bodies. A feature of using Federal Tax Service data is the lack of detail on categories of foreign workers by country of origin, although traditional sources also do not provide such information. This problem can be resolved by amending the tax reporting form to include details on the grounds for employment and the countries of origin of foreign workers.

Research results

Table 1 presents information on the number of foreign citizens who received income in the Russian Federation and the total amount from sources in the Russian Federation.

The largest number of legally employed foreign citizens is traditionally recorded in the regions of the Central Federal District: in 2024, 1,478,993 people worked there, which is almost half of the national total. With a noticeable lag follow the Siberian, Northwestern, and Far Eastern federal districts. In these regions, the labor of foreign workers is in demand in construction, industry, agriculture, and transport. The Southern Federal District is characterized

Table 1. Number of foreign citizens who received income and total income from sources in the Russian Federation, 2022–2024

Region	Number of foreign citizens who received income, people			Total income of foreign citizens, million rubles		
	2022	2023	2024	2022	2023	2024
Central Federal District	1228635	1293839	1478993	544398	647139	877863
Belgorod Region	6529	5822	5413	2491	2852	2393
Bryansk Region	7099	5886	5585	2093	2165	2701
Vladimir Region	12907	14129	16176	3210	4293	6481
Voronezh Region	11024	11573	12364	2297	3091	3913
Ivanovo Region	7947	9348	11226	962	1384	2028
Kaluga Region	32773	31058	31432	10755	11766	14961
Kostroma Region	5005	5467	5351	839	1527	1371
Kursk Region	6871	8546	10432	2434	2997	4185
Lipetsk Region	4692	5726	9101	1479	1946	4338
Moscow Region	329678	359209	430154	107083	137666	195510
Orel Region	2905	3040	4512	684	992	1766
Ryazan Region	15706	17198	18952	3197	4307	6151
Smolensk Region	25961	24190	25576	10377	18481	26209
Tambov Region	4246	4383	4851	742	930	1258
Tver Region	15864	16819	18047	3175	4287	5908
Tula Region	21137	22487	28264	5856	6696	10777
Yaroslavl Region	8111	9615	10981	1980	2614	3829
Moscow	710180	739343	830576	384744	439146	584084
Northwestern Federal District	362296	374689	422797	132266	156677	214883
Republic of Karelia	3325	3541	3740	965	1092	1256
Komi Republic	4265	4157	4608	1682	1865	2489
Arkhangelsk Region (including the Nenets Autonomous Area)	2684	2706	2858	1394	552	790
Vologda Region	9558	9374	12733	2381	2296	3870
Kaliningrad Region	13929	13781	15129	4890	5913	10698
Leningrad Region	67582	74185	93894	21824	29144	46005
Murmansk Region	30739	24436	25998	17534	15866	18593
Novgorod Region	3650	4159	4248	755	1147	1413
Pskov Region	5515	4159	5996	1174	1147	1924
Saint Petersburg	221049	234191	253593	79666	97655	127845
North Caucasian Federal District	12317	17011	22070	1812	2785	5352
Republic of Dagestan	2060	2912	4637	212	356	718
Republic of Ingushetia	375	530	994	30	57	159
Kabardino-Balkarian Republic	681	714	895	74	91	143
Karachayevo-Circassian Republic	1568	1675	1968	222	317	479
Republic of North Ossetia-Alania	1188	1103	1304	166	190	278
Chechen Republic	2031	3824	4224	300	587	1298
Stavropol Territory	4414	6253	8048	809	1187	2277
Southern Federal District	97588	101281	116199	27784	29489	46065
Republic of Adygea	2947	2381	1959	487	461	482
Republic of Kalmykia	742	0	4833	101	0	587
Republic of Crimea	10911	8515	9205	2646	2803	4091
Krasnodar Territory	43125	51962	57908	12033	16065	25494
Astrakhan Region	5891	6499	6669	1326	1506	1942
Volgograd Region	11983	11783	12672	4811	2439	2906
Rostov Region	17085	15817	17802	4673	4611	7614
Sevastopol	4904	4324	5151	1707	1604	2949

End of Table 1

Region	Number of foreign citizens who received income, people			Total income of foreign citizens, million rubles		
	2022	2023	2024	2022	2023	2024
Volga Federal District	139558	163976	212261	43641	55687	84507
Republic of Bashkortostan	11359	13084	15663	3343	3931	4659
Republic of Mari El	909	1139	1304	165	229	350
Republic of Mordovia	2924	3759	5571	398	640	1479
Republic of Tatarstan	33644	46804	63020	14285	17734	29670
Republic of Udmurtia	5319	5688	8674	762	960	1769
Chuvash Republic	1787	2347	2898	453	799	1310
Kirov Region	3399	4351	5267	766	1220	2104
Nizhny Novgorod Region	28520	31458	39995	10010	16013	21522
Orenburg Region	4130	4460	6819	1511	1832	2754
Penza Region	4388	4955	6271	758	1082	1698
Perm Territory	13037	12845	14978	3051	3092	4724
Samara Region	17600	19113	24685	5674	5329	8019
Saratov Region	7991	9067	11271	1810	2136	3337
Ulyanovsk Region	4551	4906	5845	654	688	1112
Ural Federal District	141376	160789	202996	46054	61478	90895
Kurgan Region	1647	2265	4147	268	363	798
Sverdlovsk Region	46356	53450	71540	10946	14663	23248
Tyumen Region (excluding the Khanty-Mansi Autonomous Area – Yugra and the Yamal-Nenets Autonomous Area)	19085	19820	25805	4214	5382	8908
Khanty-Mansi Autonomous Area – Yugra	31774	34301	38696	10963	14789	23022
Yamal-Nenets Autonomous Area	26221	30476	37424	15528	19768	26600
Chelyabinsk Region	16293	20477	25384	4134	6514	8320
Siberian Federal District	151216	163178	174809	48059	58430	82918
Altai Republic	2409	2623	1825	873	889	635
Republic of Tuva	893	947	984	848	753	842
Republic of Khakassia	1109	1350	1665	253	328	471
Altai Territory	5363	6377	6812	852	1550	2182
Krasnoyarsk Territory	28340	29220	35852	7536	9832	15019
Irkutsk Region	42953	48623	48411	17819	23970	30131
Kemerovo Region – Kuzbass	9028	12556	16399	4200	3344	10201
Novosibirsk Region	31788	36290	42507	8305	11272	16668
Omsk Region	17194	14007	11014	5236	3966	3679
Tomsk Region	12139	11185	9340	2138	2526	3089
Far Eastern Federal District	191729	202476	240368	83186	104648	159117
Republic of Buryatia	9784	10358	9866	3795	4564	5939
Republic of Sakha (Yakutia)	15049	17242	20353	6152	8272	12822
Primorye Territory	25375	28600	36558	11986	14164	19030
Khabarovsk Territory	21029	26039	32247	5925	9249	16523
Amur Region	56273	51329	68030	24248	26312	47918
Kamchatka Territory	10918	11816	13234	4828	5636	6312
Magadan Region	10421	10696	11032	6199	7512	9360
Sakhalin Region	21503	19834	18975	7070	10573	11757
Trans-Baikal Territory	16676	21947	24091	9651	14938	23737
Jewish Autonomous Region	1605	1971	2830	467	634	1277
Chukotka Autonomous Area	3096	2644	3152	2865	2795	4442

Source: Own compilation based on the report on the tax base and the structure of personal income tax accruals withheld by tax agents, broken down by region of the Russian Federation. Available at: <https://www.nalog.gov.ru/> Section "Statistics and Analytics" / "Data on statistical tax reporting forms" / "Report on Form No. 5-NDFL"

by moderate growth in the number of legally employed foreign workers, which amounted to 19.1% over three years, and a significantly higher increase in total income – 65.7%. Similar trends are observed in the regions of the Volga and Ural federal districts. The smallest number of labor migrants from abroad over the period under review remained in the North Caucasian Federal District – 22,070 people in 2024, due to the lower attractiveness of employment there because of relatively low wages.

The estimates reveal a heterogeneous composition of foreign citizens engaged in legal labor activity in Russia's regions. The most common way of obtaining the right to work among migrants is a patent. In the

Russian Federation as a whole, the share of employed foreigners with this permit is 72.8% of the total, reflecting the general dynamics of labor migration from countries with visa-free entry – Tajikistan and Uzbekistan. The distribution structure differs across federal districts, reflecting the specific features of regional labor markets and migration policy. Nationwide, there is a stable share of legally working labor migrants who obtained the right to work on an equal basis with Russian citizens under special statuses: a) citizens of the EAEU; b) foreign citizens holding a temporary residence permit or a residence permit; c) refugees and temporary migrants accounting for 20% of the total number.

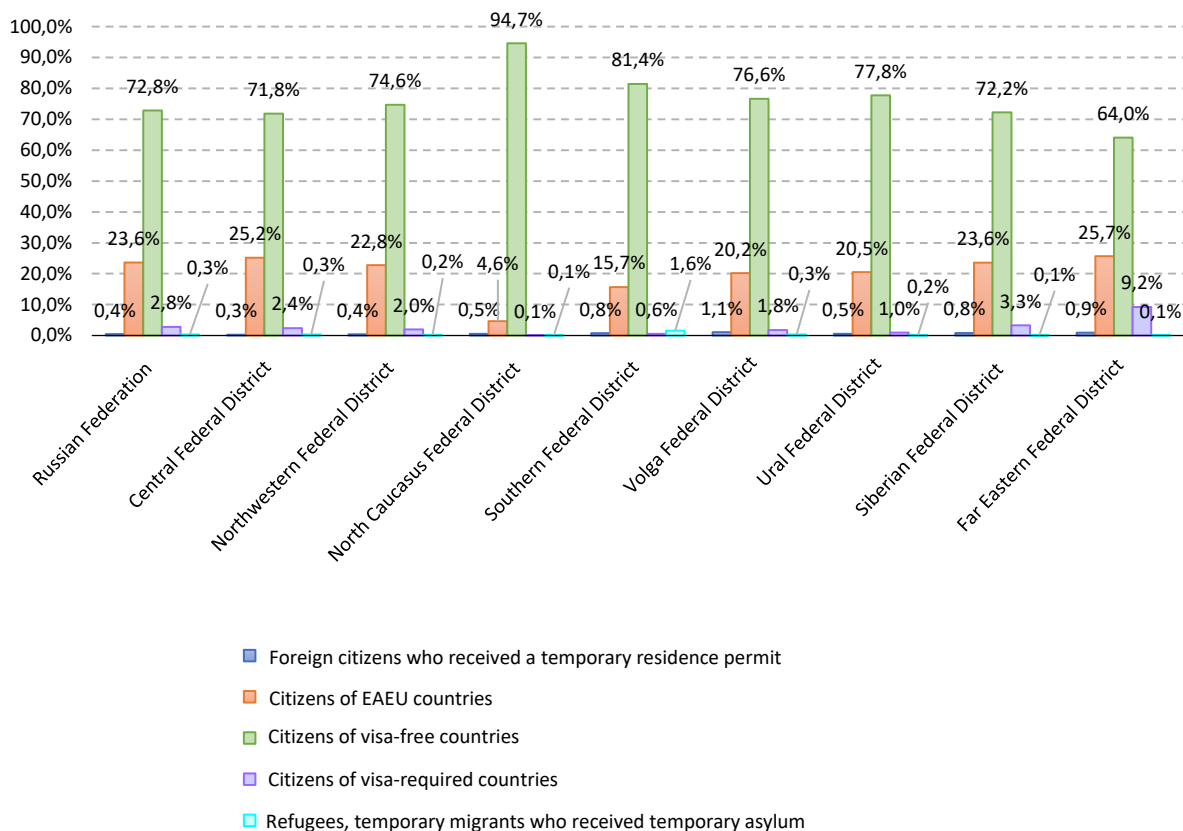


Figure 2. Structure of foreign citizens by grounds for employment in the federal districts of the Russian Federation, 2024, %**

Source: own compilation based on the statistical report:
Number of Foreign Labor Force (Work Permits).

The Central Federal District is dominated by foreign citizens employed on the basis of a patent, which is associated with a high concentration of jobs requiring unskilled labor and with the simplified procedure for obtaining one. The Northwestern Federal District shows a similar picture, but the share of labor migrants holding work permits is somewhat higher. This is due to the presence of large industrial enterprises and construction sites. In the Far Eastern Federal District, a significant share of labor migrants work on the basis of a work permit, which stems from the specifics of the migration inflow from the People's Republic of China.

Over the period analyzed, the number of legally employed foreign citizens increased substantially. Nationwide, the increase was 23.47%, reflecting both the overall growth in the participation of foreign labor in the Russian economy and the process of legalization of foreign workers. At the same

time, total income increased by 68.9%, which is significantly higher than the growth in the number of legal foreign workers and indicates an increase in the average income per foreign citizen. Based on surveys of labor migrants, V.I. Mukomel' concludes that a trend toward the restructuring of relations between foreign workers and employers has emerged (Mukomel', 2024). Employers have come to recognize their dependence on migrant labor, and migrants have realized that they have a certain freedom to choose where to work. Gone are the employer–foreign worker relationships that were common in the 1990s and early 2000s, namely non-payment of wages, confiscation of documents, and other forms of forced labor. This was facilitated by legal reforms and the activities of civil society institutions, which helped change the relationship between employers and migrants. The participation of foreign workers in total employment across Russia's regions is also mixed (*Fig. 3*).

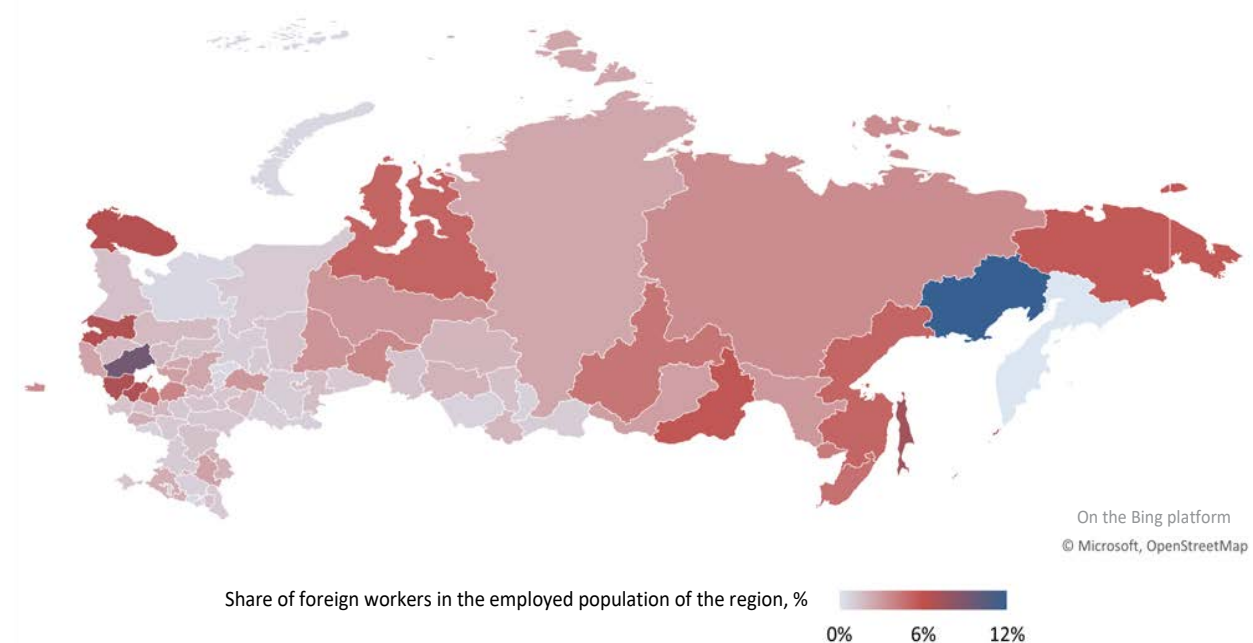


Figure 3. Share of foreign workers in the employed population of the region, 2024, %

Source: own compilation based on the report on the tax base and the structure of personal income tax accruals withheld by tax agents, broken down by region of the Russian Federation. Available at: <https://www.nalog.gov.ru/> Section "Statistics and Analytics" / "Data on statistical tax reporting forms" / "Report on Form No. 5-NDFL".

In 2024, the share of foreign workers in the employed population of the region varied significantly across the country's economic centers, such as Moscow, Saint Petersburg, the Krasnodar Territory, and the autonomous okrugs of the Ural Federal District, where the share of foreign workers exceeded the average regional level of 3%. This is due to the high concentration of enterprises in need of labor resources and to attractive living conditions for migrants. In regions with a predominance of low-skilled labor, limited opportunities for labor migration, and less developed economic structures (for example, in the Ivanovo, Tambov, and Kostroma regions, as well as in several republics of the North Caucasus and Siberia), the share of foreign workers in the employed population remains minimal. This stems both from low demand for foreign labor and from restrictions on migrants' access to the labor market. Next, we examine the ratio of foreign workers' income to the average regional wage of Russian citizens in 2024 (Fig. 4).

The ratio of foreign workers' income to the average regional wage of Russian citizens shows considerable variation across regions. In a number of regions, such as Moscow, the Smolensk Region, the Yamal-Nenets Autonomous Area, and the Chukotka Autonomous Area, the income of foreign citizens approaches the average wage of local residents and in some cases even exceeds it. The highest income per foreign worker is recorded in the Smolensk Region – 1,025 thousand rubles per year, Moscow – 703 thousand rubles per year, and the Bryansk Region – 484 thousand rubles per year, which is linked both to the general level of wages in these regions and to the concentration of highly paid jobs. The lowest figures are typical of the Ivanovo Region (181 thousand rubles per year), the Tambov Region (259 thousand rubles per year), and the Kostroma Region (256 thousand rubles per year), where unskilled labor predominates and, accordingly, pay levels are much lower. This trend is associated with the high demand for labor migrants in sectors of the economy with higher salaries.

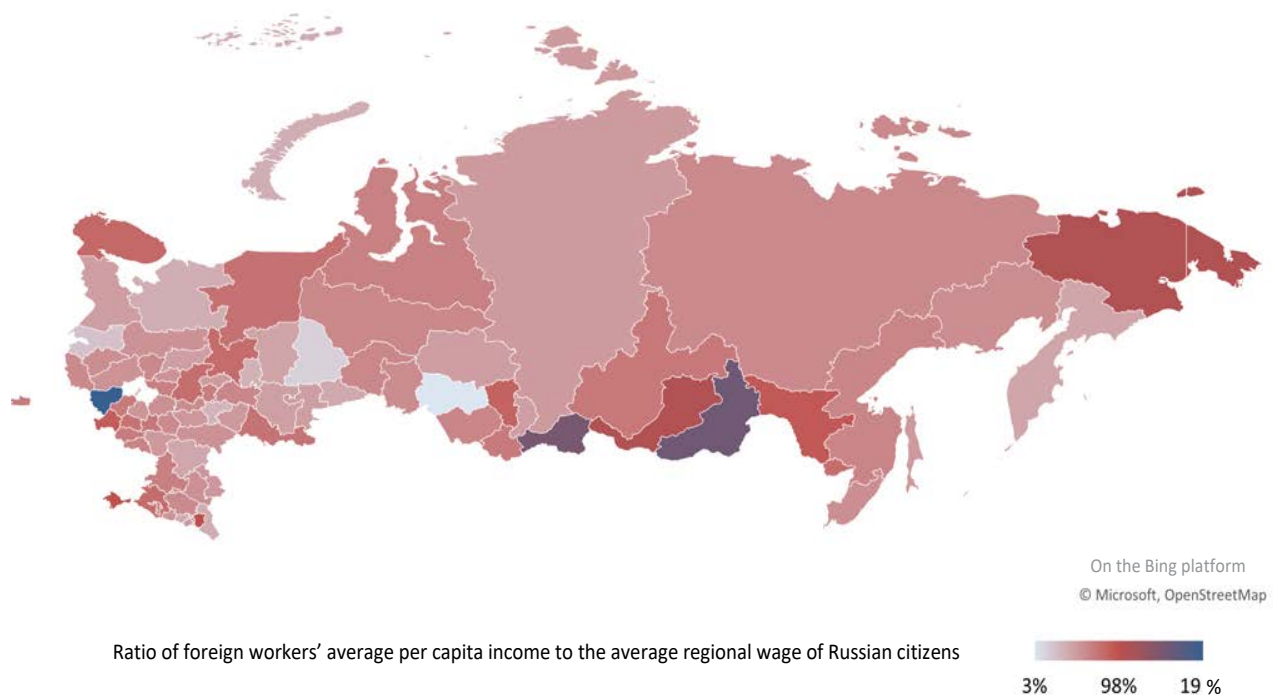


Figure 4. Ratio of foreign workers' income to the average regional wage of Russian citizens, 2024, %

Source: own compilation based on the report on the tax base and the structure of personal income tax accruals withheld by tax agents, broken down by region of the Russian Federation. Available at: <https://www.nalog.gov.ru/> Section "Statistics and Analytics" / "Data on statistical tax reporting forms" / "Report on Form No. 5-NDFL".

At the same time, in regions where low-skilled labor predominates and migration opportunities are limited (for example, in the Ivanovo, Tambov, and Kostroma regions, as well as in the Republic of Kalmykia and the Kurgan Region), the income of foreign workers is significantly lower than the average regional wage of Russian citizens. Overall, the analysis shows that the growth rate of labor migrants' income outpaces their numbers. This indicates an increase in average income per migrant and a gradual convergence with the wage level of Russian citizens in a number of regions. Considering the average annual income of foreign workers by region in 2024, the highest values were recorded in the Chukotka Autonomous Area – 1,410 thousand rubles, and the Trans-Baikal Territory – 985 thousand rubles. The implementation of the strategic goal of the demographic policy of the Far Eastern regions involves (in addition to preserving the indigenous population) actively encouraging foreign citizens to move to the Far East (Shmidt, Ivashina, 2021). To this end, within the framework of the program for the development of Priority Development Areas in the Far East, resident companies are granted, along with traditional benefits, a simplified procedure for attracting qualified foreign personnel outside the quotas established in the region (Borshchevskii, 2025).

Conclusion

Summing up and opening a scholarly discussion on the results of estimating the number of legally employed foreign workers in Russia's regions, it is necessary to outline the main findings and conclusions.

The data obtained show that the largest number of labor migrants is concentrated in the economic centers of federal districts. The leading regions in terms of the number of foreign workers and their incomes include Moscow and the Moscow Region in the Central Federal

District; Saint Petersburg and the Leningrad Region in the Northwestern Federal District; the Stavropol Territory and the Chechen Republic in the North Caucasian Federal District; the Krasnodar Territory and the Rostov Region in the Southern Federal District; the Yamal-Nenets Autonomous Area, the Khanty-Mansi Autonomous Area – Yugra, and the Sverdlovsk Region in the Ural Federal District; the Irkutsk Region, the Kemerovo Region – Kuzbass, and the Krasnoyarsk Territory in the Siberian Federal District; and the Amur Region, the Primorye Territory, and the Khabarovsk Territory in the Far Eastern Federal District. A high concentration of migrants is characteristic of regions with developed industry and infrastructure, reflecting the specific features of economic activity and labor demand in these territories.

An assessment of the comparability of our findings with figures presented in a number of studies reveals substantial differences in quantitative estimates depending on the source of information. For example, E.S. Krasinets notes that, according to data from the Border Service of the FSB of the Russian Federation, in 2023 compared with 2020, the number of foreign citizens entering Russia for the purpose of "Work" increased from 1.1 to 4.5 million people (Krasinets, 2025). According to Federal Tax Service data, the number of employed foreigners was 1,668 thousand in 2020 and 2,356 thousand in 2023, which is several times lower than the number of foreign citizens entering Russia for "Work", while the growth over the period 2020–2023 was 141%. This example clearly explains the differences between potential and actual foreign labor resources and makes it possible to set tasks for the relevant agencies to legalize the labor of foreign workers.

In her article, A.A. Sokolova provides a detailed regional analysis of the employment of foreign workers from visa-required countries in order to determine the role of quotas for

foreign labor resources (Sokolova, 2026). The information base consists of Ministry of Internal Affairs (MVD) data on issued work permits. A comparison of the findings reveals predictable discrepancies caused by the use of different sources of information and different objects of analysis. In our study, the object is the entire set of legally employed foreign workers, whereas in the cited article it is citizens of visa-required countries who have received work permits. At the same time, the groups of regions identified by the intensity of migrant labor use partially coincide: according to Federal Tax Service data, the Republic of Bashkortostan does not fall into the group with the lowest intensity, whereas the republics of the North Caucasus do. The groups with the highest intensity include the same regions as in the FTS data: Moscow, the Moscow Region, Saint Petersburg, the Republic of Tatarstan, and the Sverdlovsk Region.

The findings also differ somewhat from the picture formed in a number of studies concerning the territorial distribution of foreign workers across the country. While the regions of the Central and Northwestern federal districts are the unequivocal leaders in attracting foreign labor – both in the quantitative estimates of work permit issuance

presented in Yu.F. Florinskaya's article and in the values obtained in this study – the distribution of foreign workers is less clear-cut (Florinskaya, 2024). In the aforementioned study, the third-largest number of foreign workers is found in the Volga Federal District. Yet tax reporting data show that, over the period 2022–2024, the Far Eastern Federal District occupied this position. Together with information on the regional distribution of all foreigners registered for migration purposes, the discrepancy with the estimates obtained in this study becomes even more pronounced (Mkrtchyan, Florinskaya, 2018).

Thus, the study proposes and tests an approach to quantifying legal labor migration at the regional level based on tax reporting data. This approach yields more accurate indicators than traditional methods that rely on migration registration statistics. The analysis of a large body of data for 2022–2024 has revealed new trends in the territorial distribution of foreign workers across Russia's regions and has identified significant discrepancies between different sources of migration statistics. The findings extend scholarly understanding of how the foreign labor market operates in Russia and provide a basis for more effective regional demographic and social policy.

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ОЦЕНКА ЛЕГАЛЬНОЙ ТРУДОВОЙ МИГРАЦИИ В РЕГИОНАХ РОССИИ

Актуальность исследования обусловлена увеличением роли внешней трудовой миграции в кадровом обеспечении экономики Российской Федерации в период 2022–2024 гг. Научная проблема заключается в определении подходов к выявлению особенностей территориального распределения легальных трудовых мигрантов и соответствующей корректировке существующих представлений о миграционных потоках на основе официальных данных о занятости иностранных работников в регионах РФ. Цель исследования состоит в выявлении потока международной трудовой миграции, осуществляемой в рамках легальных трудовых отношений и проведение на его основе количественных оценок занятости иностранных работников в регионах Российской Федерации. В качестве источника информации использованы данные официальной налоговой отчетности, которые в отличие от показателей миграционного учета, позволяют получить комплексное представление о результатах трудовой деятельности, осуществленной на легальных основаниях в регионах Российской Федерации. Основные сведения показывают, что наибольшая концентрация иностранных работников приходится на экономические центры федеральных округов, при этом наблюдается существенный прирост значений занятости иностранных работников в регионах Дальневосточного федерального округа, как по численности, так и по совокупным доходам мигрантов. Полученные данные позволяют расширить научные представления о распределении иностранных трудовых ресурсов в России и учитывать миграционные потоки при формировании демографической и социальной политики регионов.

Трудовая миграция, иностранные работники, Россия, регионы, демографическая политика, доходы мигрантов, территориальное распределение.

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DOI: 10.15838/ptd.2026.4.144.9

UDC 314.174 | LBC 60.7

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POPULATION AGEING AS A THREAT TO THE REGION'S DEMOGRAPHIC DEVELOPMENT (CASE STUDY OF THE JEWISH AUTONOMOUS REGION)



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For citation: Komarova T.M., Averina O.V., Stelmakh E.V., Solovchenkov S.A. (2026). Population ageing as a threat to the region's demographic development (case study of the Jewish Autonomous Region). *Problems of Territory's Development*, 30(4), 148–163. DOI: 10.15838/ptd.2026.4.144.9

The article examines the problem of population ageing, which is one of the main threats to the demographic development of both the country as a whole and its individual regions. Using the Jewish Autonomous Region as a case study, the process of population ageing and its consequences for the socioeconomic development of the region are analyzed. A high demographic dependency burden on the workingage population in the Jewish Autonomous Region is noted. Since 2008, the share of children and the elderly has converged, and subsequently the population above working age has come to predominate. This issue is also characteristic of the Primorye Territory and the Sakhalin Region and is among the most pressing in the Far Eastern Federal District, although its percentage ratio there is lower than the Russian average. The calculated longevity coefficients and ageing depth index indicate that the region is demographically old. The low life expectancy indirectly reflects the insufficient level of healthcare development in the region and the inadequate commitment of the population to a healthy lifestyle. The high proportion of the elderly population leads to high mortality rates. The growing demographic dependency burden affects the workingage population; reduces demand and consumer activity; increases the share of dependants relative to the working population; reduces the most creative, progressive, and innovation and technologyoriented segments of society; and raises spending on social protection, the pension system, and healthcare, while the base for insurance contributions shrinks.

Population ageing, age structure of the population, demographic dependency burden, Jewish Autonomous Region, morbidity, mortality, birth rate.

Introduction

Population aging is a global phenomenon in countries with high and middle levels of economic development. It is a major demographic process because it is associated with a growing social burden and mounting pressure on the economic system. People over working age make a smaller contribution to the economy due to retirement and a gradual decline in productivity driven by health status. The relationship between demographic factors and social development was already addressed in Malthusian population theory in the late 19th century. Before the development of neoclassical growth concepts, research focused on the relationship between the working-age and non-working-age populations, reflecting the balance between production and consumption¹. In emphasizing the distinction between productive and non-productive forces, many scholars – Adam Smith

and Karl Marx in particular – paid insufficient attention to changes in population structure, assuming that the share of working-age people in the total population was constant and that its growth rate was proportional to the rate of population growth as a whole (Barsukov, Kalachikova, 2020). Thus, the link between demographic factors and economic growth was reduced to assessing the impact of population increase on economic development under conditions of resource constraints and given the exogenous nature of technological progress.

As foreign studies show, the number of countries facing population aging and declining fertility is steadily rising. This process is observed mainly in developed countries whose GDP is relatively high. Despite fairly extensive and diverse measures to stimulate fertility and support older people – measures

¹ Coleman D. The third demographic transition. Demoscope Weekly. Available at: https://www.perspektivy.info/book/tretij_demograficheskij_perehod_2007-09-28.htm (accessed: 05.07.2026).

that have undoubtedly had positive economic effects – the problem remains acute. Japan and South Korea, for example, continue to face demographic difficulties despite higher public spending, while Germany and Italy have managed to achieve a better balance through comprehensive family policy. In Iceland, demographic change has slowed, but the country still faces economic constraints (Rowland, 2012; Zhao, 2025).

According to UN data, the share of people aged 60 and over worldwide increased from 12.3% in 2018 to 14.9% in 2025. By 2050, this age group is projected to grow to 21.5%². Broad discussion of population aging began in the 1980s. The issue was actively debated over a long period by WHO member states. As a result, strategies and action plans were adopted based on a number of relevant resolutions and on the results of earlier work in this area at both the global and European regional levels³. It should be noted that current approaches to the problem of rising average age are shifting toward interdisciplinary perspectives that reflect socioeconomic patterns. As several authors point out, population aging is one of the most important demographic processes of the modern world and represents a complex, multifactorial medical and social problem (Eklund, Wilhelmson, 2009; Ham, 2010; Low et al., 2011).

Foreign researchers emphasize that aging has a significant impact on the structure of the labor force, contributing to a decline in the number of young working-age people (Maresova et al., 2015). A rising average age is observed among those engaged in

production and services (Cylus, Al Tayara, 2021). Among the possible solutions to the problems associated with population aging in developed countries is the need for changes in migration policy that would increase the inflow of working-age people from “younger” developing states (Ma et al., 2023).

Demographic aging is also characteristic of Russia. It is especially pronounced in the cities of the European part of the country. Contemporary Russian research examines the rise in average age from the perspective of the relationship between viability and quality of life, the impact of aging on national healthcare systems, the integration of international experience in extending healthy life expectancy, and the connection between population aging and economic processes (Kanev et al., 2023; Turzin, Derbenev, 2024; Vikhareva et al., 2025).

The current demographic situation in Russia's regions is characterized by declining fertility, high mortality, falling life expectancy, and a growing share of the population above working age. According to several authors, against the backdrop of a declining total population, the number of working-age citizens will also decrease, ultimately leading to a higher demographic burden⁴ (Tsukanova, 2011; Gasnikov et al., 2012; Sinita, 2018; Khramova, Zorin, 2020; Ryazantsev, Rybakovskii, 2021; Takmakova et al., 2023).

In addition to its demographic consequences, population aging also affects the socio-economic situation of a territory. With a high share of older people, development inevitably

² Population. United Nations. Available at: <http://www.un.org/ru/sections/issues-depth/population/> (accessed: 01.07.2026).

³ Strategy and action plan for healthy ageing in Europe, 2012–2020. WHO Regional Committee for Europe. Sixty-second session. Malta, September 10–13, 2012. Available at: http://www.euro.who.int/__data/assets/pdf_file/0008/175544/RC62wd10Rev1-Eng.pdf (accessed: 01.07.2026).

⁴ Population of Russia 2015: Twenty-third Annual Demographic Report. Moscow: HSE Publishing House, 2017. 360 p.

becomes less dynamic and more conservative in all respects (including science and technology) than with a younger population. A number of authors note that ignoring the problem can undermine the stability of the state budget and adversely affect the country's economic well-being. There is an urgent need to attract substantial financial, material, and labor resources to achieve the goals of state policy toward older people and to ensure a decent standard and quality of life for them through material support, medical care and medication, social services, an accessible living environment including educational, sociocultural, and leisure services, and employment promotion. In line with the National Project "Demography," the "Older Generation" program has been developed, aimed at creating conditions for active longevity and a high quality of life for older citizens and at motivating them to lead healthy lifestyles (Lukyanets et al., 2021; Gaidarov et al., 2023; Kabrt, 2024).

Under conditions of reduced population reproduction, demographic aging is irreversible. The decline in the number of inhabitants from generation to generation proceeds in geometric progression, and even with rising fertility the burden on working citizens increases (Varlamov, 2011; Aleshkovskii, 2012; Gonataeva, Kirova, 2023). Despite a wide range of research on these issues, some Russian regions remain underexplored. One of these is the Jewish Autonomous Region, an economically underdeveloped constituent entity with a low quality of life. Aging has been considered mainly within studies of the gender and age structure; therefore, examining the problem in the region remains a relevant research direction.

In working on the topic, the authors relied on an interdisciplinary approach to studying the impact of aging on socioeconomic processes in society, since it is the most balanced

for examining the relationship between these concepts.

The Jewish Autonomous Region is located in the southern part of the Far Eastern Federal District. Like other regions of the Far Eastern Federal District, the JAR, where Russians predominate in the ethnic composition, faces similar demographic problems: a declining share of children and an increase in older age groups. The region's population at the beginning of 2025 was 144.4 thousand people, of whom 70.9% were urban residents and 29.1% rural residents. According to the administrative-territorial division, the region comprises five municipal districts and one urban okrug.

Methods and aim of the study

The aim of the study is to analyze the dynamics of the population above working age in the population structure of the Jewish Autonomous Region in order to identify the main threats to the region's socioeconomic development over the period 2000–2023. Population reproduction processes are fairly inertial; therefore, assessing their dynamics requires a sufficiently long time span comparable to the length of a generation (20–25 years). To achieve the stated aim, the following objectives were set: to study the dynamics of the shares of the region's population age groups; to examine the demographic burden on the working-age population; to calculate the share of older people in the structure of working citizens; and to analyze the well-being indicators of residents of retirement age.

Based on the aim and objectives of the study, the following methods were used. In examining the dynamics of the age structure, comparative analysis was applied both to the Jewish Autonomous Region itself and to other constituent entities of the Far Eastern Federal

District. The economic-statistical method was used to analyze time series for selected indicators relating to the age structure of the population, employment, and the well-being of the population above working age. It should be noted that one of the problems in using this method is the quality of statistical data. The current structure of the demographic statistics database does not ensure the completeness of the data used, especially given the restrictions introduced in 2025. Methods of analysis and synthesis were also applied, one of which (assessing quantitative indicators for a single constituent entity) makes it possible to trace the temporal dynamics of the impact of aging on socioeconomic processes in the region. Comparative analysis provided an opportunity to move toward elements of clustering in order to identify regions with similar trends in the aging processes of the Far Eastern Federal District. By synthesizing statistical data on age groups, the demographic burden on the working-age population, and the level of well-being of particular age groups, the authors describe the overall picture of changing demographic

conditions in the region and show the dynamics of the negative effects of population aging.

Main results and discussion

In the region, as in the Far Eastern Federal District as a whole, common demographic trends are observed: a declining population due to natural decrease and migration outflow, as well as a rising average age (Bobkov et al., 2013; Khramova, Zorin, 2020; Stroeve, Telushkina, 2021). In 2023, children accounted for 19.9% of the population of the Jewish Autonomous Region, the working-age population for 58.6%, and people above working age for 21.5%⁵. Among the regions of the Russian Far East, the region stands out for its relatively low share of working-age population, a level close to that of the Republic of Buryatia.

Let us analyze the change in the share of older people in the population. During the perestroika era, the share of children in the Jewish Autonomous Region reached 30.8% in 1989 (the figure for Russia was 24.5%), while the share of people above working age was 15.9% and 18.5%, respectively. The steady decline in fertility is not only a cause of natural

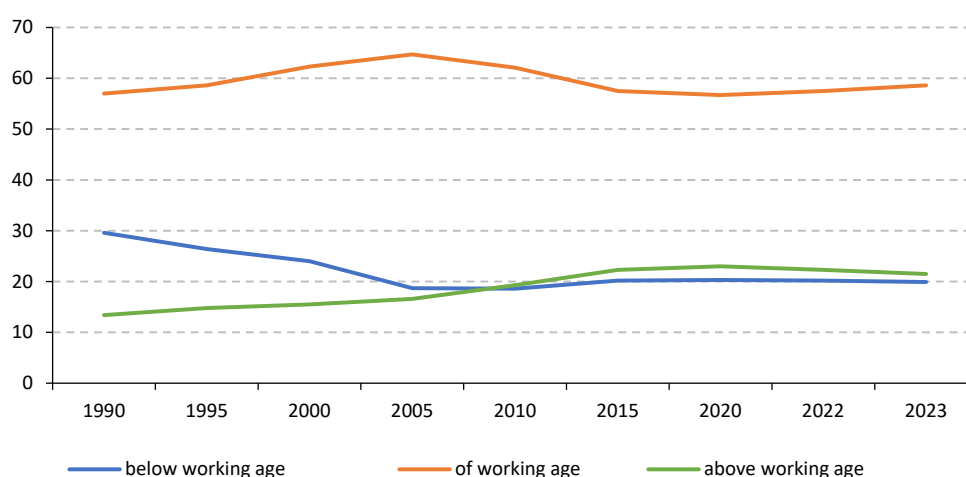


Figure 1. Dynamics of the share of population age groups in the Jewish Autonomous Region, 1990–2023

Source: Demographic Yearbook of the Jewish Autonomous Region 2019. Khabarovskstat, Birobidzhan. 137 p.; Regions of Russia. Socio-Economic Indicators. Electronic versions 2002–2024. Federal State Statistics Service. Available at: <https://rosstat.gov.ru/folder/210/document/13204> (accessed: 29.05.2026).

⁵ Regions of Russia. Socio-Economic Indicators. Electronic versions 2002–2024. Federal State Statistics Service. Available at: <https://rosstat.gov.ru/folder/210/document/13204> (accessed: 29.05.2026).

population decrease but also a factor of aging. In subsequent years, the number of children declined rapidly, reaching a minimum in 2008 (18.1%). Initially, this led to an increase in the share of the working-age population, but from 2008 the share of older people began to rise, reflecting the fact that the generation born in the 1950s had reached retirement age. Whereas in 2007 the ratio of children to older people was almost equal (1.01), from 2008 it became inverse, at 0.9–0.93. The lowest inverse ratio in recent years was observed in 2024, at 0.84. At the same time, in Russia as a whole this inverse ratio between children and people above working age has been observed since 2000, reaching a minimum of 0.73 by 2014.

The age structure of the population significantly affects economic indicators, determining the ratio between the working-age and non-working-age populations. In the early 2000s, Russia entered a period of rapid growth in the demographic burden, driven both by the aging of the population and by an increase in the number of children. According to forecasts, the growth of the child burden will cease by the end of the third decade of the twenty-first century, and its decline may begin (Andreev, Vishnevskii, 2014; Dmitrieva, 2023).

The dynamics of the demographic burden on the working-age population of the Jewish Autonomous Region are shown in *Figure 2*. In 2005, it stood at 545 people of non-working age per 1,000 people of working age in the Jewish Autonomous Region, below the national average of 589. According to data for 2018, the demographic burden in the Jewish Autonomous Region reached a maximum of 799 per 1,000 working-age people, as in other regions of the Far Eastern Federal District. At the same time, the national maximum of 778 was recorded in 2020. The burden in the Jewish Autonomous Region, together with the Trans-Baikal Territory and the Republic of Buryatia, was among the highest in the Far Eastern regions. The lowest figure among the regions of the Far Eastern Federal District was observed in the Chukotka Autonomous Area. In most regions of the Far Eastern Federal District and in Russia as a whole, the bulk of the demographic burden falls on the population above working age. The exceptions are the Republic of Buryatia and the Republic of Sakha (Yakutia), where the share of children in the structure of the burden is 1.2–1.4 times higher. In 2019, with a demographic burden of 764 people of non-working age

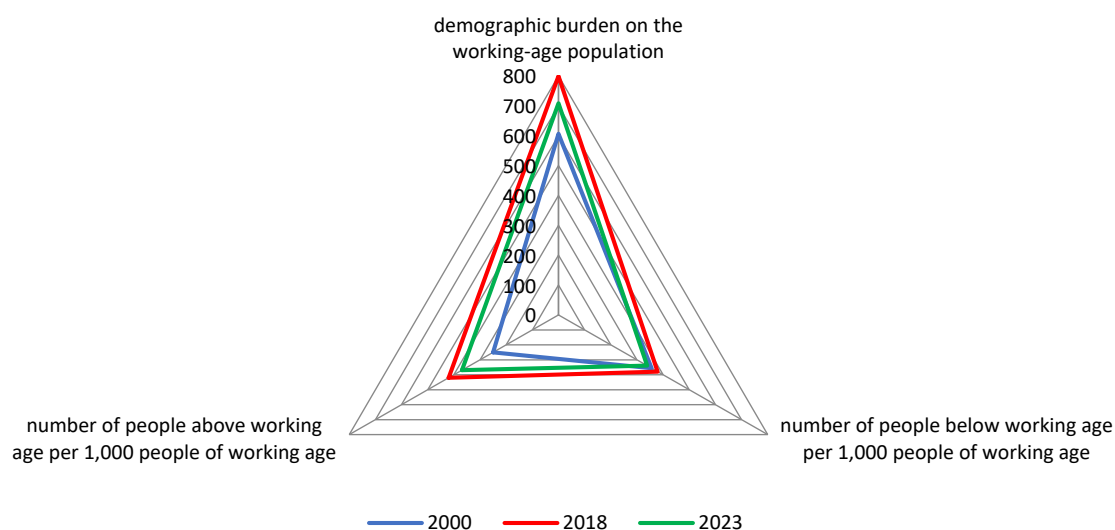


Figure 2. Demographic burden on the working-age population of the Jewish Autonomous Region, 2000–2023

Source: Regions of Russia. Socio-Economic Indicators. Electronic versions 2002–2024. Federal State Statistics Service. Available at: <https://rosstat.gov.ru/folder/210/document/13204> (accessed: 29.05.2026).

per 1,000 working-age people in the Jewish Autonomous Region, the elderly and children accounted for 396 and 368 people, respectively. From 2019 to 2021, there was a slight decline in the burden on the working-age population, from 764 to 731 people. In 2022, the indicator rose both in Russia as a whole and in the Jewish Autonomous Region, to 756 and 741 people, respectively. In 2023, the demographic burden in Russia decreased by 4.2%, and in the Jewish Autonomous Region by 4.5% (Kalinina et al., 2023).

In their study, V.G. Ayusheeva and co-authors classify the Jewish Autonomous Region among Russia's Asian regions in which the ratio between population groups younger and older than working age is becoming more balanced. They note that there is an intense demographic burden on the working-age population, which, in the context of migration, is a destabilizing factor for development (Ayusheeva et al., 2021).

When considering the demographic burden across the region's individual districts, significant differentiation must be noted. The highest burden falls on Birobidzhansky District, at 857 people per 1,000 of working-age population, of which 53.4% is the burden of children – a circumstance that bodes well for a future decline. The lowest burden is observed in Leninsky District, at 675 people, with children accounting for 54.9%. The highest burden of people above working age is recorded in Smidovichsky District (55.9%), which is characterized by active out-migration of the working-age population to the city of

Khabarovsk.

Amid the steady decline of the population in the Jewish Autonomous Region, a gradual decrease is occurring in all age groups. The number of working citizens fell by 2.4% in 2018–2023 alone, the population below working age by 9.4%, and the retirement-age population by 15.6%. An examination of the dynamics of population distribution by age group reveals a downward trend in the share of children since 2015, following the decline in the region's fertility. The share of pensioners grew steadily until 2020, after which it declined as a result of the pandemic (*Tab. 1*).

The share of the population above working age in the region (13.4%) was already among the highest in the Far Eastern Federal District in 1990, along with the Trans-Baikal Territory, but was considerably lower than the national average (19%). A steady positive increase was observed up to 2018 (to 23.3%), followed by unstable dynamics. In 2023, the region recorded its lowest value since 2014 (21.5%).

As E.V. Chistova notes, the share of older people in the total population is the most common indicator of demographic aging, but it is insufficient for identifying its depth, drivers, and pace (Chistova, 2017). The aging coefficient is calculated as the ratio of the population aged 65 and over to the total population, multiplied by 100. A region can be classified as demographically old if the aging coefficient exceeds 15%. In the Jewish Autonomous Region it stands at 15.77%; the region therefore falls into this group. The longevity coefficient is an indicator that quantifies longevity. It is

Table 1. Distribution of the population of the Jewish Autonomous Region by age group, 2000–2023, %

Population age group	2000	2005	2008	2010	2015	2020	2021	2022	2023
Below working age	22.2	18.7	18.2	18.6	20.6	20.3	20.3	20.2	19.9
Of working age	62.3	64.7	63.6	62.1	57.3	56.7	57.8	57.5	58.6
Above working age	15.5	16.6	18.2	19.3	22.1	23	21.9	22.3	21.5

Compiled from: Regions of Russia. Socio-Economic Indicators. Electronic versions 2002–2024. Federal State Statistics Service. Available at: <https://rosstat.gov.ru/folder/210/document/13204> (accessed: 29.05.2026).

calculated as the ratio of the population aged 80 and over to the population aged 60 and over. In the region it is 0.11, which indirectly reflects the low level of development of healthcare and social support, as well as the older population's weak commitment to a healthy lifestyle. The depth-of-aging index (age-based aging index) reflects the share of the population in old age (75–89 years) within the entire elderly population; in the Jewish Autonomous Region it stands at 21%. All these values point to a demographic aging crisis in the region.

The population forecast up to 2045 shows a decline in the total number of residents, both overall (by 25.5%) and in particular age groups, as presented in *Table 2*.

The results of the analysis indicate that the Jewish Autonomous Region is already facing a number of socio-economic consequences of population aging.

First, there is a shortage of labor supply on the regional labor market, caused by difficulties in the reproduction of labor resources and the actual and projected decline in the share of younger age groups. Moreover, the growing share and number of people of retirement age further increase the burden on the employed population (*Tab. 3*).

The data in Table 3 show a negative trend in the ratio of employees to pensioners. From 2000 to 2023, the ratio of the average annual number of people employed in the economy to the number of pensioners declined from 1.7 to 1.4 (for comparison, at the end of the study period the corresponding figure for the Russian Federation was 2.1), and it will continue to decline. This negative trend will affect the region's economy, leading to an overall reduction in the working population and tax revenues, altering the structure of consumer

Table 2. Projected distribution of the population of the Jewish Autonomous Region by age group up to 2045, %

Population age group	2024	2030	2040	2045
Below working age	19.9	17.8	16.6	17.6
Of working age	58.7	61.9	61.5	58.9
Above working age	21.3	20.2	21.9	23.4

Source: compiled by the authors based on Rosstat data. Available at: https://27.rosstat.gov.ru/storage/mediabank/Еврейская%20авт.%20обл._9900000000s.xlsx (accessed: 29.05.2026).

Table 3. Ratio of the average annual number of people employed in the economy to the number of pensioners in the Jewish Autonomous Region, 2000–2023

Indicator	Year								
	2000	2005	2008	2010	2015	2020	2021	2022	2023
Average annual number of people employed in the economy, thousand people	71.2	79.8	82.6	81.3	70.3	63.9	62.2	62.4	60.2
Number of pensioners (pension recipients), thousand people	43.0	44.0	47.0	49.0	51.0	50.0	49.0	48.0	42.0
Ratio of average annual employment to the number of pensioners	1.7	1.8	1.8	1.7	1.4	1.3	1.3	1.3	1.4

Compiled from: Number and composition of the labor force aged 15 and older. Federal State Statistics Service. Available at: https://www.rosstat.gov.ru/storage/mediabank/trud-1_15-s.xlsx (accessed May 29, 2026); Regions of Russia. Socio-Economic Indicators. Electronic versions 2002–2024. Federal State Statistics Service. Available at: <https://rosstat.gov.ru/folder/210/document/13204> (accessed: 29.05.2026).

demand, and increasing the burden on the pension system.

The second problem is the growing burden on the regional pension system, which slows the growth of pension accruals and makes it necessary to reconsider the upper limits of working age, as well as to ensure the material well-being of pensioners on the part of the state. A key indicator that provides insight into the level of well-being of the population above working age is the size of pensions paid and its ratio to the regional subsistence minimum for older people. This, in turn, gives an idea of the purchasing power of pensions (Tab. 4).

The data in the table demonstrate growth in both the average size of assigned pensions and the subsistence minimum throughout the analyzed period. Pension provision rose by 17,712 rubles, and the subsistence minimum by 15,914 rubles. It should also be noted that in the Jewish Autonomous Region during the study period there is an ambiguous trend

in the ratio of the average pension to the subsistence minimum, which characterizes the purchasing power of pension payments for the region's population. Positive dynamics can be seen from 2008 to 2015, when the purchasing power of the average assigned pension rose from 1.0 to 1.4 times. In the following period, 2015–2023, the value declined from 1.4 to 1.1 times. This is explained primarily by the annual rise in prices for essential goods, medicines, and housing and utility services, while the indexation of pensions for non-working pensioners is below the level of rising inflation.

The regional replacement rate, calculated as the ratio of the average labor pension to the wage level, remained below the ILO-recommended threshold of 0.4 throughout the entire analyzed period and showed a downward trend. From 2001 to 2023, the ratio of the average assigned pension to average monthly wages in the Jewish Autonomous Region declined from 39.7 to 28.6%, or by a factor

Table 4. Indicators of the well-being of the population above working age in the Jewish Autonomous Region, 2001–2023

Indicator	Year						
	2001	2008	2015	2020	2021	2022	2023
Average size of assigned pensions, rubles	1108	4555	10561	14780	15600	17868	18820
Subsistence minimum, rubles	750	4335	7414	11709	13526	16133	16664
Average monthly wage of employees, rubles	2790	15037	30896	46237	50075	56957	65815
Ratio of the average size of assigned pensions, % of:							
subsistence minimum	147.7	105.0	142.4	126.2	115.3	110.7	112.9
wages of employees	39.7	30.3	34.2	32.0	31.2	31.4	28.6
Compiled from: Average pension size in nominal terms assigned to pensioners registered in the Pension Fund system of the Russian Federation by constituent entities of the Russian Federation. Federal State Statistics Service. Available at: https://www.rosstat.gov.ru/storage/mediabank/Urov_p1_2025.xlsx (accessed: 29.05.2026); Subsistence minimum for the main socio-demographic groups of the population in the Russian Federation as a whole for 2000–2020. Federal State Statistics Service. Available at: https://www.rosstat.gov.ru/storage/mediabank/vpm_RF_kv.xlsx (accessed: 29.05.2026); Subsistence minimum per capita and for the main socio-demographic groups of the population in the Russian Federation as a whole and by constituent entities of the Russian Federation, established for 2021–2026. Federal State Statistics Service. Available at: https://www.rosstat.gov.ru/storage/mediabank/vpm_RF_kv.xlsx (accessed: 29.05.2026); Regions of Russia. Socio-Economic Indicators. Electronic versions 2002–2024. Federal State Statistics Service. Available at: https://rosstat.gov.ru/folder/210/document/13204 (accessed: 29.05.2026).							

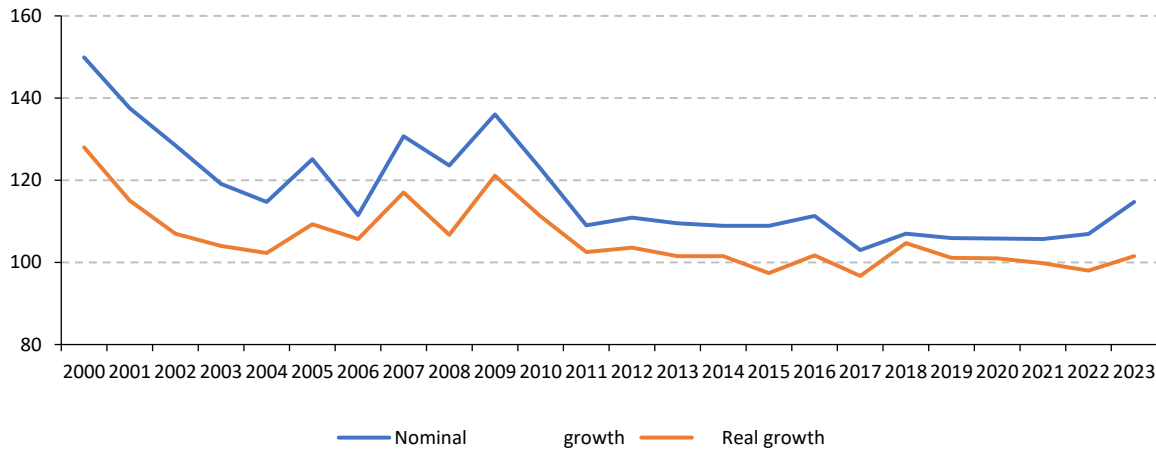


Figure 3. Dynamics of the growth of nominal and real assigned pensions in the Jewish Autonomous Region, 2000–2023, %

Source: Average pension size in nominal terms assigned to pensioners registered in the Pension Fund system of the Russian Federation by constituent entities of the Russian Federation. Federal State Statistics Service.

Available at: https://www.rosstat.gov.ru/storage/mediabank/Urov_p1_2025.xlsx (accessed: 29.05.2026).

of 1.4. The low replacement rate in the region is explained by the fact that average monthly wages are substantially higher than average assigned pensions, and pensions are tied to the pensioner's subsistence minimum rather than to actual incomes – a pattern typical of Russia as a whole. Consequently, most people above working age experience a significant decline in living standards upon retirement, forcing them to continue working (*Tab. 5*) (Cheremisina et al., 2022).

It can be seen that the employment rate among people above working age shows a pronounced upward trend over the study period

(208.6%, or 2.08 times). At the same time, since 2008, female employment among the elderly population of the Jewish Autonomous Region has been somewhat higher than male employment.

The higher employment rate among women is explained by several factors. First, women retire earlier and have a higher life expectancy. Second, their work is generally less physically demanding and hazardous than men's. At the same time, women living in families face increasing time costs for household work and family care, while the importance of forced employment is also growing.

Table 5. Share of employed persons above working age in the economy of the Jewish Autonomous Region, 2000–2023, %

Indicator	Year						
	2000	2008	2015	2020	2021	2022	2023
Employed in the economy – total, including:	100	100	100	100	100	100	100
Persons above working age:	3.5	4.7	6.3	7.6	7.4	7.5	7.3
among men	4.0	4.0	5.3	6.6	5.8	6.8	6.5
among women	2.9	5.0	7.4	8.7	9.2	8.5	8.1

Compiled from: Regions of Russia. Socio-Economic Indicators. Electronic versions 2002–2024. Federal State Statistics Service. Available at: <https://rosstat.gov.ru/folder/210/document/13204> (accessed: 29.05.2026).

Conclusion

The study confirms the continued relevance of analyzing demographic processes, particularly population aging and its impact on the socioeconomic development of the region. At the current stage of social development, the rising average age is becoming one of the key factors shaping a broad range of social security issues.

The analysis of the demographic situation shows that the Jewish Autonomous Region is already facing a number of negative consequences of aging. Interdisciplinary studies that take into account both the demographic and socioeconomic aspects of the shift in the age structure remain scarce for this territory, since the region was previously distinguished by high fertility and a large share of working-age population. Current demographic trends have led to a decline in the number of working citizens, an increase in the share of older people, lower labor productivity, and a higher demographic burden. These factors will subsequently lead to reduced consumer demand and spending activity, a decline in overall purchasing power, a growing share of dependents relative to workers, and rising expenditures on social protection, the pension system, and healthcare against a shrinking base for calculating insurance premiums.

Based on the analysis of the impact of demographic aging on the region's

socioeconomic development, the authors draw the following conclusions:

- The Jewish Autonomous Region is a demographically old region, with growth rates of the demographic burden on the working-age population exceeding both the Far Eastern and national averages.

- The regional labor market is experiencing the negative effects of aging, manifested in a shortage of labor at the regional level. Compensation occurs through higher employment among pensioners, with an inevitable decline in overall labor productivity.

- The need to continue working is driven by a significant decline in living standards upon retirement and the stagnating dynamics of real pension levels.

Overall, the region exhibits trends typical of most Russian regions with ongoing population aging. The results are of practical importance, as they reveal the specific features of the rise in average age in underdeveloped regions of the Russian Far East. These trends point to necessary future adjustments in the region's socioeconomic development strategy, primarily related to the shrinking working-age population and the possibility of engaging people above working age in feasible labor activity in order to achieve the planned results of the National Projects "Demography" and "Long and Active Life" implemented in the region.

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СТАРЕНИЕ НАСЕЛЕНИЯ КАК УГРОЗА ДЕМОГРАФИЧЕСКОГО РАЗВИТИЯ РЕГИОНА (НА ПРИМЕРЕ ЕВРЕЙСКОЙ АВТОНОМНОЙ ОБЛАСТИ)

В статье рассматривается проблема старения населения. Это является одной из основных угроз демографического развития как в целом страны, так и ее отдельных регионов. На примере Еврейской автономной области рассмотрен процесс старения населения и его последствия для социально-экономического развития области. Отмечается высокая демографическая нагрузка на трудоспособных жителей в Еврейской автономной области. С 2008 года доля детей и пожилых людей сравнялась и в дальнейшем население старше трудоспособного возраста стало преобладать. Данная проблема также характерна для Приморского Края и Сахалинской области и является одной из самых актуальных в Дальневосточном федеральном округе, но при этом имеет процентное соотношение ниже, чем в среднем по России. Рассчитанные коэффициенты долголетия и индекс глубины старения показывают, что регион относится к демографически старым. Низкое значение длительности жизни косвенно характеризует низкий уровень развития здравоохранения в регионе и недостаточную приверженность населения к здоровому образу жизни. Высокая доля пожилого населения приводит к высокой смертности населения. Рост демографической нагрузки сказывается на трудоспособном населении; влияет на сокращение спроса и потребительской активности; увеличивает долю иждивенцев по отношению к доли работающих; уменьшает наиболее креативные, прогрессивные и открытые для инноваций и современных технологий слои общества; повышает расходы на социальную защиту, пенсионную систему и здравоохранение, при этом база начисления страховых взносов сокращается.

Старение населения, возрастная структура населения, демографическая нагрузка, Еврейская автономная область, заболеваемость, смертность, рождаемость.

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DOI: 10.15838/ptd.2026.4.144.10

UDC 332.13; 332.14 | LBC 65.04; 65.05

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MANAGING REGIONAL ECONOMIC DEVELOPMENT BY REDUCING INTELLECTUAL INEQUALITY



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Given the growing importance of treating intellectual inequality as a factor in the persistent spatial differentiation of socio-economic development across Russia's regions, this work examines the need to devise a governance mechanism capable of reducing the risks of its deepening and of creating conditions for a region's economic development. At present, this task is being addressed in a fragmented manner. The risks of intensifying intellectual inequality are not framed as a governance challenge in strategic planning documents, which undermines the effectiveness of the management measures applied. The aim of this study is to substantiate and develop an organizational-managerial mechanism for reducing intellectual inequality, designed to promote the economic development of the Perm Territory and to increase the technological complexity of its economy. It is established that this industrial region possesses the potential to improve its position in terms of capitalizing its intellectual labor capacities and their effective realization in the creation of intellectual goods and services. General scientific methods of analysis, synthesis, comparison,

For citation: Stepanenko V.A., Bazueva E.V. (2026). Managing regional economic development by reducing intellectual inequality. *Problems of Territory Development*, 30(4), 164–182. DOI: 10.15838/ptd.2026.4.144.10

and statistical analysis were employed to achieve the stated aim. The proposed mechanism makes it possible both to diagnose interregional intellectual inequality and to assess the region's standing and the factors that influence it. Such an assessment serves as the basis for designing differentiated measures that enhance the prospects for the Perm Territory to converge with the leading regions on indicators of intellectual labor. In future research, the proposed organizational-managerial mechanism is expected to be adapted for other constituent entities of the Russian Federation – not only those with an industrial type of economic development, but also predominantly agrarian and agrarian-industrial regions.

Intellectual inequality, organizational-managerial mechanism, regional economic development, spatial differentiation, intellectual inequality factors.

Introduction

The region's economic development is a multifactorial process, and the significance of the factors changes depending on the evolution of socio-economic systems. One such factor is labor, but there is a transformation of its essence and nature. It is known that in a post-industrial economy, the complexity of labor tends to increase toward its intellectualization. Accordingly, the concentration of intellectual labor in certain regions of the country, without the development of a strategically oriented regional policy that ensures a more balanced accumulation and distribution of knowledge for the purpose of creating intellectual goods and services, may become the basis for the reproduction of so-called secondary intellectual inequality, which will intensify the spatial differentiation of the socio-economic development of the regions.

The spatial heterogeneity of the socio-economic development of the constituent entities of the Russian Federation has been increasing in recent years (Antipin, Shishkina, 2024; Zubarevich, Safronov, 2024; Zemlyansky, Medvednikova, 2025). This makes it necessary to identify the factors that cause it and to subsequently develop management mechanisms aimed at minimizing the risks of creating barriers to the economic development of the regions. To date, the authors consider the unresolved nature of existing problems – such as the concentration of high rates of economic

activity in several constituent entities of the Russian Federation (Kolomak, 2014; Bufetova, 2024) and the inefficiency of the current system of spatial development institutions (Bazueva, Dubrovskaya, 2021; Nizhegorodtsev, 2019), among others – to be such factors. Among the new factors creating barriers to a more balanced development of the regions of the Russian Federation during the period of technological transformation of regional economic systems are the potential for increased digital inequality due to uneven access to information technologies by the population, depending on the area of residence (Arkhipova, Sirotin, 2019; Gruzdeva, 2020; Uskov, 2024), the differentiation of the level of digital maturity in the regions, and the lack of mechanisms for interregional digital interaction (Lavrik, 2026). Research devoted to the analysis of the concentration of resources of the intellectual component of the economy in certain constituent entities of the Russian Federation is becoming relevant. For example, the study of S.E. Afonin and V.S. Osipova notes the concentration of scientific expenses in several regions of the country (Afonin, Osipov, 2023). S.V. Avilkina draws attention to the differentiation of regions of the Russian Federation in terms of the number of teaching staff (Avilkina, 2021). Such patterns, taking into account the positive impact of human capital on regional economic development (Alekhine, 2021), con-

tribute to increasing the importance of considering the problem of concentration of intellectual resources in a small group of regions of the Russian Federation.

Based on the above, we can state that the factor of intellectual inequality becomes significant for the economic development of a territory in the context of the post-industrial economy. This is manifested through regional differences in the conditions for the accumulation of intellectual abilities and their effective implementation in the process of intellectual labor¹. It acts as a structural barrier to regional development, alongside infrastructure, investment, institutional, demographic and other constraints. Moreover, as our research has shown, the emerging intellectual inequality is of an intersectional nature, accumulating educational, professional, digital, and territorial differences (Bazueva et al., 2023), so reducing it cannot be reduced to individual measures in the areas of education, employment, or digitalization. Despite the existence of works in the field of spatial development management (Zubarevich, 2019; Kuznetsova, 2025) and reducing spatial differentiation (Bukhvald, 2025), the specifics of managing intellectual inequality are of interest to modern research. At present, management practices are implemented in a fragmented manner: educational projects, digital infrastructure, employment programs, and measures to support innovation and youth policy are developed separately. At the same time, the risks of interregional intellectual inequality are typically not presented as an independent management challenge in strategic documents at the regional level, which reduces the targeting and effectiveness of the decisions made (Bazueva et al., 2023). Based on this, the aim of this study is to develop directions for improving the system of managing the economic development of a

region based on reducing the level of intellectual inequality.

It appears that the system of tools for reducing interregional inequality is integrated into the conceptual model of managing the economic development of a region based on the implementation of regional development principles: the principle of regional self-development and the principle of regional (territorial) justice (Animitsa, 2020). Given that the principle of territorial self-development implies creating the region's capacity to ensure the reproduction of GRP using its own resource potential and income sources to achieve macro-economic and intra-regional priorities (Tatarkin, Tatarkin, 2009), reducing the barriers to the economic development caused by secondary factors is of paramount importance for regional policy.

In this regard, it is worth noting that the problem of managing social inequality has been the subject of long-term theoretical reflection in philosophy, sociology, and economic theory. As a result, diametrically opposed approaches to its consideration have emerged. For example, the egalitarian approach assumes that excessive differences undermine social justice and should be regulated through institutions that redistribute and guarantee basic goods. According to J. Rawls's theory of justice, socio-economic inequality is acceptable only if it benefits the least well-off members of society the most and ensures real equality of opportunity (Rawls, 1999). Representatives of the libertarian approach, by contrast, reject any redistributive mechanisms and view inequality as a natural outcome of freedom of choice. R. Nozick interprets inequality as acceptable if it arises as a result of voluntary exchange (Nozick, 1974). A. Sen also emphasizes the need to ensure equal real opportunities for individuals – their ability to receive an education, maintain health, and participate in economic and social life (Sen,

¹ For more information about the conceptualization of the concept, see (Bazueva, Stepanenko, 2025b).

1992). In the context of regional development, this idea is fully reflected, as it shifts the focus of addressing the problem of social inequality from purely distributive mechanisms to managing the factors that create inequality of opportunity, including the accessibility of development institutions. Thus, the management mechanism being developed should be oriented toward systematizing regional measures aimed at creating opportunities in the region for the realization of intellectual labor to reduce the level of interregional intellectual inequality and ensure the economic development of the territory.

Assessment of the current indicators of the Perm Territory in the field of managing its intellectual potential

In the context of the digital transformation of the economy, intellectual inequality is becoming not only a social but also an economic problem, affecting the pace of technological renewal in the region, the quality of human capital, the level of innovative activity, and the ability of the economic system to adapt to new production and management models. For regions belonging to the group of predominantly industrially developing constituent entities of the Russian Federation (Akberdina, 2020; Korovin, 2023), which includes the Perm Territory, this problem is of particular importance, since in such regions technological modernization depends not only on the availability of natural resources and the pace of updating production capacities, but also on conditions that ensure the population and organizations have access to educational and innovative infrastructure, creating opportunities for the accumulation and diffusion of knowledge and digital competencies.

To assess the parameters of interregional intellectual inequality, this article uses an integral method to calculate the index of capitalization of intellectual labor capabilities (I_{CAP}), the index of intellectual employment (I_{EMP}), and the aggregated index of intellectual labor (I_{IL}), which form the basis for intellectual inequality across regions (formulas 1–3).

$$I_{CAP} = \sqrt[3]{X_1 + X_2 + X_3} \quad (1)$$

$$I_{EMP} = \sqrt[3]{X_4 + X_5 + X_6} \quad (2)$$

$$I_{IL} = \sqrt[6]{X_1 + X_2 + X_3 + X_4 + X_5 + X_6} \quad (3)$$

where X_1 – number of employed people with higher education; X_2 – number of postgraduate students; X_3 – number of researchers holding a candidate's degree; X_4 – number of personnel engaged in scientific research and development, by categories and constituent entities of the Russian Federation (researchers); X_5 – number of personnel engaged in scientific research and development, by categories and constituent entities of the Russian Federation (equipment); X_6 – number of employees in high-tech industries².

Accordingly, the high level of unevenness among regions in terms of the aggregated index of intellectual labor reflects interregional intellectual inequality. The high level of spatial heterogeneity for this factor is confirmed by the value of the coefficient of variation, which was 79.2% in 2023 for all regions of the Russian Federation. Moreover, according to the results of our study, since 2018 the indicator has increased by 3.7%, which indicates the possibility of an increase in interregional intellectual inequality in the absence of a strategically oriented regional

² Data from the Federal State Statistics Service and the Unified Interdepartmental Information and Statistical System were used. To neutralize the influence of the region's size, each indicator was considered relative to 10,000 people of the average number of employed persons. Before including the indicators in the index, a normalization procedure was carried out.

policy aimed at mitigating it. These conclusions serve as a prerequisite for a detailed analysis of the current state of the intellectual component of the economy in the Perm Territory and for identifying the factors influencing the region's position compared to leading regions.

According to our previous studies³, the Perm Territory is part of a group of regions with a predominantly industrial type of economy, which is characterized by average values for the capitalization of intellectual labor capabilities (the index coefficient (I_{CAP}) ranges from 0.23 to 0.40) and their implementation in the process of intellectual employment (the index coefficient (I_{EMP}) ranges from 0.14 to 0.35). At the same time, this group of regions shows a significant lag behind the group of leading regions, for which the value ranges vary from 0.70 to 0.99 in terms of the capitalization of intellectual labor capabilities and from 0.59 to 0.63 in terms of the coefficient of their implementation in the process of intellectual employment.

As we have shown earlier, these are two essential characteristics of intellectual labor, the significance of which as a factor in the economic development of regions is increasing in the context of the emergence of the sixth technological order (Bazueva, Stepanenko, 2025a). It is the unevenness of the conditions that have developed in the regions – conditions that determine the possibilities for forming high-quality human capital (capitalization of the ability to engage in intellectual labor) and that limit access to using it in the process of intellectual labor for the purpose of creating knowledge-intensive goods and services (intellectualization of employment) – that creates barriers to the intensification of interregional intellectual inequality. In this regard, to identify the reasons for the Perm Territory's delay, we will analyze the dynamics of changes in the factors that shape it, comparing them with the leading regions in the Russian

Federation (Moscow) and the Volga Federal District (Nizhny Novgorod Region) in terms of the aggregated index of intellectual labor (I_{IL}). At the same time, examining the indicators of the Perm Territory in comparison with these regions is of interest for the subsequent development of regional policy, which will be considered effective if it creates opportunities for the region to move along an “upward trend” into the group of leaders in two indicators simultaneously (Moscow is the leader) or into the group of leading regions in terms of the intellectual employment index while maintaining average values for the second index (the Nizhny Novgorod Region belongs to this group).

For instance, the value of the aggregated index of intellectual labor in the Perm Territory amounted to 0.291 in 2023, while the leader in the Russian Federation (Moscow) had a value of 0.790, and the leader in the Volga Federal District (Nizhny Novgorod Region) had a value of 0.442 (*Tab. 1*). Consequently, the Perm Territory is noticeably lagging behind both the national and the district leaders, and despite its relatively strong position relative to the national and the Volga Federal District averages, it maintains a distinctly peripheral position in the development of intellectual labor.

The dynamics of the indicator in the regions under consideration are characterized by various trends. For example, Moscow, which consistently maintained a leading position in terms of the intellectual labor indicator over the analyzed period, has been increasing it since 2021. As a result, the index increased by 13% between 2018 and 2023. This means that the capital is experiencing a concentration of intellectually intensive types of employment and high-level human capital. In the Perm Territory, the indicator remained virtually stable, with only a slight decline observed over the analyzed pe-

³ The development and testing of methodological tools for assessing intellectual inequality in the regions of the Russian Federation are presented in a separate article by the authors, which is currently in press.

Table 1. Comparison of the aggregated index of intellectual labor in the Perm Territory with leading regions, according to the ranking of regions in 2023

Region	2018	2019	2020	2021	2022	2023	Change in the indicator (2023/2018)
Leading region in the RF (Moscow)	0.710	0.701	0.700	0.729	0.790	0.790	1.13
Leading region in the VFD (Nizhny Novgorod Region)	0.464	0.473	0.458	0.454	0.455	0.442	0.95
Perm Territory	0.294	0.309	0.293	0.289	0.285	0.291	0.99

Source: own compilation.

riod, followed by an increase in 2023. This trend suggests that the achieved level was maintained rather than that the process of labor intellectualization in the region intensified. As a result, over the analyzed period, the gap between the Perm Territory and Moscow did not narrow; on the contrary, it increased from 0.416 to 0.499. The отставание from the average leader indicator in the Volga Federal District is less significant, but also persistent. Throughout the entire period, the Nizhny Novgorod Region outpaced the Perm Territory, despite the wave-like nature of the indicator's change from year to year and its overall decline in 2023 compared to 2018 – from 0.464 to 0.442. Against this backdrop, the Perm Territory demonstrated greater stability, as its index decreased minimally, which may be due to strategic priorities focused on technological development and the need for an appropriate workforce to support knowledge-intensive industries. It is also worth noting that the aggregated index, despite the decline over the analyzed period, increased in 2019 in both the Nizhny Novgorod Region and the Perm Territory. The situation in the two regions became more similar, and the absolute gap decreased from 0.170 to 0.151 points. However, this convergence was not due to the accelerated economic growth of the Perm Territory, but mainly because of a more significant decline in the indicator in the Nizhny Novgorod Region.

The analysis of the dynamics of the indicators of the factor conditions (*Tab. 2*) generated by the Perm Territory indicates that the change

in the aggregated index of intellectual labor over the period from 2018 to 2023 was contradictory and was determined by combination of positive and constraining trends. The positive impact on the index value is due to a 91% increase in domestic spending on R&D; however, compared to the leading regions in terms of this indicator, there is a significant lag. It is also worth noting the increase in the share of organizations implementing technological innovations in the region from 15.2 to 28.5%, as well as the expansion of the use of advanced production technologies by 34%. These trends indicate the formation of a more favorable environment in the region for increasing the demand for intellectual labor, as well as the effectiveness of the measures implemented under the comprehensive state program of the Perm Territory, “Scientific and Technological Development of the Perm Territory”, which is focused on the technological development of the region. However, the stability of the share of high-tech and knowledge-intensive industries in the GRP indicates that the region's existing intellectual and technological potential has not yet been fully converted into structural changes in the region's economy.

At the same time, the growth of the aggregated index was constrained by reduction in the teaching staff, as well as by the instability of the indicator reflecting the digital equipment of higher education institutions. It is natural that the region faces limitations regarding the factors that contribute to the formation of high-quality human capital. A decline in the number of

Table 2. Comparative analysis of the values of the factors and conditions of intellectual inequality in the Perm Territory and leading regions in 2018–2023

Name of the factor	Description of the factor	Dynamics of the indicator over the period from 2018 to 2023						Change in the indicator (2023/2018)	Indicator of the leading region in the RF		Indicator of the leading region in the VFD	
		2018	2019	2020	2021	2022	2023		Change in the indicator (2023/2018)	Indicator of the PT / indicator of the leading region	Change in the indicator (2023/2018)	Indicator of the PT / indicator of the leading region
Factors creating conditions for the capitalization of intellectual abilities												
Number of people trained under additional professional programs, by form of training (people per 10,000 employees in the average number of employed persons)	It demonstrates the trend toward continuous updating of the population's knowledge in the region	1486.93	1663.70	1296.07	1464.33	1783.26	2196.28	1.48	2.38	1.07	1.28	2.66
Number of personal computers used for educational purposes under higher education programs (units per 1,000 students)	It indicates the level of digital equipment in higher education institutions (Izotova, Gavriljuk, 2023). For example, the distribution of digital learning resources in Chinese regions was also measured using the indicator of the number of computers (Liu, Ma, 2018).	290	296	310	298	343	314	1.08	0.97	1.37	1.16	1.27
Composition of the unemployed by education level (%)	It demonstrates long-term trends reflected in the mismatch between supply and demand in the labor market.	8.8	14.5	13.5	48.5	12.8	15.4	1.75	0.76	0.44	1.04	0.77
Number of teaching staff (people per 1,000 people of the average number of employed individuals)	It demonstrates the level of development of the higher education system in the region (Faggian et al., 2019; Safiullin et al., 2023)	29.84	29.18	27.99	25.57	25.93	25.35	0.85	1.03	0.45	0.90	0.92

End of Table 2

Name of the factor	Description of the factor	Dynamics of the indicator over the period from 2018 to 2023						Change in the indicator (2023/2018)	Indicator of the leading region in the RF		Indicator of the leading region in the VFD		
		2018	2019	2020	2021	2022	2023		Change in the indicator (2023/2018)	Indicator of the leading region in the RF	Change in the indicator (2023/2018)	Indicator of the leading region in the VFD	
Factors contributing to the creation of conditions for the realization of intellectual labor													
Internal expenditures on research and development (million rubles per 10,000 employees in the average headcount)	Institutional effect of the scientific and educational environment (Shorokhova, 2024) and its attractiveness (Charlot et al., 2015; Zemtsov et al., 2016).	124.96	162.39	152.48	188.03	199.13	238.39	1.91	1.72	0.35	1.66	0.30	
Share of organizations implementing technological innovations (%)	It demonstrates the share of organizations involved in the systematic creation of innovations. Accordingly, the more organizations engage in innovative activities, the greater the employment opportunities.	15.2	19.0	23.1	24.2	24.4	28.5	1.88	0.79	0.87	0.95	1.05	
Advanced production technologies used (units per 10,000 people of average headcount)	It characterizes the company's ability to adopt new equipment and the latest production and technological lines (Mariev, Savin, 2010).	107.14	122.78	130.47	140.31	149.35	144.06	1.34	1.20	7.26	1.04	2.65	
Share of output from high-tech and knowledge-intensive industries in the gross regional product (%).	It demonstrates the economy's demand for people with high level of human capital. The indicator is introduced in light of the hypothesis in the academic community that there is a situation where businesses do not demand highly skilled labor (Gimpelson, 2016).	27.6	28.9	32.2	29.2	28.9	27.6	1.00	1.33	1.01	1.08	0.90	
According to: Federal State Statistics Service data.													

teachers means a weakening of the human resource base for higher education and scientific and educational reproduction, which in the long term limits the training of specialists for knowledge-intensive employment sectors. This aspect is also important, as the intellectualization of labor depends not only on the current implementation of technologies but also on the ability of the regional education system to consistently produce high-quality human capital.

Thus, the Perm Territory, along with the existing limitations on the development of intellectual labor, has positive trends and opportunities to improve its performance to reduce the gap with leading regions. The creation of an organizational and management mechanism will make it possible to intensify the region's capabilities for moving toward the cluster of leading regions, followed by an increase in technological potential to ensure economic development.

Designing an organizational and management mechanism to reduce intellectual inequality for ensuring the economic development of the Perm Territory

The creation of the organizational and management mechanism in the context of regional economic policy makes it possible to combine a set of management measures to achieve a specific strategic goal of the regional development. The practical value of developing an organizational and management mechanism is confirmed by the practice of its application. For example, O.V. Khabarova and E.V. Yakovleva developed a mechanism for the development of the regional labor market in the context of economic digitalization (Khabarova, Yakovleva, 2024). M.A. Ponomareva proposes a mechanism for managing the sustainable development of a region (Ponomareva, 2009) and also examines the conceptualization of the concept of "organizational and managerial mechanism" from

the perspective of the systemic nature of the concept and the description of its structural elements. In this case, the management mechanism should be understood as a set of goals, principles, and tools used by management entities to influence the managed objects. The organizational and managerial mechanism for regulating interregional intellectual inequality has its own specific features. First, such a policy is traditionally implemented at two levels – the federal level (in the form of establishing common goals and principles for reducing interregional differentiation across various parameters of socio-economic development) and at the level of specific regions. In turn, regional policy allows territorial units to independently monitor key indicators and carry out their regular assessment to improve the region's situation. It is regional policy that will be the subject of this study. Second, the region can only influence controllable factors and conditions; therefore, the organizational and management mechanism must take into account the differentiation of management methods and tools depending on its current position. Third, it is important to take into account the type of socio-economic development of the region, since the ultimate goal of management interventions is to create the possibility of its transition to a more complex technological structure by ensuring an upward trend associated with the region's transition to a group of regions with higher indicators. Moreover, as noted earlier, for the Perm Territory, it will be considered productive to move into the group of leaders in terms of the capitalization of intellectual labor capabilities and intellectual employment, or into the group of leaders in terms of intellectual employment, while maintaining consistently average values for the first indicator.

Based on this, goal-setting within the framework of the proposed organizational and management mechanism is built around

high-level benchmarks for ensuring the socio-economic development of the region, taking into account the creation of conditions to reduce the level of intellectual inequality. The subjects of management under the proposed mechanism are the regional state authorities, working in close cooperation with representatives of the scientific, expert, corporate, and entrepreneurial communities. To achieve the stated aims, the proposed tools and methods should comply with the key principles that define the logic of management procedures:

- *the principle of consistency and complexity* means that the system for managing intellectual inequality should include a coordinated set of organizational, economic, human resources, infrastructure, and information tools united by a common goal and logic of action.

- *the principle of equal opportunities* implies that the mechanism should be aimed not at formally equalizing territories in terms of final outcomes in the field of intellectual labor, but at creating comparable starting conditions for access to key resources for intellectual development.

- *the principle of procedural fairness and quality of management* is the most difficult to integrate into specific management procedures; however, according to modern research, the negative effects of inequality in outcomes are mitigated through fair procedures (Trautmann, 2023). Procedural fairness implies transparency of project selection criteria and unambiguity in the procedures for determining support recipients, as well as uniformity of administrative requirements when accessing resources for building high-level human capital and opportunities for its realization in the process of intellectual labor.

- *the principle of multi-level coordination* demonstrates that managing multi-criteria intellectual inequality requires alignment of

regional goal-setting with federal requirements, as well as interaction between the authorities, educational institutions, science, and business; interregional intellectual inequality is formed at the intersection of policies in several areas – education, science and technology, industry, investment, and digital sectors – so mechanisms to reduce it should include both vertical and horizontal coordination.

- *the principle of targeting and measurability* implies that the measures within the mechanism should be designed not as universal ones applicable to all territories, but as differentiated according to the types of deficits, the level of development, and the potential of specific territories. At the same time, targeting should be combined with measurability, i.e., for each measure it is necessary to pre-define the expected outcomes, time horizons, and monitoring methods.

- *the principle of focusing on controllable factors* means that the organizational and management mechanism should primarily focus on the factors of intellectual inequality identified at the analysis stage, which regional authorities and other bodies responsible for managing intellectual inequality are capable of influencing.

- *the principle of combining redistribution and development stimulation mechanisms* ensures that the organizational and economic mechanism includes equalizing and stimulating measures, depending on the region's classification into a specific group based on indicators reflecting the intellectual component of labor.

The algorithm for managing intellectual inequality across regions is a sequence of interrelated analytical, evaluative, and instrumental procedures aimed at creating conditions for capitalizing on intellectual labor capabilities and their implementation in the process of intellectual labor within the regional

socio-economic system. Its application involves a transition from diagnosing a region's position within the structure of interregional disparities to selecting management tools and subsequently assessing the effectiveness of the measures applied. The first two diagnostic stages are discussed in the previous section of this article, with reference to the Perm Territory. In general terms, at the first stage, the region's position is assessed based on key characteristics of intellectual labor: the capitalization of intellectual labor capabilities and their implementation in the process of intellectual employment. This stage is diagnostic in nature; based on the assessment results, the region can be assigned to one of the following groups: leading regions, lagging regions, or regions with average values. The classification makes it possible to determine the degree of the gap and to select the targets for subsequent management intervention.

At the second stage, an assessment of the factors contributing to intellectual inequality is carried out in comparison with the indicators of a group of leading regions. This stage is aimed at identifying the reasons for the lag, which limit the development of intellectual labor in the region. *Table 2* shows the dynamics of the Perm Territory's indicators for these factor-conditions over the analyzed period.

The third stage is devoted to selecting management methods and tools and has a project-instrumental character. The mechanism is based on both leveling methods and incentive methods. The inclusion of incentive and leveling measures in the organizational and management mechanism is determined by the content of the principle of combining redistribution and incentive mechanisms. Incentive measures ensure the activation of self-development mechanisms: project initiatives, support for high-tech

entrepreneurship, encouragement of inter-organizational cooperation, development of technology transfer, and retention of highly qualified personnel in the region. In turn, the alignment measures are aimed at reducing structural constraints: expanding access to knowledge and competencies, developing innovative and digital infrastructure, ensuring inclusion in professional and scientific-technological networks, and strengthening institutional support. Based on the achieved values for a specific region, which were presented in *Table 2* and previously analyzed, these measures are specified in the proposed organizational and managerial mechanism for reducing intellectual inequality to ensure the technological transformation of the Perm Territory (*Fig. 1*).

An independent element of the mechanism is the monitoring system, which is focused on regularly assessing the dynamics of intellectual inequality, the region's position among other entities, the degree to which set goals have been achieved, and the effectiveness of the implemented measures. These activities are carried out as part of the fourth stage of the organizational and management mechanism. Its operation makes it possible to timely identify limitations in access to intellectual resources and to assess the impact of the implemented policy on various groups of entities. If necessary, the assessment results become the basis for adjusting regional programs, reallocating resources, and refining the tools of managerial influence.

As a result of implementing the proposed measures, it is expected that the likelihood of increasing interregional intellectual inequality will be reduced by creating conditions for the economic development of the region, which will provide opportunities to enhance the technological structure of the regional economy.

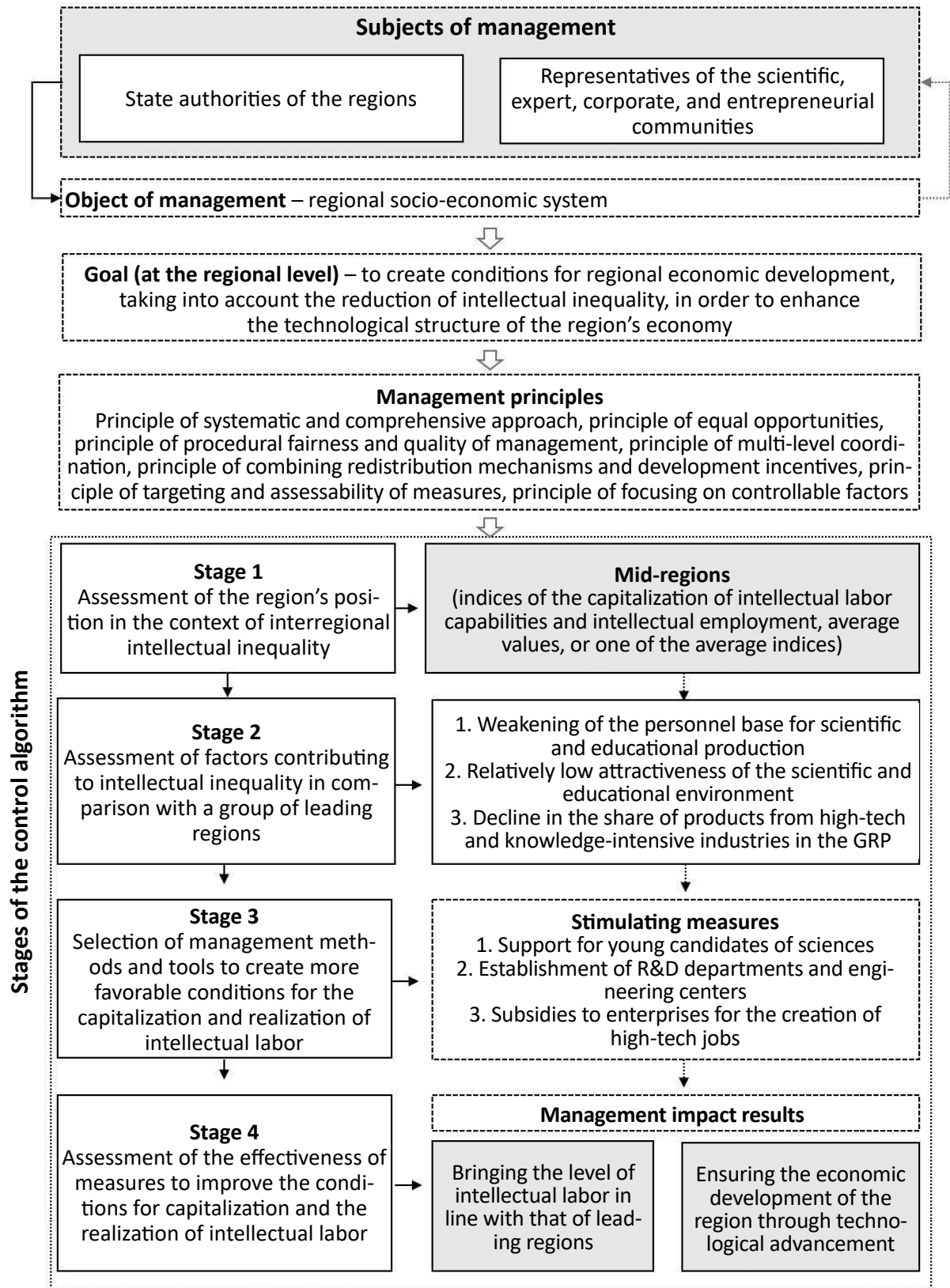


Figure 1. Organizational and managerial mechanism for reducing intellectual inequality for ensuring the economic development of the Perm Territory

Source: own compilation.

Conclusion

Given the need to consider intellectual inequality as a factor that creates barriers to regionaleconomicdevelopmentandexacerbates the spatial heterogeneity of socio-economic systems, the importance of developing a strategically oriented regional policy aimed at reducing these risks is growing. The proposed organizational and management mechanism is focused on systemic management of spatial development based on creating opportunities in the region to capitalize on intellectual labor capabilities and implement them, with the aim of reducing the level of interregional intellectual inequality and ensuring the economic development of the territory. It includes a set of goals, principles, and tools used by management entities to influence managed objects, aimed at creating conditions for the transformation of the technological structure of the region's economy. Based on the diagnostics of the current level of interregional intellectual inequality and an assessment of the position of the studied territory relative to other regions of the Russian Federation, it has been determined that the Perm Territory has the potential to increase the indicators of capitalization of intellectual labor capabilities and their effective implementation. At present, it lags significantly behind the leading region in the Russian Federation (Moscow) and the leading region in the Volga Federal District (Nizhny Novgorod Region), which determines the choice of differentiated management measures. Given that the Perm Territory belongs to the group of regions with average values for the index of intellectual labor capitalization and the index of intellectual employment, and has a predominantly industrial economic structure, the importance of implementing a stimulating policy aimed at achieving the strategic goal of a "upward transition" to the group of leading regions in terms of two

indicators – or to the group of leaders in terms of the index of intellectual employment while maintaining average values for the second index – is increasing.

Due to the fact that the region is experiencing limitations in terms of factors that reflect the potential for developing high-quality human capital and the attractiveness of the scientific and educational environment compared to leading regions in terms of intellectual labor, in the long term this will create barriers in the training of personnel for knowledge-intensive sectors and hinder structural changes in the region's economy. Consequently, these factors should be considered as priorities when developing management measures.

As a result of implementing the proposed measures, it is expected that the situation in the Perm Territory will improve and the likelihood of increased interregional intellectual inequality will be reduced by creating conditions for economic development that provide opportunities for the technological sophistication of the regional economy.

The prospects for further research are linked to the adaptation of the developed organizational and management mechanism for reducing interregional intellectual inequality to the conditions of other constituent entities of the Russian Federation. The universal nature of the diagnostic stages of the mechanism and the corresponding assessment procedures allows them to be considered as a methodological basis for identifying the specific factors of intellectual inequality in various regional systems. In turn, the regional policy tools developed based on the diagnostic results are of a differentiated nature. This approach will make it possible to ensure both the comparability of diagnostic results across regions and the targeting of management decisions aimed at stimulating the economic development of the territories.

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Степаненко В.А., Базуева Е.В.

УПРАВЛЕНИЕ ЭКОНОМИЧЕСКИМ РАЗВИТИЕМ РЕГИОНА НА ОСНОВЕ СОКРАЩЕНИЯ ИНТЕЛЛЕКТУАЛЬНОГО НЕРАВЕНСТВА

В связи с повышением значимости рассмотрения интеллектуального неравенства в качестве одного из факторов устойчивой пространственной дифференциации социально-экономического развития регионов РФ изучается необходимость разработки управленческого механизма, позволяющего сократить риски его усиления и создать условия для экономического развития региона. На текущий момент данная задача решается фрагментарно. Риски усиления интеллектуального неравенства не представлены в качестве управленческого вызова в стратегических документах, что снижает результативность применяемых управленческих мер. Цель работы заключается в обосновании и разработке организационно-управленческого механизма сокращения уровня интеллектуального неравенства, призванного обеспечить экономическое развитие Пермского края и усложнение технологической структуры его экономики. Установлено, что данный индустриальный регион обладает потенциалом для улучшения своего положения по параметрам капитализации способностей к интеллектуальному труду и его эффективной реализации в создании интеллектуальных товаров и услуг. Для достижения поставленной цели использованы общенаучные методы анализа, синтеза, сравнения, а также статистический анализ. Предложенный механизм позволяет как провести диагностику межрегионального интеллектуального неравенства, так и оценить положение региона и факторов, на него влияющих. Такая оценка выступает основой разработки дифференцированных мер, которые повышают возможности приближения Пермского края к регионам-лидерам по показателям интеллектуального труда. Представляется, что в дальнейших исследованиях предложенный организационно-управленческий механизм будет адаптирован для других субъектов РФ, не только относящихся к регионам с индустриальным типом экономического развития, но и для преимущественно аграрных и аграрно-индустриальных регионов.

Интеллектуальное неравенство, организационно-управленческий механизм, экономическое развитие региона, пространственная дифференциация, факторы интеллектуального неравенства.

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MONITORING OF CHANGES: MAIN TRENDS

THE ECONOMY OF NORTHWEST RUSSIA IN MAY 2026: GROWTH IN CONSUMER DEMAND AMID A DECLINE IN INVESTMENT ACTIVITY

DOI: 10.15838/ptd.2026.4.144.11 • UDC 330.342(470.12) • LBC 65.050.22(2Ros-4Vol)

The Vologda Research Center of the Russian Academy of Sciences continues to acquaint its readers with materials on the state of and trends in the development of the economy of the Northwestern Federal District (NWFD) against the backdrop of nationwide dynamics.

ACKNOWLEDGMENT

The materials were prepared as part of the state assignment for VolRC RAS under research theme No. FMGZ-2025-0012, "Structural and Technological Transformation of the Regional Economy in the Context of Ensuring the National Security of the Russian Federation: Monitoring, Regulation, and Forecast".

The world's largest economies entered 2026 with a pronounced slowdown, and quarterly data confirm that this negative trend is persisting (Tab. 1). The blockage of the Strait of Hormuz has driven up oil prices and worsened global growth prospects. The World Bank assumes that the conflict's impact will be limited and forecasts that global economic growth will return to its usual pace in 2027

after slowing by 0.3 percentage points in 2026 (to 2.8% and 2.5%, respectively). At the same time, compared with the previous forecast, the June World Bank report revises growth rates for the largest economies broadly downward. Thus, in advanced economies the projected value for 2026 is lowered by 0.3 percentage points, while in emerging market and developing economies growth is expected to reach 3.6% in 2026 (–0.6 percentage points) and 4.1% in 2027. China's GDP growth for 2026 has also been revised downward, and a sustained slowdown to 4.2–4.3% is expected in subsequent years due to structural problems. Against this background, the U.S. economy stands out as an exception, with growth projected to remain at 2.1–2.2%, although this forecast is likely to be revised later. India's GDP growth is expected to be 6.6% in 2026 and 7.2% in 2027, following 7.7% in 2025.

According to Rosstat data, the Russian economy contracted by 0.2% in the first quarter of 2026 (a year earlier, growth of 1.4% had been recorded; Fig. 1). The Ministry of Economic Development estimates GDP growth in January–May 2026 at 0.2%¹.

For citation: Sidorov M.A. Lukin E.V. The economy of Northwest Russia in May 2026: Growth in consumer demand amid a decline in investment activity. *Problems of Territory's Development*, 30(4), 183–198. DOI: 10.15838/ptd.2026.4.144.11

¹ Here and below (unless otherwise stated), January–May 2026 is compared with January–May 2025.

Table 1. Global economic trends, % change from previous year

Indicator	2023	2024	2025	Q1 2026	2026	2027
World	2.8	2.9	2.9	no data	2.5	2.8
Advanced economies	1.6	1.8	1.8	no data	1.5	1.8
United States	2.9	2.8	2.1	2.0	2.2	2.1
Euro area	0.5	1.0	1.4	0.1	0.8	1.3
Japan	0.7	-0.2	1.1	0.5	0.7	0.9
Emerging market and developing economies	4.3	4.4	4.4	no data	3.6	4.2
East Asia and Pacific	5.2	5.0	5.0	no data	4.2	4.4
China	5.4	5.0	5.0	5.0	4.2	4.3
Europe and Central Asia	3.6	3.9	2.5	no data	2.1	2.3
Russia	4.1*	4.9*	1.0*	-0.2*	0.8	0.7
Latin America and the Caribbean	2.3	2.3	2.3	no data	2.2	2.5
Middle East and North Africa	2.0	2.9	4.0	no data	1.6	5.0
South Asia	6.6	6.8	7.0	no data	6.3	6.9
India	7.2	7.1	7.7	1.8	6.6	7.2
Sub-Saharan Africa	3.0	3.8	4.1	no data	4.0	4.4

* Rosstat data.

Source: Global Economic Prospects, June 2026. Washington: World Bank. 180 p. DOI: 10.1596/978-1-4648-2315-2

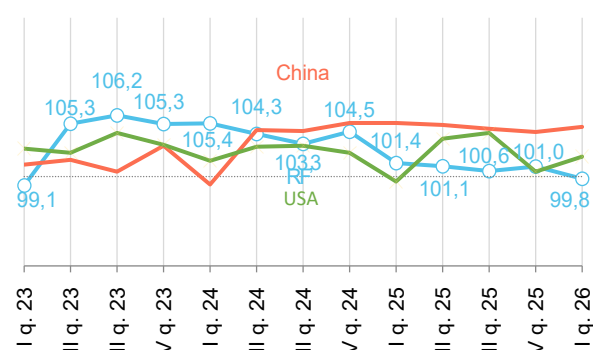


Figure 1. Gross domestic product growth, % change from corresponding quarter of previous year

Changes in the business confidence index reflect the protracted nature of negative expectations among Russian enterprises: in June 2026, the index in manufacturing stood at -2.1 (a year earlier, 0.6; Fig. 2). The rise in business confidence in mining and quarrying (by 1 point, to -2.9) may be attributed to the increase in hydrocarbon prices. In the services sector, the indicator fell to 1 in the second quarter of 2026 compared with the same period five years earlier; in construction, it dropped by 5 percentage points, reaching the lowest level among the sectors listed (-14).

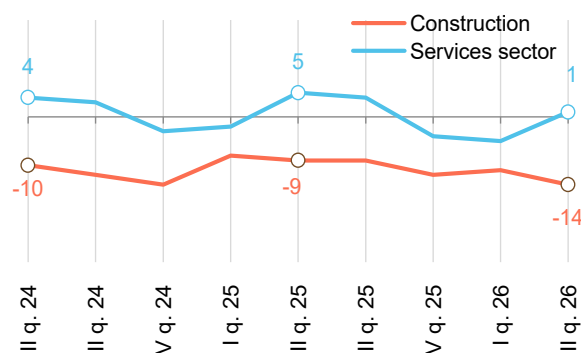
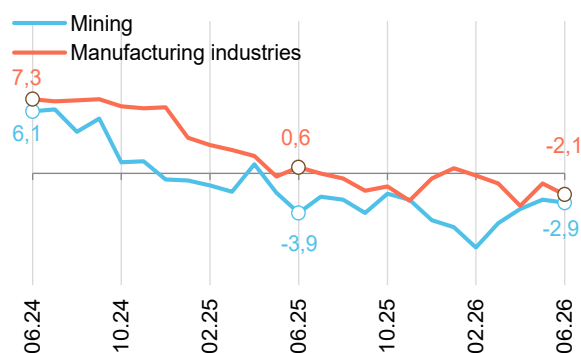


Figure 2. Business Confidence Index, %

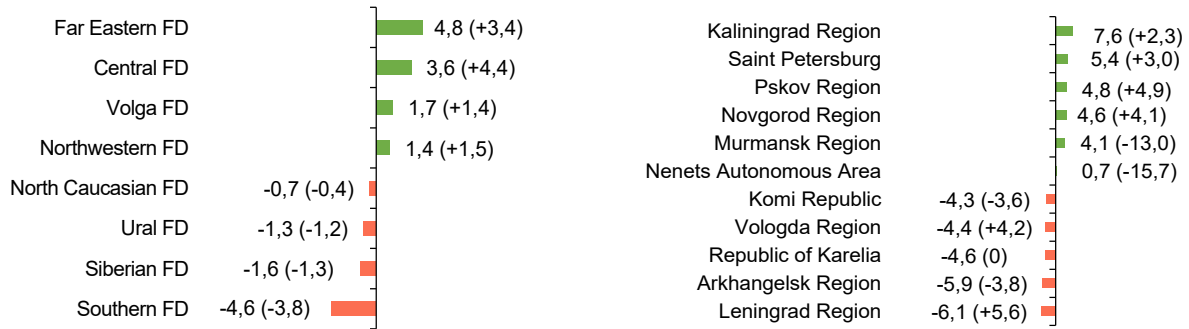


Figure 3. Growth of output of goods and services in basic types of economic activity in January–May 2026 by federal district and NWFD region, % of January–May 2025*

* Basic types of economic activity include crop production; animal husbandry; hunting and related services; mining and quarrying; manufacturing; electricity, gas, steam, and air conditioning supply; sewerage; waste collection and disposal; remediation activities; construction; wholesale trade (excluding motor vehicles and motorcycles); retail trade (excluding motor vehicles and motorcycles); and transport.

Note: figures in parentheses show the change in the indicator in January–May 2025, % of January–May 2024.

1. Gross product generation in the economy of the Russian North-West

Output of goods and services in basic types of economic activity across the Northwestern Federal District (NWFD) as a whole increased by 1.4% (note that the country's federal districts maintained the direction of change in this indicator; *Fig. 3*). Half of the district's constituent entities expanded output, with the Kaliningrad Region and Saint Petersburg leading (by 7.6% and 5.4%, respectively). At the same time, five NWFD regions recorded a significant decline in output (4.3–6.1%).

❗ **Industry** in the NWFD saw output decline by 0.4%, against an increase of the same magnitude in the country as a whole (a year earlier, these territories had recorded growth of 0.5%; *Tab. 2*). At the same time, analysts at the Center for Macroeconomic Analysis and Short-Term Forecasting note that the dynamics of civilian production (excluding the oil industry), after a year and a half of decline, are balancing between stagnation and further contraction². In half of the district's constituent entities, industrial output contracted, with the Leningrad Region, the Murmansk Region, and the Komi Republic recording declines

Table 2. Industrial production dynamics, % of the corresponding period of the previous year

Territory	5 months 2024	5 months 2025	5 months 2026	Rank*
Industry overall				
Russian Federation	106.0	100.5	100.4	-
Northwestern Federal District	108.0	100.5	99.6	7
Pskov Region	116.4	101.6	114.5	2
Kaliningrad Region	106.1	99.6	112.3	5
Novgorod Region	106.1	104.4	106.5	20
Saint Petersburg	114.0	107.5	103.2	33
Nenets Autonomous Area	99.2	90.4	101.8	41
Republic of Karelia	100.1	95.6	97.7	58
Vologda Region	103.8	103.2	97.4	59
Arkhangelsk Region	113.9	92.0	97.1	62
Komi Republic	103.1	95.1	96.0	66
Murmansk Region	103.3	90.0	95.7	69
Leningrad Region	109.0	100.7	90.8	80
Mining and quarrying				
Russian Federation	100.2	96.9	99.8	-
Northwestern Federal District	101.3	93.0	101.9	7
Kaliningrad Region	101.1	91.1	292.8	1
Arkhangelsk Region	116.0	74.7	115.1	5
Novgorod Region	84.2	87.2	111.2	10
Pskov Region	101.8	91.0	107.5	17

² On the dynamics of industrial production. May 2026. Center for Macroeconomic Analysis and Short-Term Forecasting. Available at: <https://disk.360.yandex.ru/i/ZW7NVRaYeU3Bhg> (accessed: 17.07.2026).

Territory	5 months 2024	5 months 2025	5 months 2026	Rank*
Saint Petersburg	169.1	85.4	106.7	20
Leningrad Region	89.3	98.4	103.7	29
Nenets Autonomous Area	99.0	90.2	102.4	35
Russian Federation	99.0	90.2	102.4	35
Republic of Karelia	96.6	102.4	101.7	37
Vologda Region	95.7	101.4	98.2	43
Murmansk Region	97.0	103.9	97.3	45
Komi Republic	103.0	93.8	96.0	49
Manufacturing				
Russian Federation	110.4	103.6	100.3	-
Northwestern Federal District	110.0	103.3	98.9	4
Pskov Region	114.5	106.4	114.9	5
Kaliningrad Region	107.1	99.1	107.2	17
Novgorod Region	106.0	104.7	107.0	19
Republic of Karelia	101.3	90.0	97.5	50
Vologda Region	104.2	103.5	97.4	51
Komi Republic	103.7	100.6	95.7	61
Arkhangelsk Region	115.2	94.6	94.9	62
Murmansk Region	105.4	82.7	94.1	66
Leningrad Region	107.5	100.5	88.2	80
Nenets Autonomous Area	122.3	129.1	57.0	84
* Here and below, the rank shows the position of the corresponding region among the constituent entities of the Russian Federation (for the NWFD, among the federal districts) in the dynamics of the indicator in January–May 2026 (unless otherwise stated), excluding statistical information for the Donetsk People's Republic (DPR), the Lugansk People's Republic (LPR), and the Zaporozhye and Kherson regions.				

of 9.2%, 4.3%, and 4%, respectively. Positive contributions to the macroregion's overall indicator came from output growth in a number of regions, most notably the Pskov Region and the Kaliningrad Region (14.5% and 12.3%, respectively).

📈 **Mining and quarrying** in the NWFD resumed growth, rising by 1.9% after a 7% decline a year earlier. The country as a whole continued to post negative dynamics, with output in this sector falling by 0.2% (a year earlier, –3.1%). In the Kaliningrad Region, output grew 2.9 times, the

best result in the country, while the Arkhangelsk and Novgorod regions increased by 15.1% and 11.2%, respectively. At the same time, the Komi Republic, the Murmansk Region, and the Vologda Region recorded declines in mining and quarrying of 4%, 2.7%, and 1.8%, respectively. The lack of data on oil and gas production³ complicates understanding of the situation in the sector; however, based on the aggregate mining index, one can assume that their output increased, since oil and gas account for about 60% of the NWFD's total resources, whereas extraction of coal and metal ores decreased by 0.8% and 3.9%, respectively (Fig. 4).

Manufacturing in the NWFD reduced output by 1.1%, against a 0.3% increase in the sector for the Russian Federation as a whole. The decline was driven by negative dynamics in most regions, with the sharpest drops recorded in the Nenets Autonomous Area and the Leningrad Region (43% and 11.8%, respectively). At the same time, in three constituent entities of the district – the Pskov Region, the Kaliningrad Region, and the Novgorod Region – manufacturing output increased by 14.9%, 7.2%, and 7%, respectively.

In sectoral terms, the NWFD's manufacturing industries showed predominantly unfavorable changes.

📉 The NWFD's **intermediate-demand manufacturing industries** reduced output. The production of coke and refined petroleum products fell by 30.9%, while chemical products and rolled metal products decreased by 7.1% and 4.9%, respectively. Notably, the indicator for the wood-processing industry rose by 73.8%. According to Rosstat estimates, the physical volume index of wood processing in Saint Petersburg and the Kaliningrad Region reached 237% and 200%, respectively, while the Republic of Karelia recorded 137%.

³ Rosstat has stopped publishing data on oil extraction. RBC. Available at: <https://www.rbc.ru/economics/26/04/2023/64492a769a794789b8b0feec> (accessed: 20.07.2026).

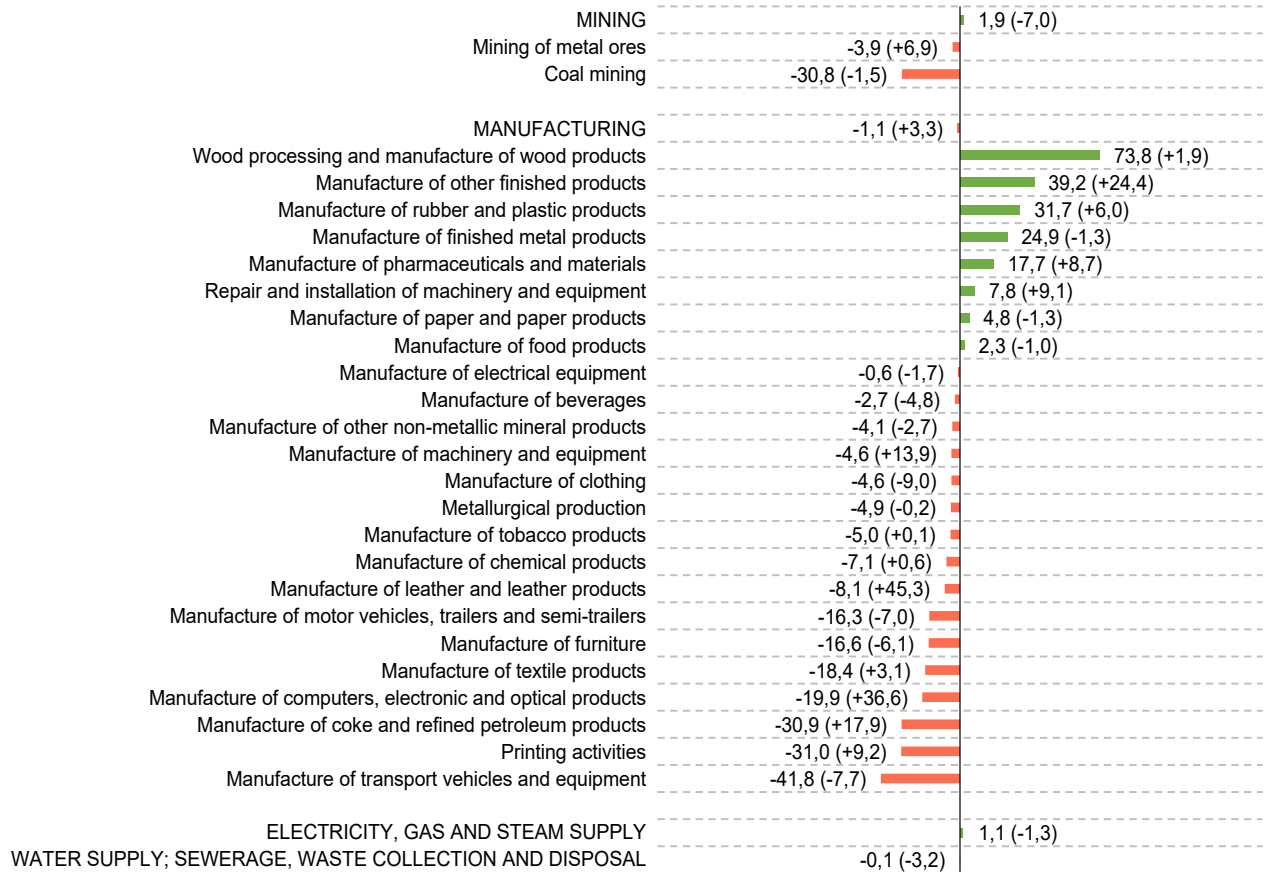


Figure 4. Growth of industrial production in the NWFD in January–May 2026, % of January–May 2025

Note: figures in parentheses show the change in the indicator in January–May 2025, % of January–May 2024.

In February 2026, the Sveza Group (Saint Petersburg) began production of laminated plywood with increased thickness of up to 55 mm, used in the manufacture of high-load vibration pallets. To implement the project, the company's technical services modernized the lamination press. Annual output of plywood for vibration pallets is projected to reach up to 1.5 thousand cubic meters⁴.

The new owner of the former Henkel plant in Tosno (Leningrad Region), LAB Industries, invested 450 million rubles in launching a line for the production of mounting foams. The maximum design capacity of the

new facility is up to 10 million canisters per year. So far, output has reached about 200 thousand canisters per month. The launch has created 20 additional jobs. The company produces mounting foams based on its own formulations under the Makroflex, Ceresit, Moment, and Econ brands⁵.

Most industries in the NWFD's **final-demand manufacturing sector** showed output growth. Production of rubber and plastic products increased substantially, by 31.7%; finished metal products rose by 24.9%; medicines and medical materials by 17.7%; and other finished goods by 39.2%.

⁴ Sveza develops unique plywood for vibration pallets. Sveza. Available at: <https://sveza.ru/press-center/news/sveza-razrabotala-unikalnuyu-faneru-dlya-vibropoddonov/> (accessed: 14.07.2026).

⁵ LAB Industries pursues its own line. Kommersant. Available at: <https://www.kommersant.ru/doc/8691692> (accessed: 14.07.2026).

At the same time, the production of textiles and furniture declined significantly, by 18.4% and 16.6%, respectively; leather goods fell by 8.1% (after a 45.3% increase a year earlier); and clothing and beverages decreased by 4.6% and 2.7%, respectively.

▼ In the NWFD's **investment-demand manufacturing industries**, output dynamics were negative: in the production of transport vehicles and equipment, the decline was 41.8%; in computers, electronic, and optical products, 19.9% (a year earlier, growth of 36.6% had been recorded). The output of motor vehicles, trailers, and semi-trailers, as well as machinery and equipment, decreased by 16.3% and 4.6%, respectively, while the production of non-metallic mineral products fell by 4.1%. At the same time, output in "Repair and installation of machinery and equipment" increased by 7.8%.

In the Pskov Region, a new production facility was launched in the Moglino special economic zone: AKSI TEKH LLC. The plant will specialize in the production of industrial pipelines, equipment for the gas, nuclear, and petrochemical industries, and other metal structures. The company chose the Pskov Region site because of the favorable conditions offered by the special economic zone⁶.

Another enterprise is due to appear in the Moglino special economic zone in the near future. It plans to produce locomotive gear

transmission housings made of composite materials, which are lighter yet stronger than their metal counterparts. Investment is expected to total about 350 million rubles, and the enterprise will create 105 jobs⁷.

Tosno LLC (formerly Caterpillar Tosno LLC) has launched the production of backhoe loaders. In 2026, the plant is to produce 300 machines, all of which are already under contract. Investment in the project to date has amounted to approximately 500 million rubles⁸.

The Etalon Group has launched a prefabricated products plant on the territory of the Gorelovo industrial park. The 10,000-square-meter facility is designed to produce more than 700 kits of ready-made structural elements for houses per month. In the future, this volume could be almost tripled to two thousand units per month. The project was initially estimated at about 1 billion rubles, but investment subsequently grew to 2.8 billion rubles⁹.

▲ **Agriculture** in the NWFD increased output in the first quarter of 2026 to a greater extent than the country as a whole – by 4.7% and 0.2%, respectively – making it the highest value among the federal districts (Tab. 3). Thus, in the Kaliningrad and Pskov regions, agricultural output rose by 7.8% and 7.5%, and in the Vologda and Leningrad regions by 5.6% and 5.4%. At the same time, a number of the district's constituent entities recorded a decline

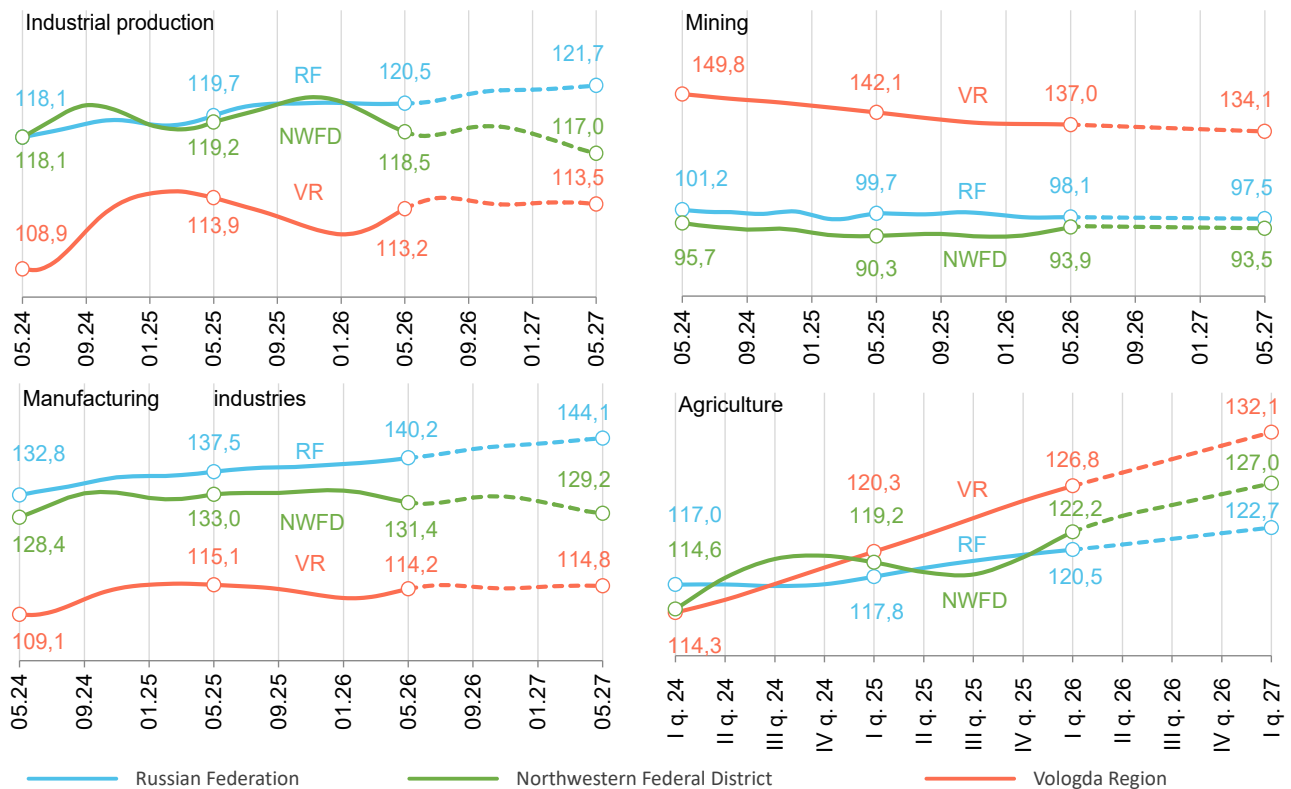
⁶ A plant for the production of metal structures and industrial pipelines will start operating in the Pskov Region. Moskovsky Komsomolets. Pskov. Available at: <https://www.mk-pskov.ru/economics/2026/01/28/v-pskovskoy-oblasti-nachnyot-rabotu-zavod-po-proizvodstvu-metallokonstrukciy-i-promyshlennykh-truboprovodov.html> (accessed: 14.07.2026).

⁷ An enterprise producing composite products will open in Moglino. GTRK Pskov. Available at: <https://gtrkpskov.ru/news-feed/vesti-pskov/43555-predpriyatie-po-proizvodstvu-kompozitnykh-izdelij-otkroetsya-v-moglino.html> (accessed: 14.07.2026).

⁸ The former Caterpillar plant in the Leningrad Region has resumed production. Interfax. Available at: <https://www.interfax.ru/business/1084111> (accessed: 14.07.2026).

⁹ The Etalon Group has launched a prefabricated products plant in Saint Petersburg. Fontanka.ru. Available at: <https://www.fontanka.ru/2026/04/10/76359606/> (accessed: 14.07.2026).

Trends in industrial and agricultural production development in 2024–2027, % of 2018 level



in agricultural output – most notably the Murmansk Region, where it fell to almost half the previous year's level.

Table 3. Dynamics of agricultural production, % of the corresponding period of the previous year

Territory	3 months 2024	3 months 2025	3 months 2026	Rank*
Russian Federation	101.5	100.6	100.2	-
Northwestern Federal District	103.6	104.7	104.7	1
Kaliningrad Region	106.5	91.2	107.8	5
Pskov Region	121.9	114.1	107.5	6
Vologda Region	97.9	105.4	105.6	10
Leningrad Region	99.6	101.5	105.4	12
Republic of Karelia	96.3	95.5	100.7	38
Arkhangelsk Region	104.7	104.1	100.6	39
Nenets Autonomous Area	96.1	94.8	98.6	48
Komi Republic	97.4	107.7	97.7	51
Novgorod Region	87.4	113.9	96.7	58
Murmansk Region	112.4	81.7	50.5	83

* For the indicator "Dynamics of agricultural production", the rank shows the position of the corresponding region among the constituent entities of the Russian Federation (for the NWFD, among the federal districts) in the dynamics of the indicator in January–March 2026, excluding statistical information for the Donetsk People's Republic (DPR), the Lugansk People's Republic (LPR), and the Zaporozhye and Kherson regions.

Labor market indicators pointed to mounting tension.

The unemployment rate in the NWFD in March–May 2026 decreased by 0.1 percentage points, to 1.9% (for Russia as a whole, it remained at the previous year's level; *Tab. 4*). A decline was recorded in most constituent entities of the district, with the Novgorod Region reaching 0.7% – the best result in the country. At the same time, in Saint Petersburg, the Murmansk and Leningrad regions, and the Republic of Karelia, unemployment remained unchanged from a year earlier.

✓ The volume of **employer demand for workers** announced to employment services decreased in most NWFD constituent entities, as well as in Russia as a whole, by 2.7% and 4.7%, respectively. In particular, a substantial decline in registered vacancies was observed in the Nenets Autonomous Area and the Pskov Region (by 18% and 9.8%), as well as in the Arkhangelsk, Vologda, and Novgorod regions (within the range of 8.9–8.7%). The deterioration in the dynamics of Saint

**Table 4. Labor market dynamics,
% of the corresponding period
of the previous year**

Territory	March– May 2024	March– May 2025	March– May 2026	Rank*
Unemployment rate, % of employed				
Russian Federation	2.6	2.2	2.2	-
Northwestern Federal District	2.2	2.0	1.9	4
Novgorod Region	1.5	1.1	0.7	1
Pskov Region	2.3	2.2	1.3	11
Vologda Region	3.1	1.9	1.5	20
Saint Petersburg	1.5	1.5	1.5	21
Kaliningrad Region	2.7	1.9	1.7	33
Arkhangelsk Region	2.1	2.3	2.1	57
Murmansk Region	2.8	2.4	2.4	62
Leningrad Region	2.8	2.8	2.8	69
Republic of Karelia	4.2	2.9	2.9	72
Nenets Autonomous Area	5.4	3.7	3.1	73
Komi Republic	3.6	3.4	3.1	74
Territory	3 months 2024	3 months 2025	3 months 2026	Rank*
Employer demand for workers				
Russian Federation	118.4	107.5	95.3	-
Northwestern Federal District	115.8	108.7	97.3	4
Republic of Karelia	115.6	95.9	107.7	12
Kaliningrad Region	115.8	107.1	102.1	23
Leningrad Region	126.1	120.5	101.9	25
Murmansk Region	105.5	90.0	97.6	29
Saint Petersburg	112.7	110.1	97.1	30
Komi Republic	115.5	100.2	94.8	41
Novgorod Region	129.0	111.4	91.3	55
Vologda Region	130.0	113.6	91.2	57
Arkhangelsk Region	122.1	97.1	91.1	58
Pskov Region	115.6	119.0	90.2	60
Nenets Autonomous Area	103.9	114.4	82.0	84

* For the indicator "Unemployment rate," the rank shows the position of the corresponding region among the constituent entities of the Russian Federation (for the NWFD, among the federal districts) in the dynamics of the indicator in March–May 2026; for the indicator "Employer demand for workers," in January–March 2026, excluding statistical information for the Donetsk People's Republic (DPR), the Lugansk People's Republic (LPR), and the Zaporozhye and Kherson regions.

Petersburg, by 2.9%, had a significant impact on the overall NWFD indicator. Exceptions to the general picture were the Republic of Karelia and the Kaliningrad and Leningrad regions, which posted increases in announced employer demand of 7.7%, 2.1%, and 1.9%, respectively.

2. Income generation

Growth of budget and household incomes occurred against the backdrop of a substantial decline in entrepreneurial income.

▲ **Real household money incomes** in the NWFD and Russia increased by 3.6% and 2.6%, respectively (Tab. 5). Growth was recorded in almost all constituent entities of the district, except the Nenets Autonomous Area, where household incomes remained at the previous year's level. The dynamics were largely driven by Saint Petersburg and the Vologda Region, where the change was 4.5%.

**Table 5. Dynamics of household income generation,
% of the corresponding period
of the previous year**

Territory	3 months 2024	3 months 2025	3 months 2026	Rank*
Real household money incomes				
Russian Federation	108.0	108.3	102.6	-
Northwestern Federal District	111.9	108.6	103.6	3
Vologda Region	106.8	106.8	104.5	18
Saint Petersburg	114.1	109.2	104.5	18
Novgorod Region	113.4	107.2	103.7	27
Arkhangelsk Region	106.1	106.5	103.4	34
Republic of Karelia	102.4	110.3	102.9	42
Leningrad Region	120.1	111.8	102.9	42
Kaliningrad Region	108.7	109.7	102.2	55
Pskov Region	114.6	111.0	102.1	58
Murmansk Region	102.7	102.4	101.3	71
Komi Republic	104.8	102.4	100.4	79
Nenets Autonomous Area	112.2	107.9	100.0	84
Real accrued wages				
Russian Federation	111.0	103.4	108.7	-
Northwestern Federal District	108.1	102.6	105.6	5
Novgorod Region	111.1	106.3	107.7	24
Saint Petersburg	107.1	101.9	106.3	36
Arkhangelsk Region	104.6	102.7	105.4	43
Murmansk Region	109.5	98.4	105.4	43
Vologda Region	111.1	100.9	105.1	48
Kaliningrad Region	108.0	106.3	105.1	48
Pskov Region	113.8	108.3	104.8	52
Republic of Karelia	107.0	98.1	104.1	61
Komi Republic	104.3	101.0	103.5	69
Leningrad Region	113.5	107.1	103.1	71
Nenets Autonomous Area	106.3	101.3	100.8	81

* For the indicators "Real household money incomes" and "Real accrued wages," the rank shows the position of the corresponding region among the constituent entities of the Russian Federation (for the NWFD, among the federal districts) in the dynamics of the indicator in March–May 2026, excluding statistical information for the Donetsk People's Republic (DPR), the Lugansk People's Republic (LPR), and the Zaporozhye and Kherson regions.

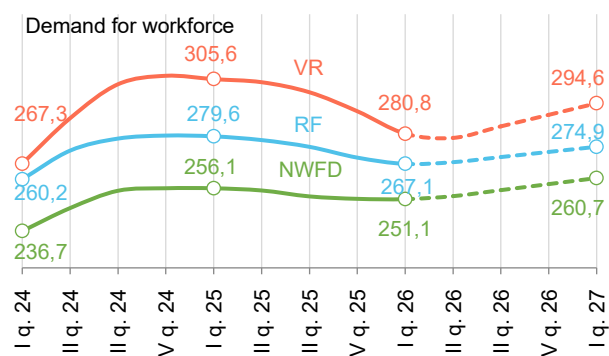
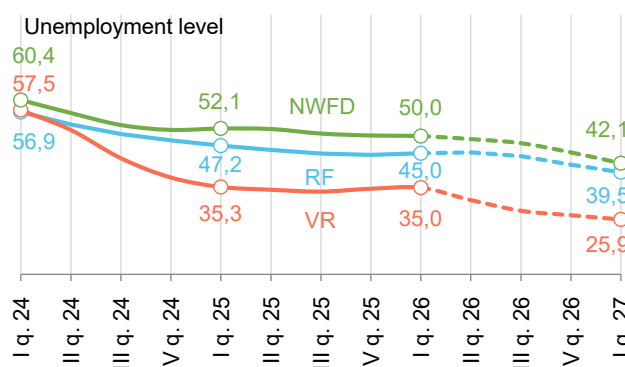
⬆️ **Real accrued wages** in the NWFD increased by 5.6%, while wages for Russians as a whole rose by 8.7%. This indicator largely shapes the dynamics of real household money incomes, even as the contribution of such components as property income and interest on deposits declines. Positive wage dynamics are observed in all constituent entities of the district, but none of them recorded an improvement commensurate with the national pace. The leaders of the NWFD in terms of real accrued wage growth were the Novgorod Region and Saint Petersburg (7.7% and 6.3%, respectively).

⬆️ **Real revenues of the consolidated budget and the budget of the territorial state extra-budgetary fund** in the NWFD increased by 1.5% (Tab. 6). Among the district's constituent entities, dynamics were mixed. There were both substantial increases in budget revenues (in particular, in the Murmansk and Novgorod regions by 17.4% and 14.7%, respectively) and deep declines (in the Nenets Autonomous Area and the Vologda Region, the decline was 17.9% and 13.9%, respectively). Personal income tax receipts in the macroregion grew by 10.4%, with increases recorded in all constituent entities, most notably the Novgorod Region (19.8%). Business income tax receipts in the NWFD decreased by 4.5%, with the worst value posted by the Vologda Region, where corporate profit tax receipts fell threefold. Receipts from excisable goods in the macroregion declined by 0.8%. In Russia as a whole, real consolidated budget revenues increased by 0.1%, personal income tax receipts grew by 8.8%, and excise tax receipts by 0.5%; business income tax receipts declined by 5.5%.

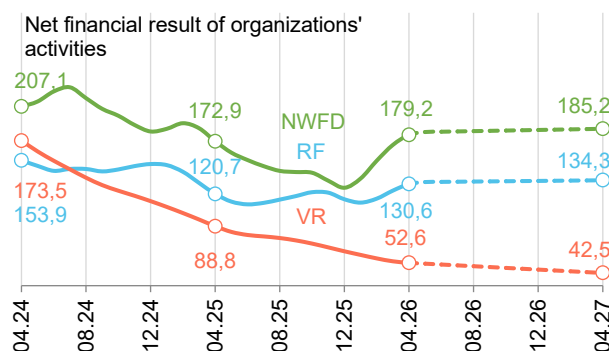
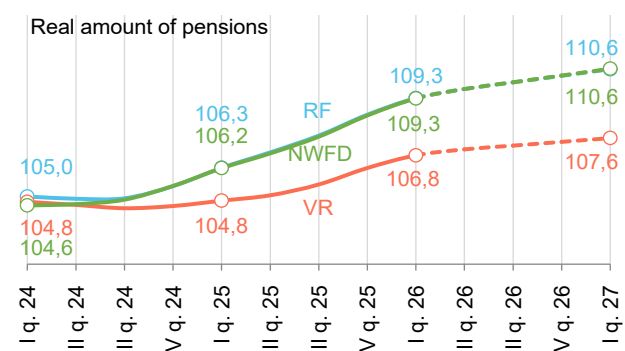
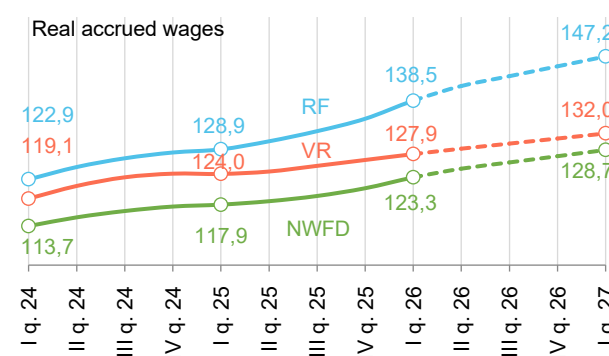
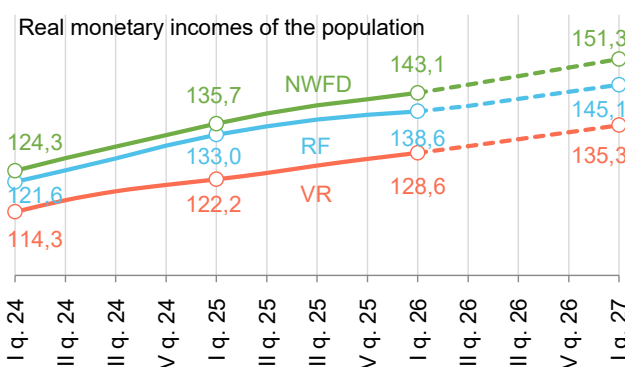
**Table 6. Dynamics of business and government income generation,
% of the corresponding period
of the previous year**

Territory	5 months 2024	5 months 2025	5 months 2026
Revenues of the consolidated budget and the budget of the territorial state extra-budgetary fund			
Russian Federation	100.4	99.4	100.1
Northwestern Federal District	98.5	94.9	101.5
Murmansk Region	81.7	100.6	117.4
Novgorod Region	86.5	88.6	114.7
Pskov Region	99.7	88.9	110.3
Komi Republic	95.5	85.5	102.5
Saint Petersburg	102.2	97.0	102.1
Republic of Karelia	85.8	90.5	101.5
Kaliningrad Region	109.6	98.7	99.8
Leningrad Region	94.7	100.6	98.2
Arkhangelsk Region	103.5	89.0	97.9
Vologda Region	92.8	84.1	86.1
Nenets Autonomous Area	122.1	89.5	82.1
Territory	3 months 2024	3 months 2025	3 months 2026
Receipts of taxes, fees, and other mandatory payments to the consolidated budget of the Russian Federation			
Russian Federation	93.3	103.3	94.5
Northwestern Federal District	82.0	98.2	121.0
Murmansk Region	48.0	137.6	170.6
Saint Petersburg	105.1	93.6	139.0
Novgorod Region	43.4	121.7	132.9
Vologda Region	83.1	60.4	121.3
Pskov Region	121.1	107.2	119.9
Kaliningrad Region	106.8	163.8	118.0
Leningrad Region	128.6	108.9	107.8
Arkhangelsk Region	56.2	112.8	103.5
Republic of Karelia	135.4	92.4	88.8
Komi Republic	34.6	96.0	63.0
Nenets Autonomous Area	31.6	101.4	30.9
Territory	4 months 2024	4 months 2025	4 months 2026
Net financial result of organizations' activities			
Russian Federation	103.4	89.0	84.9
Northwestern Federal District	88.0	120.5	92.6
Nenets Autonomous Area	-	15.7	204.1
Saint Petersburg	66.5	186.1	123.3
Pskov Region	92.7	75.9	103.1
Leningrad Region	117.8	85.1	74.1
Kaliningrad Region	81.4	925.2	51.8
Komi Republic	127.4	104.2	41.8
Arkhangelsk Region	113.3	114.3	4.5
Republic of Karelia	260.8	48.1	-
Vologda Region	159.3	35.5	-
Murmansk Region	14.9	-	-
Novgorod Region	-	106.8	-

Trends in labor market development in 2024–2027, % of 2018 level



Trends in income generation in the economy in 2023–2027, % of 2018 level



Russian Federation

Northwestern Federal District

Vologda Region

📈 **Receipts of taxes, fees, and other mandatory payments to the consolidated budget** from the NWFD regions increased by 21% in the first quarter of 2026 (while for the country as a whole they declined by 5.5%). The indicator rose in most constituent entities of the district, including the Murmansk Region, Saint Petersburg, and the Novgorod Region, where the increase was 70.6%, 39%, and 32.9%, respectively. At the same time, in the Nenets Autonomous Area and the republics of Karelia and Komi, tax receipts decreased by 69.1%, 37%, and 11.2%, respectively.

📉 **The net financial result** of organizations in the NWFD and Russia in January–April 2026 showed a real-terms decline of 7.4% and 15.1%, respectively. Financial deterioration was observed at enterprises in almost all constituent entities of the district, with the Novgorod, Murmansk, and Vologda regions, as well as the Republic of Karelia, posting negative values. The exceptions were the Nenets Autonomous Area, Saint Petersburg, and the Pskov Region, which recorded increases in the net financial result of organizations of 104.1%, 23.3%, and 3.1%, respectively.

3. Final use

Consumer demand was the main positive factor in economic dynamics. Expectations of steady consumer demand growth are partly explained by a gradual decline in the population's propensity to save¹⁰.

📈 **Retail trade turnover** in the NWFD increased by 6.3% (for the country as a whole, by 5%; *Tab. 7*). The growth of retail trade in food products in Russia was 2.8%, and in non-food products, 7.2%. In the NWFD, non-food retail trade turnover rose by 7.5%. The leaders in the macroregion in terms of growth in non-food retail trade turnover were the Vologda Region and Saint Petersburg, at 11.4% and 10.1%, respectively. Food retail trade turnover in the NWFD increased by 4.8%, most strongly in the Novgorod Region (by 8.6%).

Table 7. Dynamics of consumer market development, % of the corresponding period of the previous year

Territory	5 months 2024	5 months 2025	5 months 2026	Rank
Retail trade turnover				
Russian Federation	110.5	103.0	105.0	-
Northwestern Federal District	109.4	103.9	106.3	3
Saint Petersburg	111.1	105.5	108.6	15
Novgorod Region	106.2	107.3	107.8	20
Vologda Region	108.1	107.9	106.9	26
Kaliningrad Region	114.1	107.0	104.9	48
Murmansk Region	101.7	100.4	103.9	60
Leningrad Region	110.4	99.6	103.0	65
Arkhangelsk Region	100.6	95.7	102.8	67
Pskov Region	112.0	102.6	102.3	71
Komi Republic	108.2	103.7	102.2	72
Republic of Karelia	104.5	103.2	101.5	76
Nenets Autonomous Area	103.9	100.1	101.4	78
Volume of paid services to the population				
Russian Federation	105.2	102.2	102.7	-
Northwestern Federal District	103.3	102.2	103.3	4
Leningrad Region	111.9	103.1	107.6	7
Kaliningrad Region	110.4	103.1	105.7	15
Pskov Region	103.0	101.7	103.6	32
Arkhangelsk Region	104.8	98.5	103.4	39

Saint Petersburg	101.2	103.8	103.3	40
Vologda Region	102.5	98.0	102.6	48
Nenets Autonomous Area	103.3	98.8	102.3	52
Republic of Karelia	104.7	100.7	100.9	71
Novgorod Region	100.6	100.1	100.4	75
Murmansk Region	101.4	99.8	99.0	80
Komi Republic	105.2	94.8	97.7	82
Consumer price index (to December of the previous year)				
Russian Federation	103.2	103.6	103.3	-
Northwestern Federal District	103.3	104.0	103.4	7
Republic of Karelia	103.3	104.3	102.6	16
Murmansk Region	104.0	105.0	103.0	32
Kaliningrad Region	103.5	105.2	103.1	42
Pskov Region	103.0	104.5	103.1	42
Leningrad Region	103.5	104.0	103.3	51
Novgorod Region	102.8	104.0	103.4	55
Vologda Region	102.6	104.4	103.5	58
Saint Petersburg	103.3	103.6	103.6	64
Komi Republic	103.4	103.8	103.8	77
Arkhangelsk Region	102.8	103.5	103.8	77
Nenets Autonomous Area	104.2	105.8	103.9	79
Producer price index for industrial goods (to December of the previous year)				
Russian Federation	105.4	97.3	109.8	-
Northwestern Federal District	105.3	100.2	108.7	5
Leningrad Region	105.2	101.9	98.2	5
Republic of Karelia	109.8	104.0	100.0	11
Vologda Region	103.3	99.4	100.2	12
Arkhangelsk Region	106.2	105.9	101.2	28
Novgorod Region	101.6	103.6	102.3	40
Kaliningrad Region	99.6	101.1	103.2	48
Pskov Region	106.5	103.7	103.3	49
Saint Petersburg	103.6	111.4	104.5	58
Murmansk Region	103.2	101.3	105.9	64
Komi Republic	110.0	89.6	137.7	82
Nenets Autonomous Area	109.7	71.7	195.0	85

📈 The volume of **paid services**, rendered to the population in the NWFD increased by 3.3% (for the country as a whole, by 2.7%). Growth was recorded in almost all constituent entities of the district. The leaders were the Leningrad and Kaliningrad regions, at 7.6% and 5.7%, respectively. The exceptions were the Komi Republic and the Murmansk Region, where the volume of paid services to the population decreased by 2.3% and 1%, respectively.

¹⁰ Quarterly GDP forecast. Issue 70. June 2026. Institute of Economic Forecasting of the Russian Academy of Sciences. Available at: <https://ecfor.ru/publication/kvartalnyj-prognoz-vvp-vypusk-70/> (accessed: 17.07.2026).

✔ **Consumer inflation** in the NWFD was close to the national average (3.4% and 3.3%, respectively). Food prices in the federal district rose by 1.5% (for Russia as a whole, by 2.1%). Non-food prices increased by 2.1% in the macroregion and by 1.8% nationally, while the “core” of monetary inflation (the increase in non-food prices excluding petroleum products and cigarettes) showed virtually no growth¹¹. Consumer prices for services in the macroregion and the country rose by 7.5% and 6.7%, respectively. Housing and utilities tariffs in the NWFD and Russia increased by 2.8% and 2.9%, respectively.

✔ **Producer prices for industrial goods** in the NWFD and Russia showed an increase of 8.7% and 9.8%, respectively. A sharp rise in the prices of industrial products was recorded in the Nenets Autonomous Area and the Komi Republic, by 95% and 37.7%, respectively. In the remaining constituent entities of the district, prices in this sector also increased. The exceptions were the Leningrad Region, where the indicator declined by 1.8%, and the Republic of Karelia, where it remained at the previous year's level.

✔ In **construction**, the volume of work performed in the NWFD decreased by 10%, while for Russia the decline was 7.4% (Tab. 8). Among the district's constituent entities, only the Murmansk Region showed growth (by 59.4%, following a 54.7% decline a year earlier). In the other regions of the district, construction volumes contracted, with half of them posting declines ranging from 45.7% to 24.2%.

✔ **Housing completions** in the NWFD showed a deeper decline than in Russia as a whole (29.4% and 21.7%, respectively), driven by negative dynamics in all regions of the district. In Saint Petersburg, the decline was 56.6%, one of the worst changes in the indicator in the country.

Table 8. Construction dynamics, % of the corresponding period of the previous year

Territory	5 months 2024	5 months 2025	5 months 2026	Rank
Volume of work in TEA “Construction”				
Russian Federation	104.6	104.5	92.6	-
Northwestern Federal District	105.0	115.1	90.0	5
Murmansk Region	126.1	45.3	159.4	3
Novgorod Region	147.6	91.5	99.2	24
Leningrad Region	132.4	163.1	94.7	36
Saint Petersburg	83.3	120.2	92.7	41
Komi Republic	111.9	86.1	86.4	46
Pskov Region	129.0	127.9	75.8	66
Kaliningrad Region	108.9	88.2	72.1	68
Vologda Region	138.0	119.3	69.7	72
Arkhangelsk Region	116.6	94.7	62.7	76
Nenets Autonomous Area	113.4	44.9	55.3	79
Republic of Karelia	77.7	129.6	54.3	81
Housing completions				
Russian Federation	101.3	102.0	78.3	-
Northwestern Federal District	101.1	102.2	71.6	6
Arkhangelsk Region	111.3	91.4	99.2	19
Pskov Region	110.0	76.4	98.5	20
Komi Republic	93.5	104.2	98.2	21
Leningrad Region	106.9	105.9	89.0	31
Republic of Karelia	108.8	117.3	76.9	44
Kaliningrad Region	125.3	85.0	67.6	58
Murmansk Region	144.2	161.6	65.8	61
Novgorod Region	89.3	133.2	59.3	70
Vologda Region	96.6	143.5	49.7	81
Saint Petersburg	86.5	90.5	43.4	83
Nenets Autonomous Area	148.7	127.9	40.7	84
Volume of mortgage loans issued				
Russian Federation	79.1	52.3	138.2	-
Northwestern Federal District	83.3	53.2	141.2	5
Nenets Autonomous Area	69.8	50.7	186.7	2
Republic of Karelia	70.0	45.5	178.5	3
Novgorod Region	78.0	49.0	159.8	9
Murmansk Region	78.3	47.2	158.0	10
Arkhangelsk Region	96.6	54.0	150.1	22
Leningrad Region	74.8	58.1	146.6	23
Vologda Region	75.0	47.7	146.2	31
Komi Republic	64.4	53.7	145.3	33
Pskov Region	78.9	55.8	138.2	51
Kaliningrad Region	95.1	57.6	132.5	61
Saint Petersburg	87.3	53.0	134.8	66

¹¹ Analysis of macroeconomic trends. June 2026. Center for Macroeconomic Analysis and Short-Term Forecasting. Available at: http://www.forecast.ru/_ARCHIVE/Mon_MK/2026/macro68.pdf (accessed: 17.07.2026).

➤ The **volume of mortgage loans issued** showed a sharp increase both in the NWFD and nationally – by 41.2% and 38.2%, respectively. This phenomenon affected all constituent entities of the district, manifesting in an intensification of mortgage lending by 34.8–86.7%. The reasons may include declining deposit yields and the prolonged fall of the MOEX index¹² amid persistently high inflation expectations. Under such conditions, real estate is perceived as the main defensive asset. Another contributing factor is that developers will subsequently factor rising costs of construction materials and labor into the price of housing under construction. According to Bank of Russia data, in May 2026 only 54.8% of mortgage loans were issued under government support programs, whereas previously this indicator had long remained in the range of 75–85%. In annual comparison, the provision of mortgage housing loans increased by 18.7% in number and by 14.2%¹³ in volume, which suggests growing demand for small apartments.

➤ **Real expenditures of the consolidated budget and the budget of the territorial state extra-budgetary fund** increased in the NWFD by 3.7% in January–May (for Russia as a whole, by 0.7%; Tab. 9). The positive dynamics of the aggregate indicator for the macroregion were driven by growth in most of its constituent entities, with the Pskov Region showing the largest increase (13.5%). At the same time, a number of NWFD regions saw a decline in budget expenditures—in the Komi Republic, the Vologda Region, and the Arkhangelsk Region, the decrease was in the range of 7.2–7.3%. At the same time, budget expenditures on healthcare and social policy in the NWFD increased by 2.7% and 1.1%, respectively. For the country as a whole, the opposite trend was

observed: budget expenditures on healthcare and social policy decreased by 2.4% and 1.1%, respectively.

Table 9. Dynamics of expenditures of the consolidated budget and the budget of the territorial state extra-budgetary fund, % of the corresponding period of the previous year

Territory	5 months 2024	5 months 2025	5 months 2026
Russian Federation	102.2	106.3	100.7
Northwestern Federal District	106.3	101.1	103.7
Pskov Region	99.9	97.5	113.5
Nenets Autonomous Area	83.7	103.8	108.5
Leningrad Region	107.0	108.5	107.8
Novgorod Region	100.5	89.1	107.6
Saint Petersburg	113.3	102.5	106.9
Republic of Karelia	81.9	99.5	103.3
Kaliningrad Region	94.6	103.2	102.9
Murmansk Region	110.1	92.2	99.3
Arkhangelsk Region	101.8	95.9	92.8
Vologda Region	105.7	99.1	92.8
Komi Republic	98.6	104.1	92.7

➤ The **fixed capital investment** index in the NWFD in the first quarter of 2026 was 89.4%, against a more negative value for the country as a whole (85.7%; Tab. 10). As analysts at the Center for Macroeconomic Analysis and Short-Term Forecasting note, the observed decline and its unprecedented duration reinforce each other, with the result that the absence of prerequisites for growth itself becomes a factor affecting investment (and, more broadly, business) activity of companies¹⁴. In the Novgorod and Leningrad regions, investment increased by 9.4% and 5.2%, while in the remaining constituent entities of the district, investment processes slowed significantly. Thus, in the Republic of Karelia, investment fell by more than half (the worst result in the country), and in the Arkhangelsk, Vologda, and Murmansk regions, it decreased by 34.2–37.5% (although it is important to note the high base of the previous year).

¹² 18 weeks without change. BCS Express. Available at: <https://bcs-express.ru/novosti-i-analitika/mneniia/18-nedel-bez-peremen> (accessed: 14.07.2026).

¹³ Review of the housing mortgage lending market. Bank of Russia. Available at: https://cbr.ru/statistics/bank_sector/mortgage/Indicator_mortgage/1225/ (accessed: 14.07.2026).

¹⁴ Analysis of macroeconomic trends. June 2026. Center for Macroeconomic Analysis and Short-Term Forecasting. Available at: http://www.forecast.ru/_ARCHIVE/Mon_MK/2026/macro68.pdf (accessed: 17.07.2026).

Table 10. Dynamics of fixed capital investment, % of the corresponding period of the previous year

Territory	3 months 2024	3 months 2025	3 months 2026	Rank*
Russian Federation	114.8	106.5	85.7	-
Northwestern Federal District	116.0	122.0	89.4	3
Novgorod Region	77.7	101.1	109.4	7
Leningrad Region	136.6	163.8	105.2	11
Komi Republic	118.4	85.9	90.7	31
Saint Petersburg	124.3	97.1	87.3	35
Kaliningrad Region	89.1	93.3	85.8	36
Nenets Autonomous Area	105.6	83.6	83.1	42
Pskov Region	141.7	94.6	81.3	48
Murmansk Region	94.6	134.3	65.8	69
Vologda Region	101.0	159.5	63.9	70
Arkhangelsk Region	57.7	112.1	62.5	74
Republic of Karelia	98.9	156.1	48.1	85

* For the indicator "Dynamics of fixed capital investment," the rank shows the position of the corresponding region among the constituent entities of the Russian Federation (for the NWFD, among the federal districts) in the dynamics of the indicator in January–March 2026, excluding statistical information for the Donetsk People's Republic (DPR), the Lugansk People's Republic (LPR), and the Zaporozhye and Kherson regions.

According to Autostat data, in the first quarter of 2026, 8,932 new heavy-duty trucks were sold in Russia (30% less than in the first quarter of 2025). KAMAZ accounted for almost 35% of the market with sales of 3,100 heavy trucks, and 64.7% of the HCV market was taken by domestically produced vehicles. Tractor units accounted for 34.2% of the market over the three months¹⁵.

According to Federal Customs Service data, in January–May 2026, Russia's total **exports** and **imports** in value terms increased markedly, by 8.5% and 8.1%, respectively. Exports to Asia rose by 14.5%, while

shipments to all other groups of countries declined; in particular, exports to Europe decreased by 8.4% and to Africa by 10%. Imports from Asia and Europe increased by 8.8% and 8%, respectively. Food exports rose by 20.3%, and imports by 5.4%. The value of mineral product exports increased by 4.3% (share 54%), and imports of mineral products grew by 40.5%. An increase in exports of metals and metal products by 26% was recorded. Machinery and equipment exports decreased by 8.5%, while imports of this category of goods increased by 9.3%, their share amounting to 49% of total imports.

World oil prices rose by 19.8% (Tab. 11). A number of other goods exported from the NWFD also became more expensive: phosphorus-containing fertilizers by 18.3%, gas by 12.8%, rolled metal by 9.1%.

Table 11. Dynamics of world prices for goods, % of the corresponding period of the previous year

Good	5 months 2024	5 months 2025	5 months 2026
Oil	104.4	85.3	119.8
Gas	61.3	146.2	112.8
Rolled metal (Met.)	95.6	108.4	109.1
Phosphate fertilizers (PF)	95.4	84.0	118.3

World prices for most rolled metal categories show an upward trend: increases were recorded both for flat products (by 9.8–14.2%) and long products (by 7–14.3%), with the exception of sections, which fell in price by 1% (Tab. 12). On the domestic market, prices for flat rolled metal decreased by 2.5–15.3%, while long products increased by 8.8–19.1%, except beams and channels, which became cheaper by 1.5% (Tab. 13).

¹⁵ Sales of new heavy-duty trucks (HCV) in Russia in 2025 and in December. Vedomosti. Available at: <https://www.vedomosti.ru/auto/news/2026/04/06/1188272-prodazhi-gruzovikov> (accessed: 14.07.2026).

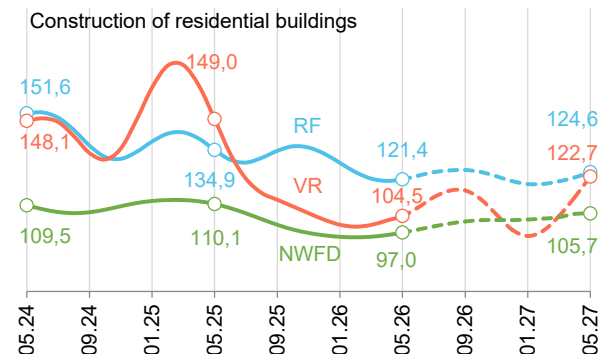
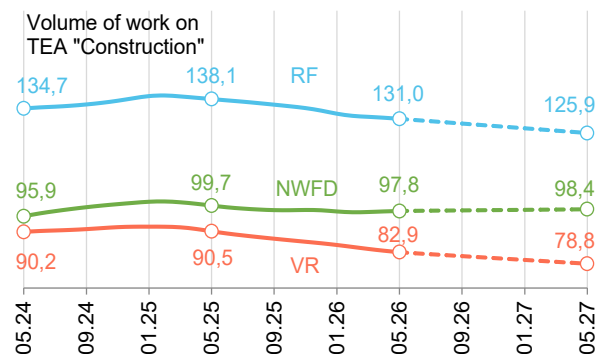
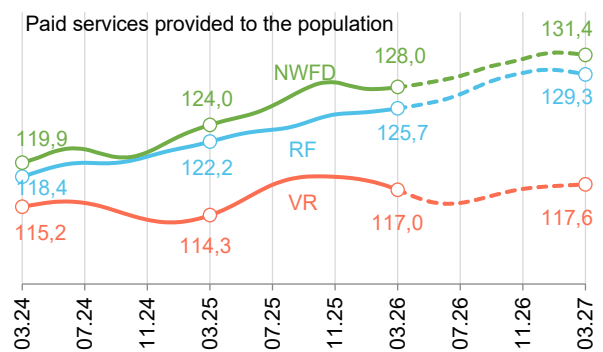
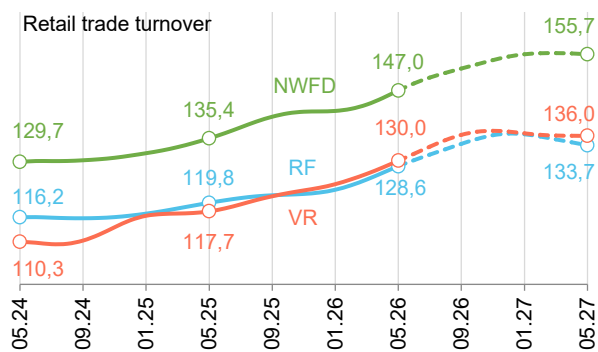
Table 12. Prices for metal products on the world market (EU countries), per ton, at the beginning of June of the corresponding year

Type of steel product	Unit of measurement	2024	2025	2026	2026, % to	
					2025	2024
Flat products						
Cold-rolled sheet	USD	927	758	858	113.2	92.5
Galvanized sheet	USD	951	840	923	109.8	97.0
Hot-rolled sheet	USD	771	650	743	114.2	96.3
Long products						
Reinforcing steel (rebar)	USD	780	663	758	114.3	97.1
Structural sections	USD	912	715	765	107.0	83.8
Merchant bars	USD	869	715	708	99.0	81.4

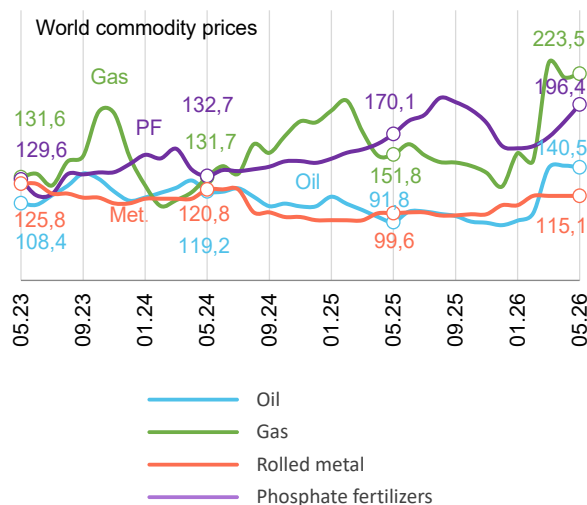
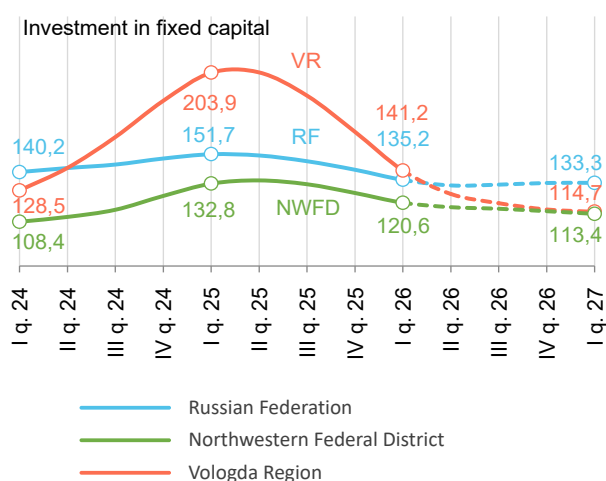
Table 13. Prices for metal products on the Russian market, per ton, at the beginning of July of the corresponding year

Type of steel product	Unit of measurement	2024	2025	2026	2026, % to	
					2025	2024
Flat products						
Cold-rolled sheet	RUB	87625	82475	69850	84.7	79.7
Galvanized sheet	RUB	118125	102075	89200	87.4	75.5
Hot-rolled sheet	RUB	65850	61650	60300	97.8	91.6
Long products						
Rebar	RUB	64800	58036	66100	113.9	102.0
Beams and channels	RUB	84806	80350	79175	98.5	93.4
Round bars	RUB	63833	56500	61500	108.8	96.3
Angles	RUB	65317	60033	71500	119.1	109.5

Trends in consumer market and construction development in 2024–2027, % of 2018 level



Trends in investment activity and foreign trade in 2023–2026, % of 2018 level



Summing up, it should be noted that in January–May 2026 the economy of the NWFD demonstrated a number of positive developments.

1. Against the backdrop of declining deposit yields and business profits, consumer demand continued to grow, supported by the positive dynamics of real wages.

2. Increased budget expenditures and mortgage lending had a positive impact on economic dynamics.

3. In a number of industries in the macroregion, output grew substantially, including in the final-demand manufacturing sector.

At the same time, the economy of the NWFD came under mounting pressure, since the strengthening of the ruble and the growth of imports helped to curb inflation but heightened competition for domestic producers. The intermediate- and investment-demand manufacturing industries, construction, and investment remained in negative territory.

Thus, the NWFD, like the country as a whole, faces a growing need to restart the investment

cycle as soon as possible. This will be facilitated by maintaining additional incentives to sustain consumer demand, providing targeted support for investment in the real sector of the economy, and improving the efficiency of workplaces. Examples of already implemented measures include expanded support for industrial projects¹⁶, assistance to agricultural producers¹⁷, construction¹⁸, and infrastructure projects¹⁹.

Sources: Rosstat, Ministry of Economic Development of Russia, Bank of Russia, Federal Customs Service, Government of Russia, worldbank.org, metalinfo.ru, metaltorg.ru, diverscitytimes.com, tradingeconomics.com, data.stats.gov.cn, bea.gov, and others.

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¹⁶ On allocating more than 3 billion rubles to support the industrial mortgage program: Resolution of the Government of the Russian Federation 1475-r of June 13, 2026; On allocating 2 billion rubles to support enterprises implementing projects to create high-tech products: Resolution of the Government of the Russian Federation 1767-r of July 9, 2026.

¹⁷ Resolutions of the Government of the Russian Federation 1611-r and 1612-r of June 25, 2026, on allocating more than 60 billion rubles to subsidize preferential loans for agricultural producers.

¹⁸ Resolution of the Government of the Russian Federation 1738-r of July 4, 2026, on allocating 290 million rubles to subsidize loans for construction companies working within the project financing mechanism.

¹⁹ Decree of the Government of the Russian Federation 1340-r of June 3, 2026, on allocating about 10.8 billion rubles to subsidize regional infrastructure projects for the development of automobile and electric transport.

MONITORING OF SOCIAL WELL-BEING OF THE VOLOGDA REGION POPULATION IN JUNE 2026

DOI: 10.15838/ptd.2026.4.144.12 • UDC 316.658(470.12) • LBC 60.527(2Ros-4Vol)

In May–June 2026, the Vologda Research Center of the Russian Academy of Sciences (VolRC RAS) conducted the next wave of its public opinion monitoring on the socio-economic and political situation in the country and the region. The results are presented below.

VolRC RAS has conducted this public opinion monitoring since 1996, once every two months. A total of 1,500 respondents aged 18 and older are surveyed in the cities of Vologda and Cherepovets and in the Babayevsky, Velikoustyugsky, Vozhegodsky, Gryazovetsky, Tarnogsky, Kirillovsky, Nikolsky, and Sheksninsky municipal okrugs. The sample is representative due to the following conditions: proportions between urban and rural populations; proportions between residents of different types of settlements (rural settlements, small and medium-sized towns); and the gender age structure of the region's adult population. The survey method is a face-to-face questionnaire at the respondents' places of residence. The sampling error does not exceed 3%.

The study analyzes the dynamics of assessments across 14 socio-demographic groups, identified by:

- gender (men, women);
- age (under 30, 30–55, over 55);
- educational attainment (secondary and incomplete secondary, specialized secondary, higher);
- self-assessed income level (bottom 20% income group, middle 60%, top 20%);
- territory of residence (the city of Vologda, the city of Cherepovets, the districts of the region).

The index method is used to process sociological information and analyze the data. To calculate indices, the share of negative responses (in percent) is subtracted from the share of positive responses, and 100 is added to the resulting value to avoid negative values. Thus, entirely negative responses would yield a total index of 0, entirely positive responses 200, and a balance between the two an index of 100, which is essentially a neutral mark.

Since the beginning of 2026, the social well-being indices of the population have been gradually improving: from February to June, the social mood index rose from 145 to 148 points, and the patience reserve index from 169 to 172 points (*Tab. 1*).

The share of positive assessments of social mood and the patience reserve has remained stable over the past 12 months: 70–73% and 80–83%, respectively.

For citation: Morev M.V., Leonidova E.E. (2026). Monitoring of social well-being of the Vologda Region population in June 2026. *Problems of Territory's Development*, 30(4), 199–206. DOI: 10.15838/ptd.2026.4.144.12

Table 1. Dynamics of selected indicators of social well-being of the population of the Vologda Region*, % of respondents

Indicator	Response option	2012	2015	2018	2019	2020	2021	2022	2023	2024	2025	June 2025	Aug. 2025	Oct. 2025	Dec. 2025	Feb. 2026	Apr. 2026	June 2026	Dynamics (+/-), June 2026 to	
																			Apr. 26	June 25
Mood	Excellent mood; normal state	67.3	68.7	71.2	69.9	61.0	66.7	67.3	65.6	69.0	71.6	71.9	72.9	70.9	73.2	69.7	70.1	71.2	+1	-1
	Feelings of tension, irritation; fear, anxiety	27.0	25.9	23.1	24.5	30.4	27.3	28.1	29.2	27.2	24.3	25.3	24.1	23.5	22.2	24.9	24.1	23.7	0	-2
	Social Mood Index	140.3	142.8	148.2	145.5	130.6	139.4	139.3	136.4	141.8	147.3	146.6	148.8	147.4	151.0	144.8	146.0	147.5	+2	+1
Reserve of patience	Things aren't so bad, life goes on; life is hard, but bearable	76.6	78.4	77.1	77.0	72.3	75.8	76.9	76.5	77.9	81.1	80.4	79.9	83.5	83.4	81.1	80.6	82.5	+2	+2
	Our desperate situation is impossible to endure any longer	15.8	14.5	16.3	17.2	19.9	17.7	16.1	14.6	13.9	12.6	11.9	12.9	12.1	10.1	11.9	11.6	10.5	-1	-1
	Reserve of Patience Index	160.8	163.9	160.8	158.8	152.5	158.1	160.8	162.0	164.0	168.5	168.5	167.0	171.4	173.3	169.2	169.0	172.0	+3	+4

* According to the survey methodology, the sampling error does not exceed 3%. Therefore, here and throughout this report, changes of less than 3 percentage points are considered statistically insignificant and are highlighted in blue in the tables.

⬆ In June 2026, the region as a whole continued the trend toward improvement in self-assessed income levels that has been observed since December 2025 (*Tab. 2*).

At the same time, positive changes over the past two months occurred only among those who, by self-assessment of their own income, belong to the top 20% income group (income rose from 52.8 to 57.3 thousand rubles).

⬇ Among those in the middle 60% and the bottom 20% income groups, self-assessed income declined: from 32.5 to 32.0 thousand rubles and from 17.0 to 16.0 thousand rubles, respectively.

⦿ No significant changes occurred in the dynamics of assessments of the economic situation in the country and the region. The share of positive and neutral assessments stands at 50–55%, and negative ones at 30–35% (*Tab. 3*).

⬆ The situation looks somewhat more positive with regard to assessments of one's own material well-being: over the past two months, the share of positive and neutral judgments increased from 55% to 58%.

⬇ Since December 2025, negative changes have been observed in the dynamics of assessments of the political situation in the country and the region. Over this period (from December 2025 to June 2026), the share of negative judgments about the situation in the country increased from 60% to 66%, and about the political situation in the region from 40% to 43% (*Tab. 4*).

⦿ It is worth noting, however, that the share of positive assessments remains broadly stable: about 20–22% of the region's residents describe the political situation in Russia as "calm and favorable," and 48–50% of respondents give similar assessments of the political situation in the region.

Table 2. Per capita household income and the ratio of per capita income to the subsistence minimum (by income group)

Income group	2012	2015	2018	2019	2020	2021	2022	2023	2024	2025	June 2025	Aug. 2025	Oct. 2025	Dec. 2025	Feb. 2026	Apr. 2026	June 2026	Dynamics (+/-), June 2026 to	
																		Apr. 26	June 25
Per capita household income, RUB																			
Bottom 20%	4330	5430	6602	7792	7546	8529	10008	11746	13211	14731	13726	14118	16549	16002	18216	16964	16432	-532	+2706
Middle 60%	9293	11708	13251	14113	14031	15741	17503	20310	22885	27620	26831	27079	29274	29941	31594	32504	32040	-464	+5209
Top 20%	19907	23624	27433	28267	28207	30338	37250	40186	43286	51186	53688	52992	49932	52421	51864	52768	57308	+4540	+3620
Average for the region	10425	12837	14757	15686	15570	17220	19953	22578	25038	29757	29579	29669	30863	31665	32986	33448	33972	+524	+4393
Subsistence minimum, RUB*	6563	9639	10658	11042	11509	11767	13633	14519	15608	17910	17910	17910	17910	17910	19128	19128	19128	0	+1218
Ratio of per capita income to subsistence minimum by income group, times																			
Bottom 20%	0.7	0.6	0.6	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.9	0.9	1.0	0.9	0.9	0	+0.1
Middle 60%	1.4	1.2	1.2	1.3	1.2	1.4	1.3	1.4	1.5	1.5	1.5	1.5	1.6	1.7	1.7	1.7	1.7	0	+0.2
Top 20%	3.0	2.5	2.6	2.6	2.5	2.6	2.7	2.8	2.8	2.9	3.0	3.0	2.8	2.9	2.7	2.8	3.0	+0.2	0
Average for the region	1.6	1.3	1.4	1.4	1.4	1.5	1.5	1.6	1.6	1.7	1.7	1.7	1.7	1.8	1.7	1.7	1.8	+0.1	+0.1
* Source: Decrees of the Government of the Vologda Region "On Establishing the Subsistence Minimum per Capita and for Major Socio-Demographic Groups in the Vologda Region". Official Portal of the Government of the Vologda Region. Available at: https://vologda-oblast.ru																			

Table 3. Trends in assessments of the economic and financial situation, % of respondents

Indicator	2012	2015	2018	2019	2020	2021	2022	2023	2024	2025	June 2025	Aug. 2025	Oct. 2025	Dec. 2025	Feb. 2026	Apr. 2026	June 2026	Dynamics (+/-), June 2026 to	
																		Apr. 26	June 25
Russia's economic situation																			
Good	10.7	6.2	14.4	14.6	11.7	11.5	11.7	12.1	13.9	14.5	14.2	15.1	16.1	14.3	12.0	11.5	12.4	+1	2
Average	51.2	46.6	43.9	44.6	42.9	42.7	42.3	43.2	45.7	44.2	44.3	43.3	41.5	44.3	44.3	40.7	42.5	+2	-2
Poor	25.5	35.5	27.2	26.1	31.1	30.8	32.9	30.2	26.2	27.6	28.5	27.5	26.4	24.7	26.1	28.8	30.2	+1	+2
Index	85.2	70.7	87.2	88.6	80.6	80.8	78.7	81.9	87.7	86.9	85.7	87.6	89.7	89.6	85.9	82.7	82.2	-1	-4
Region's economic situation																			
Good	9.9	5.2	11.8	11.5	10.8	10.9	11.1	13.8	15.0	16.1	15.9	16.5	17.7	15.1	14.6	14.1	13.2	-1	-3
Average	49.4	39.9	39.2	41.3	38.3	40.4	40.1	42.7	43.8	42.0	40.8	43.5	40.1	40.6	39.5	37.7	37.9	0	-3
Poor	29.4	43.0	36.9	34.9	36.9	35.9	36.5	32.6	30.3	31.4	31.7	30.9	32.0	31.3	32.6	35.2	35.8	+1	+4
Index	80.5	62.2	74.9	76.6	73.9	75.0	74.6	81.2	84.7	84.7	84.2	85.6	85.7	83.8	82.0	78.9	77.4	-2	-7
Household financial situation																			
Good	10.1	7.9	11.8	10.2	9.2	8.4	8.8	10.1	12.4	14.3	14.7	13.8	15.3	13.9	13.9	10.9	12.5	+2	-2
Average	54.2	49.5	48.7	50.1	46.2	48.6	47.9	51.0	51.6	48.0	47.7	50.7	48.9	47.1	44.4	44.5	45.5	+1	-2
Poor	27.4	31.2	30.2	29.7	33.0	32.4	32.2	27.9	26.4	26.9	27.5	25.2	25.3	27.6	29.1	30.7	31.5	+1	+4
Index	82.7	76.7	81.6	80.4	76.2	76.0	76.4	82.2	86.0	87.4	87.2	88.6	90.0	86.3	84.8	80.2	81.0	+1	-6

**Table 4. Dynamics of assessments of the political situation,
% of respondents**

Indicator	2012	2015	2018	2019	2020	2021	2022	2023	2024	2025	June 2025	Aug. 2025	Oct. 2025	Dec. 2025	Feb. 2026	Apr. 2026	June 2026	Dynamics (+/-), June 2026 to	
																		Apr. 26	June 25
In Russia																			
Favorable, calm	39.8	25.5	40.4	45.0	41.0	37.2	27.5	23.3	24.7	23.8	24.3	25.6	24.0	22.1	20.3	21.7	19.5	-2	-5
Tense, critical, explosive	43.2	58.7	45.6	41.6	43.2	47.2	56.9	62.3	59.7	61.6	62.1	61.3	60.2	61.9	62.4	64.4	65.5	+1	+3
Index	96.6	66.8	94.8	103.5	97.8	89.9	70.6	61.0	65.0	62.2	62.2	64.3	63.8	60.2	57.9	57.3	54.0	-3	-8
In the region																			
Favorable, calm	51.8	46.0	54.9	58.0	53.9	53.7	47.9	49.8	52.5	52.3	54.3	51.1	52.3	51.9	49.4	49.9	48.7	-1	-6
Tense, critical, explosive	31.8	39.1	33.3	31.5	32.9	34.3	40.4	41.0	39.1	39.0	37.1	38.9	39.2	39.9	39.2	41.0	42.9	+2	+6
Index	120.0	106.9	121.6	126.4	121.0	119.8	107.5	108.8	113.4	113.3	117.2	112.2	113.1	112.0	110.2	108.9	105.8	-3	-11

Summary

The results of the monitoring wave conducted in June 2026 point to the continuation of the trends that Russian sociologists began to identify in late 2025 and early 2026¹. Overall, these trends are characterized by public concern and the emergence of a constructive demand from the population toward the authorities regarding the dynamics of the standard of living and quality of life in the country, partly against the backdrop of people's "habituation" to everyday life under the ongoing special military operation.

It cannot be ruled out that this trend will persist in the coming months and will have a significant impact on the results of the election campaign to the State Duma of the Russian Federation, which officially began on June 16, 2026 (the elections themselves are scheduled for September 18–20).

Periodic shelling and drone attacks on Russian territories by the "Kyiv regime" do not contribute to improving assessments of the political situation in the country. However, the level of consolidation of society around the state, the president, and the nationally oriented strategic development agenda remains high, as evidenced by the broadly stable picture of both the psychological state of society and assessments of the general state of affairs in the country and the region.

Further dynamics of public opinion among residents of the Vologda Region will be shown by the results of upcoming waves of VolRC RAS monitoring.

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¹ See, for example: Alfimov V. From wages to victory: how Russian society has changed over the year (interview with VCIOM head V. Fedorov). *Komsomolskaya Pravda*. January 2, 2026. Available at: <https://www.kp.ru/daily/27763.3/5191948/?ysclid=mkgituc55z530676123>; Obukhov S.P., Mikhalechuk A.M., Bogachev A.M., Strelkov D.A., Khamadieva T.V., Chervontsev A.V. Results of 2025 from V.V. Putin. Express analysis of the address to Russian society and foreign opponents. Center for Research on Political Culture of Russia, December 19, 2025. Official website of the CPRF. Available at: <https://kprf.ru/politindx/239901.html?ysclid=mlhmrkgapk916136109>

MONITORING OF SOCIAL SENTIMENT

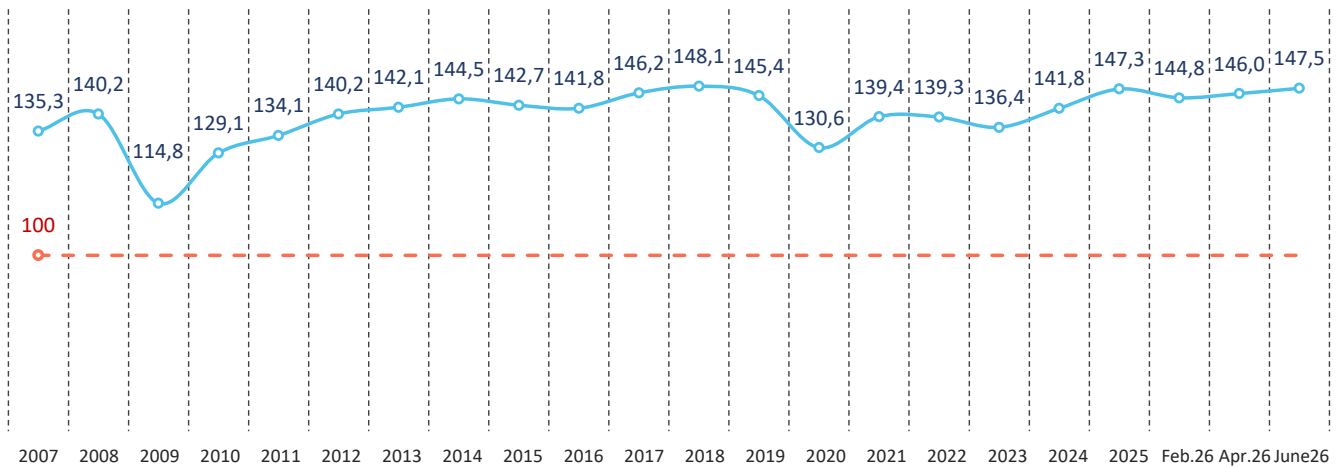


Figure 1. Index of Social Sentiment, points

In June 2026, compared with April this year, the social mood of Vologda Region residents did not change significantly. The index stands at 146–148 points.

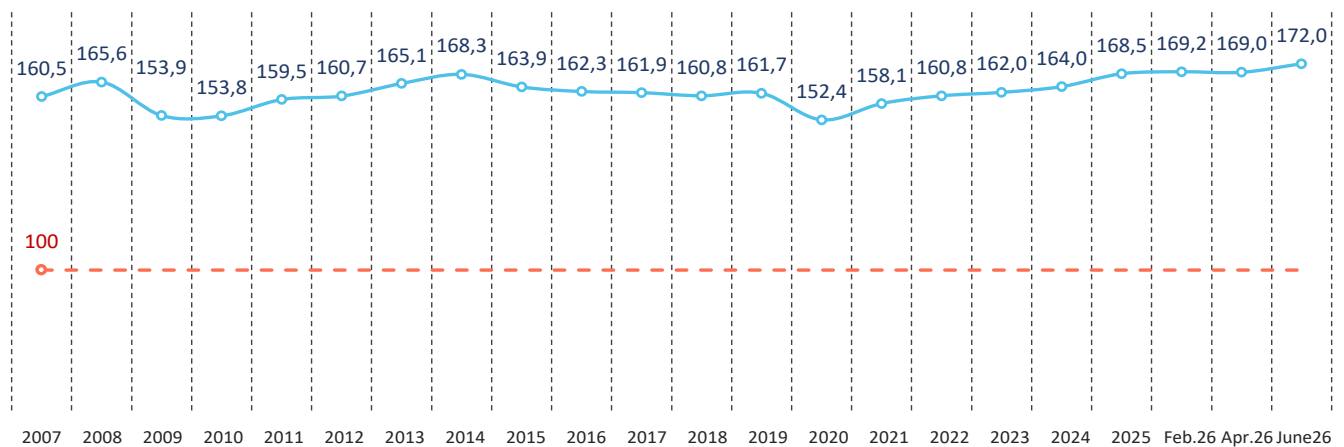


Figure 2. Reserve of Patience Index, points

In April–June 2026, the patience reserve index of Vologda Region residents increased by 3 points (from 169 to 172 points).

Here and below: to calculate the indices, the share of negative responses is subtracted from the share of positive responses, and 100 is added to the resulting value to avoid negative figures. Thus, entirely negative responses would yield a total index of 0, entirely positive responses 200, and a balance between the two an index of 100, which is essentially a neutral mark (---).

Data are presented from 2007, the last year of V.V. Putin's second presidential term.

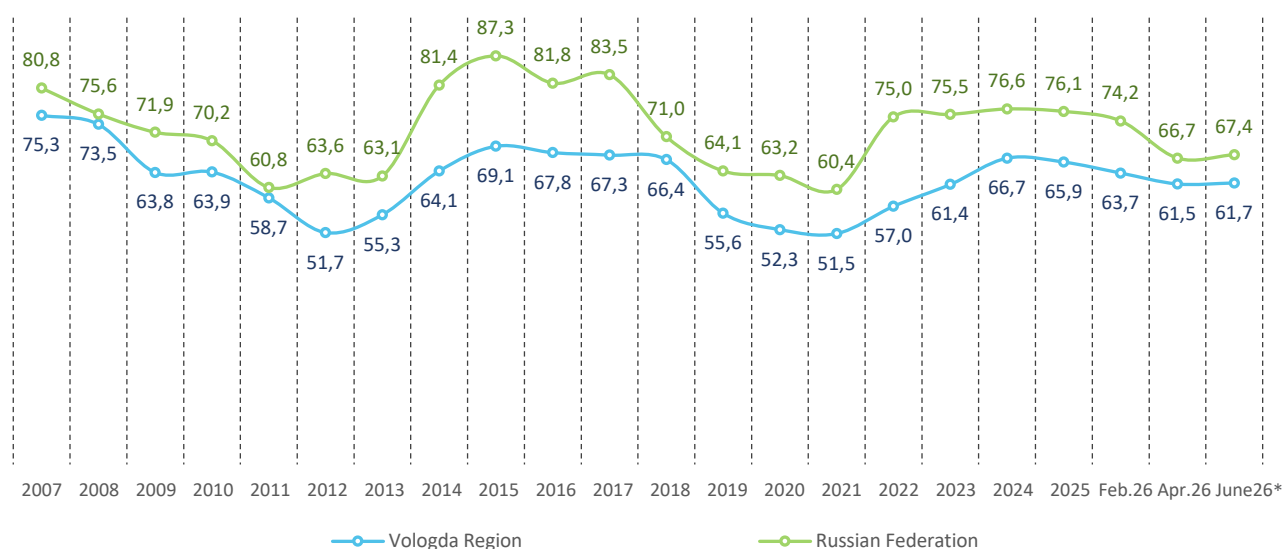


Figure 3. Approval of the activities of the President of the Russian Federation, % of respondents

From April to June 2026, the approval rating of the head of state in the Vologda Region and in Russia as a whole remained unchanged at 62% and 67%, respectively.

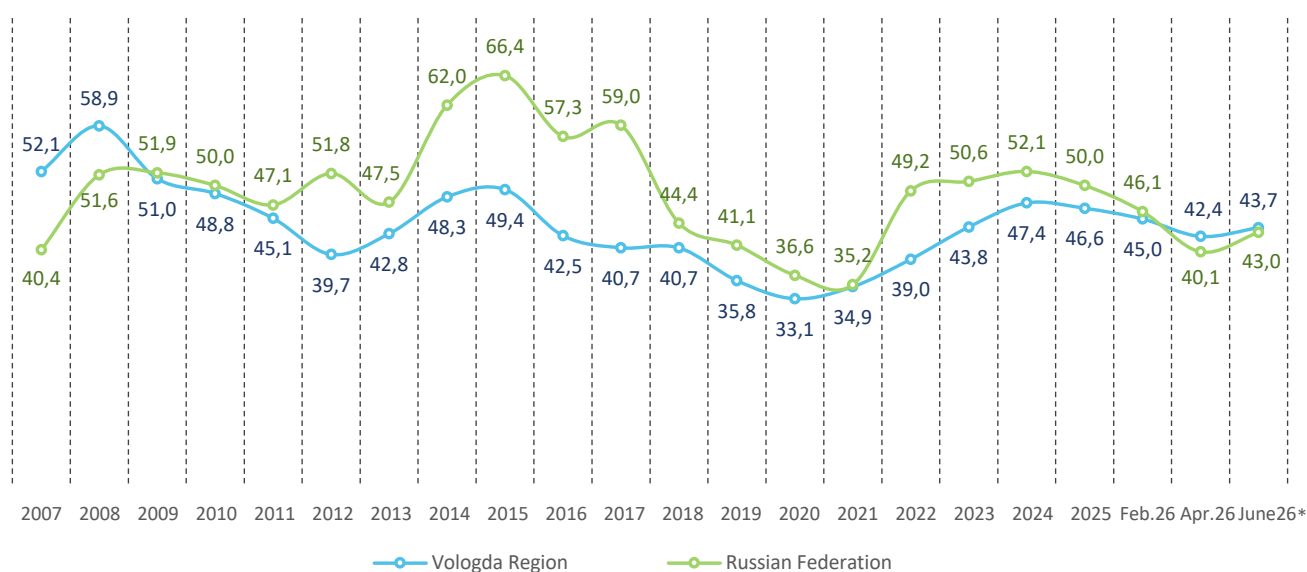


Figure 4. Approval of the activities of the Government of the Russian Federation, % of respondents

In June 2026, compared with April this year, positive assessments of the Russian Government's performance among Vologda Region residents remained stable (42–44%). In Russia as a whole, the approval rating of the country's highest executive body increased by 3 percentage points (from 40% to 43%).

Here and below: Vologda Region – VolRC RAS data; Russian Federation – VCIOM data (<https://wciom.ru>).

* VCIOM data – approval of the activities of the President of the Russian Federation and the Government of the Russian Federation: average for two surveys conducted on June 7, 2026, and June 14, 2026.

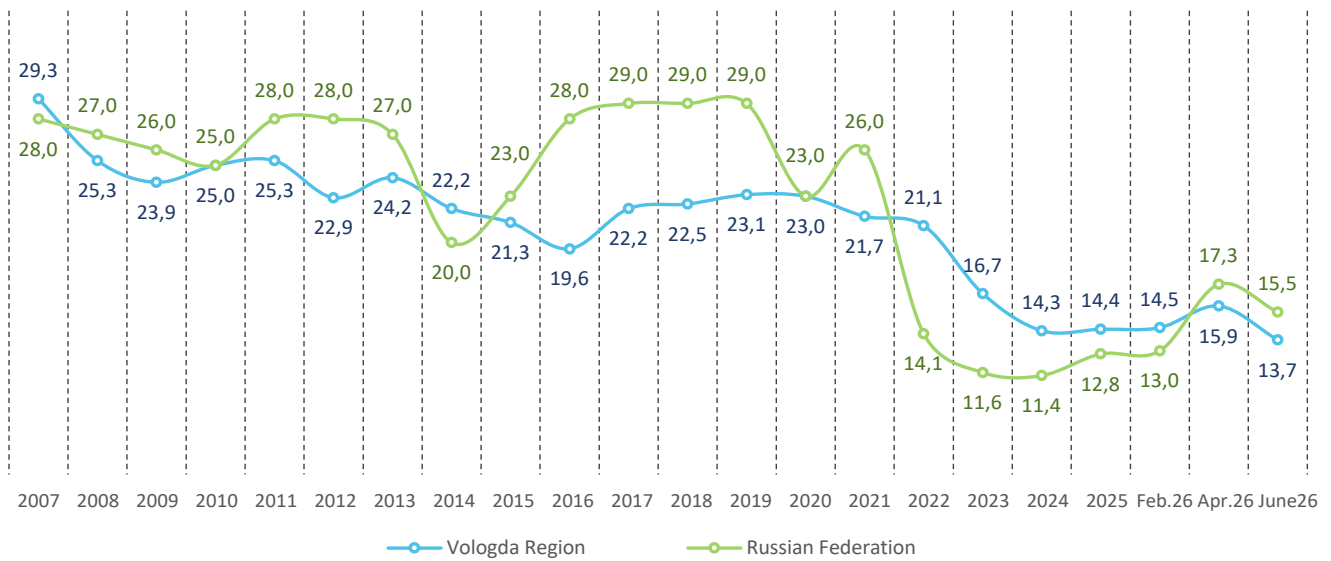


Figure 5. Likelihood of protest actions
(share of respondents who noted the possibility of mass protest rallies),
% of respondents

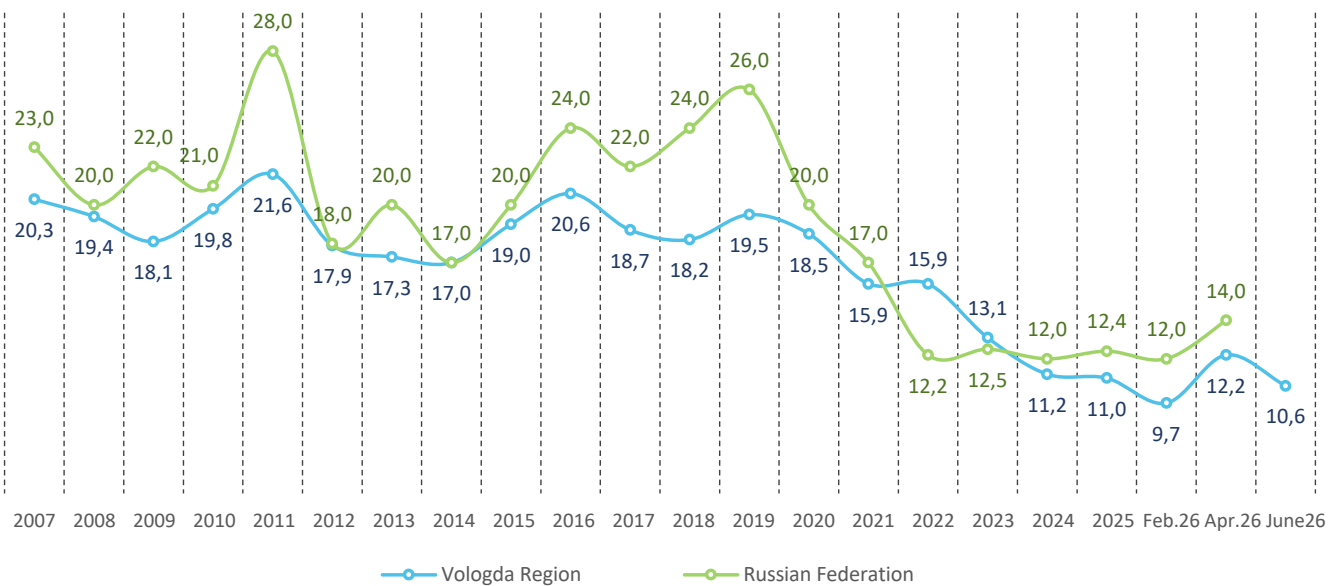


Figure 6. Willingness to participate in protests
(share of respondents who would be ready to take part in mass protest actions),
% of respondents

In June 2026, the share of the population in the Vologda Region and in Russia as a whole indicating the likelihood of protest actions did not change. The values remained at the level of April indicators (14–16% and 16–17%, respectively). 11–12% of Vologda residents admitted the possibility of their own participation in protest actions.

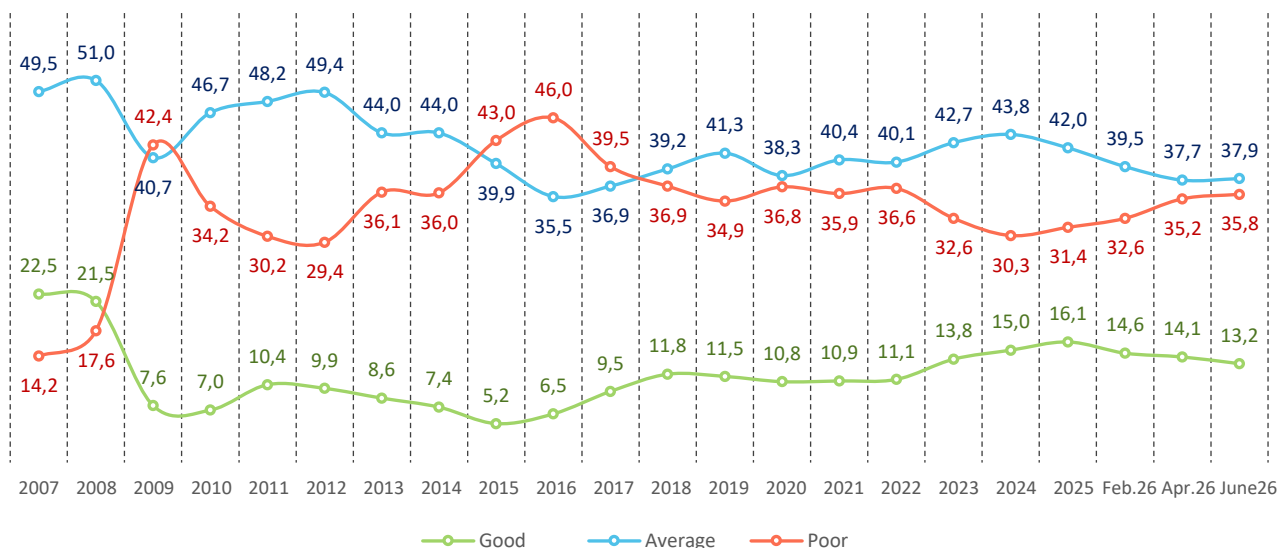


Figure 7. Assessment of the economic situation in the region, % of respondents

June 2026 brought no changes in the evaluative judgments of Vologda Region residents regarding the economic situation in the region. In April and June this year, the share of positive characteristics was 38%, neutral 35–36%, and negative 13–14%.

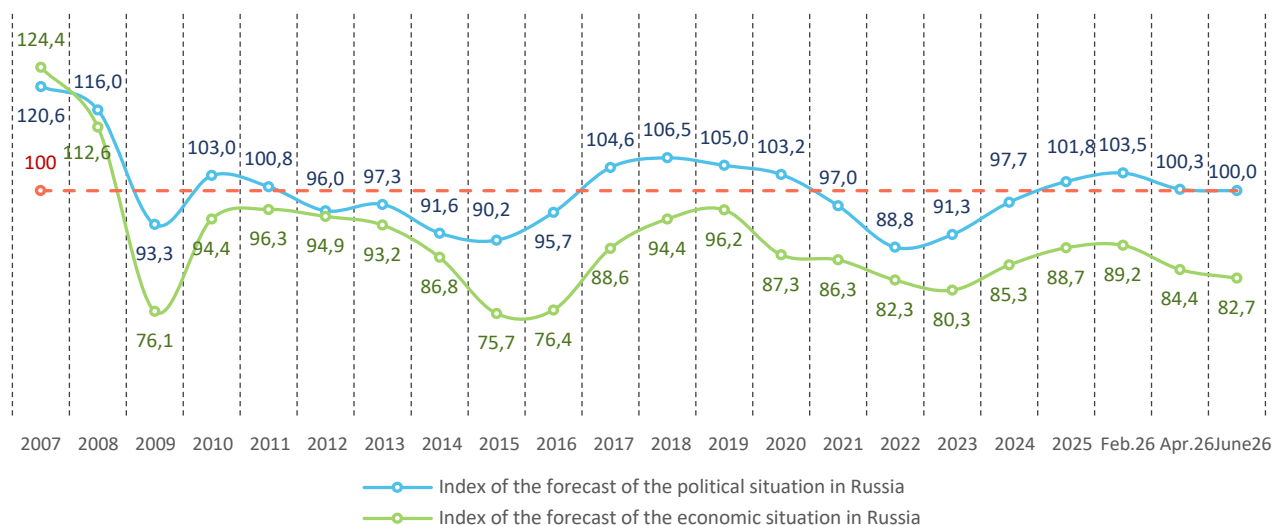


Figure 8. Indices of forecasts for the development of the political and economic situation in Russia, points*

In June 2026, the values of the indices of forecasts for the development of the political and economic situation in the country did not change and remain at the level of April data (100 and 83–84 points, respectively).

* The index of forecast for the development of the political situation in Russia is calculated based on the analysis of respondents' answers who gave positive and negative forecast assessments of the political situation, to the question: "What do you think is expected in the coming months in Russia's political life?"

The index of forecast for the development of the economic situation in Russia is calculated based on the analysis of respondents' answers who gave positive and negative forecast assessments of the economic situation, to the question: "Do you think the next 12 months will be a good time, a bad time, or something else for the Russian economy?"

CHRONICLES OF SCIENCE LIFE

CONFERENCES, MEETINGS, SEMINARS

ON THE RESULTS OF THE 11TH INTERNATIONAL INTERNET CONFERENCE “PROBLEMS OF ECONOMIC GROWTH AND SUSTAINABLE DEVELOPMENT OF TERRITORIES”

On May 18–21, 2026, the Vologda Research Center of the Russian Academy of Sciences hosted the 11th International Scientific and Practical Internet Conference “Problems of Economic Growth and Sustainable Development of Territories”. The conference was organized by the Vologda Research Center of the Russian Academy of Sciences, the Division of Social Sciences of the Russian Academy of Sciences, and the Free Economic Society of Russia.

The event served as one of the regional venues of the 8th International Moscow Academic Economic Forum “Russia’s Economic Development Priorities and Technological Sovereignty” (MAEF-2026).

The conference brought together more than 100 participants – established researchers and early-career scholars, students and graduate students from Russia, Belarus, and Armenia – including 10 doctors of sciences and 41 candidates of sciences (48.6% of participants held an academic degree). The conference provided a platform for discussing current trends in national and regional economic

development, pressing problems of economic growth and sustainable territorial development, and possible solutions.

On the second day of the conference, May 19, 2026, a plenary session was held. Evgenii V. Lukin, Candidate of Sciences (Economics), head of the Center for Structural Research and Forecasting of Territorial Development and Leading Researcher at the Vologda Research Center of the Russian Academy of Sciences, delivered welcoming remarks. He highlighted the importance and relevance of the issues addressed at the conference, outlined the geographic scope of participants, and presented the list of topics and the number of reports.

The following reports were delivered at the plenary session:

– “Interregional Economic and Infrastructure Disparities in the Russian North-West”, by Yuri V. Savelyev, Doctor of Sciences (Economics), professor at the Department of State and Municipal Administration, North-West Institute of Management of the Russian Presidential



Academy of National Economy and Public Administration;

- “Contemporary Transformations in Employment and Their Implications for Sustainable Territorial Development”, by Andrei V. Popov, Candidate of Sciences (Economics), Leading Researcher at the Center for Socio-Demographic Research, Vologda Research Center of the Russian Academy of Sciences;

- “Social Aspects of Robotization in the Russian Metallurgical Industry”, by Vasily S. Ustinov, Candidate of Sciences (Economics), Senior Researcher at the Laboratory for Forecasting the Production and Use of Structural Materials, Institute of Economic Forecasting of the Russian Academy of Sciences;

- “Structural Transformation of the Regional Economy: Monitoring, Regulation, Forecasting”, by Nikita M. Rumyantsev, Researcher, head of the Laboratory for Reproduction Process Research, Center for Structural Research and Forecasting of Territorial Development, Vologda Research Center of the Russian Academy of Sciences;

- “Are Regions Ready for Scientific and Technological Leadership of Russia? Results of the 2025 Empirical Assessment”, by Danila S. Goncharuk, Research Engineer at the Center for Financial Research, Vologda Research Center of the Russian Academy of Sciences.

The conference continued with four thematic sections, where 98 papers were presented. As usual, discussions took place on the conference’s online forum in the form of online debates within the following research areas:

1. Problems and prospects of socio-economic development of territories under the structural and technological transformation of the Russian economy.

2. Problems and prospects of spatial development of territories.

3. Problems and current issues in the development of the financial system.

4. Scientific and technological development of territories: problems and prospects.

- The forum generated a lively discussion, with more than 860 messages posted on the online platform. The reports that attracted the greatest interest included:

- “Business Processes in Wholesale Trade: Their Specifics, Problems of Information Support in the Context of Consumer Demand and Management Decision-Making”, by Natalia I. Popova and Viktoria A. Stetsenko (Donetsk State University, Donetsk);

- “Russia’s Technological Sovereignty: The Role of Diversified Economic Specialization and Increasing Economic Complexity”, by Aliya D. Bikmaeva (Ufa University of Science and Technology, Ufa);

- “Pathways for the Sustainable Development of Youth Entrepreneurship in Russia”, by Tatiana E. Shatunova and Mikhail A. Bobolev (Siberian Transport University, Novosibirsk);

- “The Tourism Industry as a Tool for Improving the Quality of Life of the Population”, by Elena M. Yankevich (Vitebsk State University named after P.M. Masharov, Republic of Belarus, Vitebsk);

- “The Automotive Industry: Role and Current State in Russia”, by Natalia E. Tereshkina (Siberian Transport University, Novosibirsk).

All participants of the internet conference received personalized certificates. A conference proceedings volume is planned for publication in the fourth quarter of 2026, with UDC and LBC indices, ISBN, and placement in the Russian Science Citation Index (RSCI).

The material was prepared by
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FSBIS VolRC RAS

GUIDELINES

for Submitting Articles to the Editorial Board of the Scientific Journal

Problems of Territory's Development

(Abridged version; the full version is available on the journal's website: <http://pdt.vssc.ac.ru/info/rules>)

The journal publishes original theoretical and experimental articles, the topics of which correspond to the journal's scope. The minimum article length is 16 pages (30,000 characters including spaces). The maximum length for submitted articles is 25 pages (50,000 characters including spaces). The journal also accepts book reviews, information about scientific conferences, and chronicles of scientific events. Articles must reflect the results of completed and methodologically sound research.

REQUIREMENTS FOR THE SUBMISSION PACKAGE

The following materials must be submitted to the editorial office in electronic format:

1. The article file in Microsoft Word format (.docx). The filename must be written in Latin characters and reflect the author's surname (e.g., Ivanova.docx).
2. Author information on a separate page, including: full name, academic degree and title, place of employment and position, contact information (postal address, phone number, e-mail), ORCID ID, and Researcher ID.
3. A scanned copy of the author's guarantee not to publish the article in other publications.
4. A color author photograph in .jpeg/.jpg format, with a file size of at least 1 MB.

The complete set of electronic materials can be sent via e-mail to:

ptd@volnc.ru

MANUSCRIPT FORMATTING REQUIREMENTS

1. **Page Margins:** Right margin – 1 cm, all other margins – 2 cm.
2. **Font:** Size – 14 pt, typeface – Times New Roman. If a special typeface is required (e.g., for Greek, Arabic words, special symbols), fonts installed by default in the Windows operating system should be used. If the manuscript uses rare fonts, the entire font family must be provided along with the file. Line spacing – 1.5.
3. **Paragraph Indentation:** 1.25 cm. This should be set automatically using the MS Word function.
4. **Pagination:** Page numbers must be inserted automatically using the MS Word feature, placed in the bottom right corner of the page.
5. **First Page Layout:** The UDC index should be indicated in the top right corner. Followed by 1.5 line spacing, then the LBC index. Followed by 1.5 line spacing, then the copyright sign ©, a space, and the author's surname and initials in bold. After a double line spacing, the article title is provided in lowercase letters (centered alignment, bold). After a double line spacing, the abstract is provided (justified alignment, italicized, without paragraph indentation). After a single line spacing, the keywords are provided (justified alignment, *italicized*, without paragraph indentation). After a double line spacing, the main text of the article begins.
6. **Abstract Requirements:** The abstract should be between 200 and 250 words. It must explicitly state the research objective; concisely list the distinctions that constitute the scientific novelty of the work compared to similar studies by other scholars; enumerate the research methods used by the author; present the main results of the work; define the potential applications of the research findings; and briefly outline prospects for further research in the field.
7. **Key word Requirements:** Each article must be accompanied by key words (up to 8 words or phrases). The key words should comprehensively reflect the manuscript's content. The number of words within a single key phrase should not exceed three.

8. Table Formatting Requirements: The word "Table" and its number (if applicable) in the table title should be in regular font (no emphasis). The table title itself should be in bold. Alignment should be centered. Tables must be inserted using the table function, not created using lines and autoshapes. Aligning columns and cells with spaces or tabs is not permitted. Tables must be created using the MS Word table editor. Each item in the stub (first column) and the column heading must have its own cell. Tables must be created and formatted exclusively using the editor's standard tools; the use of paragraph marks, spaces, and empty additional rows for semantic separation and line alignment is prohibited.

9. Formatting Requirements for Figures, Diagrams, Graphs, and Charts: The title and number of a figure are placed below the figure itself. The word "Fig." is in regular font (no emphasis). The figure title is in bold. Alignment should be centered. Line spacing should be single.

Graphs should be created using MS Excel, flowcharts using MS Word or MS Visio, and formulas using MS Equation.

Figures and diagrams created in MS Word must be grouped into a single object.

The use of scanned, exported, or internet-sourced graphic materials in the article is not permitted.

10. Formatting Bibliographic Notes under Tables and Figures: Notes should begin with "Source:", "Compiled from:", "Calculated from:", etc., followed by the full bibliographic details of the source.

11. Formatting Footnotes: Footnotes must be formatted in accordance with the Russian State Standard GOST R 7.0.5-2008.

12. Formatting and Content of the Reference List: The reference list must include citations for all scientific works used by the author in preparing the article. All sources listed in the references must be cited in the text of the article. The list of references is arranged in alphabetical order (first Cyrillic sources, then Latin-alphabet sources). References to Russian-language sources are formatted according to GOST R 7.0.5-2008. References to English-language sources are formatted using a citation style based on the Harvard standard. If an article has a DOI, it must be included in the bibliographic entry.

In accordance with international publication standards, the recommended number of sources in the reference list is at least 20, of which no less than 30% should be foreign. The number of self-citations (references to the author's own works) should not exceed 10% of the total references. In-text citations are provided in parentheses, indicating the author's surname and the publication year (e.g., (Ivanov, 2020), (Ivanov, 2020; Petrov, 2018), (Smith, 2001), etc.). Multiple sources in a single citation must be separated by a semicolon.

Articles submitted without a complete set of required materials, as well as articles that do not meet the publisher's formatting requirements, will not be considered for review!

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Translators and Proof-readers

V.V. Rigina
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The journal (Russian) is registered with the Federal Service
for Supervision of Telecom and Mass Communications (Roskomnadzor).
Certificate of registration PI FS77-71360 dated October 17, 2017.

Founder: Federal State Budgetary Institution of Science
“Vologda Research Center of the Russian Academy of Sciences” (VolRC RAS)

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