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ECONOMIC AND SOCIAL CHANGES: FACTS, TRENDS, FORECAST

A peer-reviewed scientific journal that covers issues of analysis and forecast of changes in the economy and social spheres in various countries, regions, and local territories.

The main purpose of the journal is to provide the scientific community and practitioners with an opportunity to publish socio-economic research findings, review different viewpoints on the topical issues of economic and social development, and participate in the discussion of these issues. The remit of the journal comprises development strategies of the territories, regional and sectoral economy, social development, budget revenues, streamlining expenditures, innovative economy, and economic theory.

Founder: Vologda Research Center of the Russian Academy of Sciences

Federal State Budgetary Institution of Science Vologda Research Center of the Russian Academy of Sciences (VolRC RAS) is the only unit of the Academy on the territory of the Vologda Oblast. The history of the Center started in 1990 from a Department of the Institute for Economic Studies of the Kola Science Centre of RAS on studying the problems of socio-economic development of the Vologda Oblast. Since then the Center has undergone manifold transformations. In 1993 it became an independent subdivision – the Vologda Scientific Coordinating Center of RAS. In 2009 it transformed into the Institute of Socio-Economic Development of Territories of RAS (ISEDT RAS).

In 2017 the socio-economic research was supplemented by agricultural issues. ISEDT RAS was joined by the Northwestern Dairy and Grassland Farming Research Institute, and was reorganized into the Vologda Research Center of the Russian Academy of Sciences.

In 2019 the Center continued expanding having launched the Laboratory of Bioeconomics and Sustainable Development within the framework of the national project "Science". The Laboratory is engaged in scientific research aimed at introducing biotechnologies into the practice of agriculture.

The VolRC RAS Director is Aleksandra A. Shabunova (Doctor of Economics). The Academic Leader of the Center is Vladimir A. Ilyin (RAS Corresponding Member, Doctor of Economics, Professor, Honored Worker of Science of the Russian Federation).

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In accordance with the Charter, the Vologda Research Center carries out fundamental, exploratory and applied research in the following fields:

- problems of economic growth, scientific basis of regional policy, sustainable development of territories and municipalities, and transformations of socio-economic space;
- regional integration into global economic and political processes, problems of economic security and competitiveness of territorial socio-economic systems;
- territorial characteristics of living standards and lifestyle, behavioral strategies and world view of different groups of the Russian society;
- development of regional socio-economic systems, implementation of new forms and methods concerning territorial organization of society and economy, development of territories' recreational area;
- socio-economic problems regarding scientific and innovative transformation activities of territories;
- elaboration of society's informatization problems, development of intellectual technologies in information territorial systems, science and education;
- development of scientifically based systems of dairy cattle breeding in the conditions of the North-Western region of Russia;
- development of new breeding methods, methods and programs for improving breeding work with cattle;
- development of scientifically based feed production systems, norms, rations and feeding systems for cattle in the conditions of the North-Western region of Russia;

- development of zonal technologies for the cultivation of agricultural crops;
- development of technologies for the creation, improvement and rational use of hayfields and pastures in the conditions of the North-Western region of Russia;
- development of technologies and technical means for agricultural production in the North-Western region of Russia;
- assessment of biodiversity in the North-Western region of Russia;
- development and implementation of biotechnologies in agricultural production;
- improvement of breeding methods and creation of new varieties of forage crops.

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2008 – Memorandum of agreement is signed with Alexander's Institute at the Helsinki University (Finland, 2008).

2009 – Cooperation agreement is signed with Center for System Analysis of Strategic Investigations of NAS (Belarus, 2009).

2010 – Cooperation agreement is signed with the Institute of Economics of the National Academy of Sciences of Belarus (Minsk, Belarus, 2010).

2011 – Cooperation agreements are signed with National Institute of Oriental Languages and Civilizations (Paris, France, 2011), Institute of Business Economy at Eszterhazy Karoly College (Hungary, 2011), Republican research and production unitary enterprise "Energy Institute of NAS" (Belarus, 2011). Memoranda of understanding are signed with Jiangxi Academy of Social Sciences (China, 2011), Research and Development Center for Evaluation and Socio-Economic Development and the Science Foundation of Abruzzo region (Italy, 2011).

2012 – Cooperation agreement is signed with Center for Social Research at the Dortmund Technical University (Germany, 2012).

2013 – Memorandum of understanding is signed with Jiangxi Academy of Social Sciences (China, 2013). July 2013 – The application for research performance by international consortium involving ISEDT RAS within the 7th Framework Programme of European Community.

2014 – Cooperation agreement is signed with Center for System Analysis and Strategic Research of the National Academy of Sciences of Belarus (Belarus, 2014). Memoranda of understanding are signed with Jiangxi Academy of Social Sciences (Mao Zhiyong, China, 2014), National Institute for Oriental Studies INALCO (Julien Vercueil, France, 2014).

2015 – Memorandum of understanding is signed with Jiangxi Academy of Social Sciences (China, 2015). Cooperation agreement is signed with the Institute of Sociology of the National Academy of Sciences of Belarus (Belarus, 2015).

2016 – Cooperation agreements are signed with the Center for the Study of Industrialization Modes of the School of Advanced Studies in the Social Sciences (EHESS) (Paris, France, 2016); Institute of Philosophy, Sociology and Law of NAS RA (Yerevan, Armenia, 2016); Yerevan Northern University (Armenia, 2016), Yerevan State University (Armenia, 2016). Memoranda of understanding are signed with Jiangxi Academy of Social Sciences (China, 2016).

2018 – Cooperation agreements are signed with the Department of Agrarian Sciences of the National Academy of Sciences of Belarus (Belarus, 2018); the Republican Unitary Enterprise "Scientific and Practical Center of the National Academy of Sciences of Belarus for Agricultural Mechanization" (Belarus, 2018). Memorandum of understanding is signed with the European School of Social Innovation (ESSI) (Germany, 2018).

2019 – Memorandum of understanding is signed with Jiangxi Academy of Social Sciences (China, 2019).

2020 – Memorandum of understanding is signed with Jiangxi Academy of Social Sciences (China, 2020).

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EDITORIAL

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What the 30-Year Absence of a State Ideology Leads to: "The Enemy Is Not Only on the Other Side of the Frontline"

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Abstract. The paper analyzes the problem of the lack of a state ideology in Russia. The increasingly urgent need for state ideology is indicated by the regular appearance of "black swans" such as the attempted armed coup carried out by E. Prigozhin, head of the private military company Wagner Group (June 24, 2023), the arrest of Deputy Defense Minister T. Ivanov (April 23, 2024), the detention of ex-governor of the Kursk Region A. Smirnov (April 15, 2025), etc. Such events in the country's life pose a real threat to national security, especially in the context of the special military operation and the ongoing "acute" phase of the civilizational conflict between Russia and NATO countries. Their consequences are difficult to overestimate, since human lives and the threat to the existence of Russian statehood are behind them. Our view (based on expert opinions, facts, analysis of the legislative activities of government bodies, public opinion polls) proceeds from the fact that the reason for the appearance of such "black swans" has deep

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socio-cultural and moral grounds: corruption at all levels of government, inability and unwillingness of the ruling elites to meet the agenda of the future dictated by SMO goals; they are a consequence of the deformation of the "cultural code" of the Russian civilization, which occurred as a result of almost 35 years of influence of the Western culture of the "consumer society" on the consciousness of Russian society. This is especially true with regard to the country's ruling elites – in relation to them, we should talk about the almost 70-year period (since the time of the Khrushchev Thaw) of the penetration and dominance of Western values, which are based on the achievement of personal material gain. The experience of the Republic of Belarus, where Directive 12 "On the implementation of the foundations of the ideology of the Belarusian State" was adopted on April 9, 2025, also indicates that in the current extremely difficult geopolitical conditions, the need for a state ideology has objectively matured. At the same time, despite the active policy of the state to combat corrupt officials in the management system, to create educational conditions for the prevention of this problem in the long term, for future generations of Russians, it has not yet been possible to solve it. Many experts point out that this cannot be done without an appropriate "ideology of rejection of corruption", both among civil servants and in society as a whole. Our contribution consists in analyzing the socio-cultural and historical foundations of the current state of the problem of corruption in power and, more broadly, considering it as one of the many manifestations of the value orientations of a significant part of the ruling elites formed under the dominance of the Western ideology of the "consumer society".

Key words: ideology, culture, "cultural code", civilizational conflict, ruling elites, corruption.

With the expression "the enemy is not only on the other side of the frontline", A. Khinshtein, the Kursk Region's governor-in-office, assessed the situation that is currently (late 2024 – early 2025) unfolding around the activities of the Kursk Region Development Corporation and the former governor A. Smirnov.

We recall that in recent months the veil has been increasingly lifted in answering the question of why the "**event, which is unprecedented in every sense**"[1], was possible**,** "the first invasion of Russia since World War II"[2] – invasion of the territory of the Kursk Region by the Armed Forces of Ukraine.

In December 2024, V. Lukin, director general of the company Kursk Region Development Corporation (KRKO), was arrested, as well as his deputies I. Grabin and S. Martyanova. April 15, 2025 former governor of the Kursk Region A. Smirnov and former first deputy governor A. Dedov were detained... **All of them were connected with the activities of the Kursk Region Development Corporation. On its basis a criminal scheme was organized, with the help of which the embezzlement of budgetary funds, including those allocated for the construction of defensive structures, was carried out for many years and in different forms.**

[1] Dugin A. Something is happening that should not happen for sure. Available at: https://dzen.ru/a/ZrNkRxJirVneMT9d?ysclid=m9qooboanq491707965

[2] "The first case of invasion of Russia since World War II". How does the world react to Ukraine's attack in the Kursk Region? Available at: https://dzen.ru/a/ZrXkdxJirVnevuRc?ysclid=m9qos8dxpf763086902

In his statement on April 19, 2025, vice-governor A. Khinshtein detailed the scale of this "abscess" uncovered in the Kursk Region[3]:

> "It is important to explain that initially this structure [KRKO] (a JSC with 100% regional participation) was created solely as a project office to support investors, but **due to the efforts of officials it turned into a real super-monopoly.**
>
> **Along with defense facilities (₽19.4 billion), KRKO built rural health posts and aviation infrastructure in the region, obtained land for CRTs** (we have already stopped one such construction project in Zheleznogorsk), **bought out brands of alcoholic beverages, and even almost became the only supplier of medicines for the needs of the region** (the corresponding resolution of the regional government was prepared just before my appointment, but I, of course, blocked it).
>
> **In total, tens of billions of budgetary rubles passed through KRKO. How much of it was stolen is an open question.** Suffice it to say that the court of first instance has already satisfied the claim of the Prosecutor General's Office to recover ₽4.1 billion from the budget. The funds were allocated for the construction of fortifications, but were embezzled by the KRKO management and their contractors (we fully supported this claim in court).
>
> **Since the end of last year alone, more than ten (!) criminal cases related to KRKO have been opened in Kursk Region** (some of them were later consolidated). By now, along with the ex-governor, the Corporation's director Vladimir Lukin, three (!) of his former deputies, and a number of heads of contracting companies have been arrested.
>
> **And there are also criminal cases being investigated in parallel in Ivanovo, where the same persons – managers and contractors of KRKO – were found guilty of embezzlement in the overhaul of apartment buildings** (Lukin previously worked as an advisor on housing and utilities to the governor of Ivanovo Region, but after moving to Kursk in 2021, he took many of his subordinates with him, where they were already in full force. At least three of the defendants in the multi-billion dollar anti-corruption lawsuit filed by the Prosecutor General's Office, not counting Lukin himself, have "Ivanovo traces". Among them are the former heads of the Housing and Utilities Department and the Ivanovo Region's Capital Repair Fund).
>
> **The former heads of the Kursk Region – Smirnov, Dedov and others – simply could not fail to see who was entrusted with billions in budget funds.** On the contrary, they deliberately turned a project mini-office, which had neither proper competence, nor experience, nor elementary staff of specialists, into the largest state contractor.
>
> **The Prosecutor's Office and other law enforcement agencies have repeatedly pointed this out to the region's leaders, but there has been no proper response.** The reason for this is clearly seen in the photo I have published, where the government and the director of KRKO are sitting in an embrace in frivolous poses.
>
> **Alas, the enemy is not only on the other front line. Bribe-takers and corrupt officials are undermining the country from within, especially when it comes to theft in the defense sector"[3].**

[3] Ivanov A. The enemy is not only on the other side of the frontline. Available at: https://zavtra.ru/events/hinshtejn_vrag_nahoditsya_ne_tol_ko_po_druguyu_liniyu_fronta

Against the backdrop of arrests and detentions, many experts ask the following questions:

✓ **How can one assess the damage caused to the state, society, people, families, by the corrupt officials in power? After all, "this is not just stealing. It is a conscious weakening of the State from within – at a time when there is a struggle for external stability..."[4] This should be equated with high treason.**

✓ **How did it happen that an organized crime group consisting of government officials operated in a border region for a long time? Who allowed this to happen?**

✓ **How deep does the network of systems corruption go into the public administration system? Which federal, regional and municipal authorities are subject to the same problem that is now being uncovered in the Kursk Region? Which other Russian regions is it covering?**

"We can no longer treat such crimes as economic crimes. **This is not just stealing. It is a conscious weakening of the state from within - at a time when there is a struggle for external stability. That is why I believe it is necessary to equate large-scale corruption with high treason**... The question here is not about formal qualifications – it is about the essence of what is happening. If defense lines are not completed as a result of theft, **it is not economic damage, it is a threat to national security. It is not negligence, it is a conscious weakening of the country, its borders, its military potential**"[5].

"**Where will the thread of corruption stretch from Smirnov himself?** And those who stole thousands of Russian lives, **and these are not AFU terrorists, but Russian officials,** must not only be found, but also punished according to the laws of wartime. So who are they?"[6]

"So far, everything is going to the fact that this is not the last process within the framework of the "flight investigation"... Actually, up to May 2024, the region was headed by Roman Starovoit, the current minister of transport of the Russian Federation. And the protective structures have been erected since May 2022; 19.4 billion budgetary rubles for the construction of protective structures (dugouts, firing points, strongholds, anti-tank pyramids and moats) to protect the country from military aggression of Ukraine were allocated in 2022–2023... The amount of embezzlement of a billion rubles stated by the Interior Ministry, despite its impressive size, is only a part of what was stolen and embezzled... **First of all, how can we measure the colossal damage that corrupt officials inflicted on the state and people – the population, the fighters who died because there were no properly equipped facilities? And we are not talking about billions now. We are talking about human lives. Second, how did it happen that this organized crime group of officials was operating in the border region for a long time? Who screwed up this case? And finally, it is very interesting to know where the chain of revelations will lead..."**[7]

[4] In Smirnov's footsteps. In Russia it was proposed to equate corruption with state treason. Available at: https://360.ru/news/crime/po-sledam-smirnova-v-rossii-predlozhili-priravnjat-korruptsiju-k-gosizmene/?ysclid=m9th7ruq36901014323 (opinion of political scientist A. Yaroshenko).

[5] Ibidem.

[6] Thousands of lives stolen: Who "let" the enemy into the Kursk Region – ex-governor Smirnov's face explained everything. Available at: https://tsargrad.tv/investigations/ukrali-tysjachi-zhiznej-kto-vpustil-vraga-v-kurskuju-oblast-lico-jeks-gubernatora-smirnova-objasnilo-vsjo_1226710

[7] Ivanov A. Ex-governor of the Kursk Region and his first deputy were detained. Available at: https://zavtra.ru/events/zaderzhani_eks-gubernator_kurskoj_oblasti_i_ego_pervij_zamestitel_?ysclid=m9mjk15vmu91697405

We should note that it is not the first time these questions have been raised. We recall that a year ago, in April 2024, the same thing was said about former deputy defense minister T. Ivanov, whose arrest (as experts noted) "leads to the underworld of the Russian corruption system".

Indeed, according to analysts, "until spring [2024], law enforcers almost never conducted operations to detain heads of government agencies. Everything changed on April 24, when deputy defense minister Timur Ivanov became a suspect... **After Ivanov's criminal case, current and former officials began to be detained regularly throughout Russia. They were arrested with a frequency of every 2.5 days...** According to open data for 2024, there are **110 chiefs, managers, mayors, deputies, ministers, deputies, heads of state-owned enterprises and officers who became the subjects of criminal cases because of bribes**"[8] (*Insert 1* presents some "high-profile" detentions and high-profile cases that occurred in late 2024 – early 2025, except for the detention of ex-governor of the Kursk Region A. Smirnov, whom we have "bracketed").

As the facts presented in Insert 1 show, episodes of corruption in public administration continue to be uncovered on a virtually daily basis, and this indicates at least two things.

The first is that corruption in the government is system-wide. It has penetrated so deeply into the layers of the ruling elites that they are not stopped even by fear of the law, not to mention any norms of morality and ethics; responsibility for the implementation of their official duties in the position of a public (!) servant entrusted to them; not to mention the awareness of the scale of threats to national security that Russia faces after February 24, 2022; responsibility for the safety of life of the people living in border areas, etc. **All motives, criteria, values are ultimately dominated by only one – the thirst for profit and personal material enrichment.**

Yu. Sovetov (political scientist): "The detention of the deputy defense minister is a serious blow to the "elites". The person who was entrusted with such an important matter as the reconstruction of Mariupol, the construction of hospitals and so on, did not hesitate to steal. And, excuse me, but **this was happening largely in front of the eyes of those who are obliged to control it...** He was buying mansions on Rublyovka in front of everyone. I mean, it's in full view of everyone. His wife traveled abroad, took Israeli citizenship with their children. Everyone saw it. **Why did everyone turn a blind eye on it? Why did he get away with it?** He was considered to be an effective manager, as they used to say about Anatoly Chubais. **This issue of connivance led to this kind of scandal"**[9].

A. Prokhanov: **"The arrest of Timur Ivanov leads to the underworld of the Russian corruption system...** Timur Ivanov is a beak, which can be used to identify and draw **the entire giant mysterious bird of Russian corruption. Names of corrupt officials, corrupt connections, all sectors of the Russian economy, individual ministries and enterprises, Russian and foreign banks, offshore, sums of money comparable to the state budget...** The bird of Russian corruption is terrible. Its beak is made of stainless steel. With this beak it pecks out Russia's eyes, torments the liver, tears the Russian heart"[10].

[8] Smolentsev K. The year of purges. In 2024, 110 officials, military and law enforcers were arrested. Available at: https://66.ru/news/politic/278122/

[9] How the arrest of Deputy Minister Ivanov and the message of Putin's are connected: Experts talk about a red line. Available at: https://tsargrad.tv/news/kak-svjazany-arest-zamministra-ivanova-i-poslanie-putina-jeksperty-zagovorili-pro-krasnuju-liniju_994120?ysclid=lxszhly2b8970336897

[10] Prokhanov A. Great expectation. Available at: https://zavtra.ru/blogs/velikoe_ozhidanie?ysclid=lx4fuap3bl928027715

According to Prosecutor General of the Russian Federation I. Krasnov, "in 5 years, prosecutors have filed **more than 400 lawsuits**, recovered from corrupt officials **more than 11,000 items of movable and immovable property**, as well as sums of money amounting to **more than 760 billion rubles**... this is the whole rottenness and abomination of corrupt officials. Instead of building schools, buying medicines, helping large families – they fill their bottomless pockets"[11].

G. Zyuganov: "From 2023 to 2024, the number of Russian billionaires in the Forbes world ranking **increased from 110 to 125 people. This is a record-breaking figure**. In the first year of the SMO, the total fortune of billionaires in our country **increased by 43% to 456 billion dollars**. This growth trajectory continued.

In 2024, the wealth of the 25 most successful Russians **grew by 18.5 billion dollars**. In the first two months of 2025, they become richer **by another 8 billion dollars**. Since the beginning of the SMO, some of the lucky ones have increased their fortunes by 100–200%. And this is at a time when the country was collecting things "from scratch", helping the liberated territories and fighters on the front line"[12].

This is logically followed by a second fact: apparently, "a hidden, veiled intervention against our country"[13] (which the RF President spoke about on November 7, 2024 at the Valdai Forum) did not pass without a trace, but had a devastating effect on the "cultural code" of the Russian civilization, its "genotype". At least, this applies to that part of society, which is commonly referred to as the "ruling elites".

After all, the absolute priority of achieving personal material gain is a direct characteristic of capitalism, which was clearly formulated by Thomas Joseph Dunning back in the 19th century: "Capital eschews no profit, or very small profit, just as Nature was formerly said to abhor a vacuum. With adequate profit, capital is very bold. A certain 10 per cent. will ensure its employment anywhere; 20 per cent. certain will produce eagerness; 50 per cent., positive audacity; 100 per cent. will make it ready to trample on all human laws; ***300 per cent., and there is not a crime at which it will scruple, nor a risk it will not run, even to the chance of its owner being hanged***"[14].

[11] In five years, property worth 760 billion rubles has been seized from corrupt officials (interview with Prosecutor General of the Russian Federation I. Krasnov). Available at: https://tass.ru/proisshestviya/22607027?ysclid=m9moffpxtn977280334

[12] G. Zyuganov's report "On the work of the CPRF branches on the social protection of workers in the conditions of the special military operation and the system-wide crisis of capitalism" at the plenum of the Central Committee of the Party on April 12, 2025. Available at: https://kprf.ru/party-live/cknews/233519.html

[13] Vladimir Putin's speech at the Valdai International Discussion Club meeting on November 7, 2024. Available at: http://www.kremlin.ru/events/president/news/75521

[14] Dunning T.J. (1860). *Trade's Unions and Strikes: Their Philosophy and Intention*. London. Pp. 35–36.

Insert 1

Some high-profile arrests and high-profile cases in late 2024 and early 2025

On December 11, 2024, former governor of the Ryazan Region Nikolai Lyubimov was detained in a bribery case. The court sent the former governor under arrest for two months. Lyubimov served as governor of the Ryazan Region in 2017–2022, after which he became the region's representative in the Federation Council. The criminal case against Lyubimov was based on the testimony of his former deputy I. Grekov and I. Petina, who represented the Ryazan Region in the Federation Council from 2020 to 2022, and before that for nine years held the position of deputy minister of health of the region. They were detained in the summer of 2023 on charges of taking bribes on a particularly large scale[15].

On February 25, 2025, vice-governor of the Vologda Region D. Alekseev and head of the regional representative office in the capital K. Bocharov were detained. According to the investigation, they extorted 100 million rubles from timber producers of AO Bereznik for general patronage and extension of the lease agreement of forest plots for felling. The Vologda officials were charged, both were placed in custody. "According to political analyst K. Kalachev, the double detention is ***"a serious blow to Governor Filimonov's positions."*** **And not on his controversial initiatives, but on his personnel policy...the detainees were let down by their arrogance, which is connected with the notion that Filimonov, and thus his team, are untouchable.** They were so engrossed in the fight with Severstal that they **stopped noticing all the others**..." According to M. Vinogradov, president of the Petersburg Politics Foundation, the arrest of high-profile officials of the regional government as a whole intensifies the intrigue over **whether Filimonov has some kind of grand mandate to implement his own ideas of beauty or whether it is a matter of his arbitrary program** and not everything is still predetermined"[16].

On March 3, 2025 in Nizhnekamsk, two families were awarded housing certificates, including a family of migrants from Central Asia - Mukhiddin Kholzoda and Malika Toirova with four children. This caused a wave of discontent among local residents. Social media users rioted after the news about the certificates was published on the mayor's official channel. Among the comments there were questions about the reasons why this particular family received the certificate. One of the city residents expressed bewilderment as to **why local citizens left without housing are not provided with similar assistance**. Other commentators also **questioned Kholzoda and Toirova's merits and achievements, as well as how long they have been Russian citizens and what special skills might justify their priority in obtaining housing. "*And don't you want to provide housing to the residents of the defeated Kursk Region, the citizens of the Russian Federation who have been left homeless*?",** one of the residents asked. Some local residents noted that they had waited a long time for their turn to receive the certificate and were native residents of Nizhnekamsk.

The public drew attention to the different surnames of the spouses - Kholzoda and Toirova. This raised questions about the legal status of the family: are they registered under our laws or do they act according to Shariah. According to sources, **Mukhiddin Kholzoda has dual citizenship, while his wife, Malika Toirova, has no Russian citizenship at all.** Kholzoda is also the founder of the Koran School in Nizhnekamsk, where he teaches children how to read the Koran and Arabic. Moreover, it became known earlier that the "hero" of the story is a **successful businessman with numerous bank accounts**[17].

[15] What is known about the case of the ex-senator who resigned on the day of detention. Available at: https://www.rbc.ru/politics/14/12/2024/675c518c9a79471f72f9ac10?ysclid=m9mnip8h7i959034458

[16] Tulupov V. Deputy governor of the Vologda Region suspected of extorting 100 million rubles. Available at: https://www.vedomosti.ru/strana/northwestern/articles/2025/02/26/1094557-vimogatelstve-100-rublei

[17] Mukhiddin got the housing. And people in the defeated Kursk Region did not: How did people react to the scandal in Nizhnekamsk? Available at: https://spb.tsargrad.tv/dzen/muhiddin-zhiljo-poluchil-a-ljudi-v-razgromlennoj-kurshhine-net-kak-ljudi-reagirovali-na-skandal-v-nizhnekamske_1177470

End of Insert 1

On April 1, 2025, at the request of the Prosecutor General's Office, S. Simonenko, former deputy head of the EMERCOM Main Directorate in the Krasnodar Territory, had "corrupt assets" worth almost 360 million rubles seized. "In fact, the EMERCOM employee was the owner of 55 real estate properties, including commercial ones, as well as 32 expensive motor vehicles, on the purchase of which he spent more than 300 million rubles." Simonenko, working in the Ministry of Emergency Situations, "used his official position for illegal enrichment," the Prosecutor General's Office representatives said. To conceal this, he registered the purchased property on relatives and trusted persons[18].

On April 2, 2025, details of a lawsuit filed by the Prosecutor General's Office against an official of Rosprirodnadzor for conversion of property and income worth over 480 million rubles into the state income. We are talking about the former head of the South Siberian Interregional Department of Rosprirodnadzor Andrei Frolov. It was established that Frolov concealed expensive real estate belonging to him and his wife. In fact, he was the owner of 50 real estate properties in the Altai Territory, Novosibirsk Region, Turkey and Georgia, as well as 49 expensive motor vehicles, including trucks, on the purchase of which he spent more than 300 million rubles. In addition, according to the Prosecutor General's Office, Frolov was beneficiary of 4 companies and beneficiary of 3 entrepreneurs, from whose activities he illegally received more than 147 million rubles. At the same time, it was established that for the purpose of personal enrichment Frolov demanded from his subordinates to enter false information in the documents, due to which the enterprise, which fulfills the state defense order, was refused to issue licenses for waste management. As a result, the enterprise suffered damage of more than 7 million rubles[19].

On April 15, 2025, former minister of education of Penza Region A. Komarov was detained. A criminal case under Article 286 of the Criminal Code of the Russian Federation was launched against the former high-ranking Penza official. He is suspected of abuse of power. According to federal telegram channels, the detention of Aleksey Komarov is associated with lobbying business interests for kickbacks as minister. Allegedly, we are talking about 16 million rubles. A. Komarov held the post of minister of education of the Penza Region from November 2021 to December 2024[20].

On April 16, 2025, A. Sergeichev, head of the administration of Gavrilov-Yamsky District of the Yaroslavl Region, and A. Golitsyn, deputy of the local council and director of a commercial organization, were detained on suspicion of abuse of power. According to the investigation, in 2023, the head of the district and the deputy created favorable conditions for the victory of controlled companies in the ongoing procurement for construction and installation work on socially important, sports and educational facilities. The Prosecutor's Office notes that there were other co-conspirators as well[21].

On April 21, 2025, M. Vasiliev, former deputy of the Kursk Regional Duma, was arrested (the matter concerns embezzlement of funds for the creation of fortifications on the border with Ukraine).

[18] Property worth 360 million rubles was confiscated from the former deputy head of the Krasnodar EMERCOM. Available at: https://www.rbc.ru/society/01/04/2025/67ec0e619a79472530f283d8

[19] Egorov I. 50 real estate objects and 49 motor vehicles. The Prosecutor General's Office has disclosed details of a lawsuit against an ex-Rosprirodnadzor official for 480 million rubles. Available at: https://rg.ru/2025/04/02/v-genprokurature-raskryli-sut-iska-k-eks-chinovniku-na-480-mln-rublej.html

[20] The former minister of education of the Penza Region was detained by the FSB officers. Exclusive details from former colleagues. Available at: https://mediapenza.ru/2025-04-15/byvshij-ministr-obrazovaniya-penzenskoj-oblasti-zaderzhan-sotrudnikami-fsb-eksklyuzivnye-podrobnosti-ot-byvshih-kolleg/

[21] Chizhova A. Bargaining at the last moment. Available at: https://www.kommersant.ru/doc/7659198

And it is not only about the "appetites" of corrupt officials who own dozens of real estate properties, billions of dollars in stolen funds, palaces, yachts, etc., which is revealed during the search; but also about the fact that **corrupt officials are organically "woven" into the fabric of the public administration system.** They were all appointed by someone. They all have an impressive track record, i.e. many years of practical experience in different managerial positions in different regions[22]. And, apparently, the system of public administration has created such conditions under which corrupt officials continue to abuse office for personal enrichment for many years (while holding responsible positions for the implementation of national development goals and fulfillment of direct orders of the RF President).

This is a question of culture, "cultural code"; awareness of the responsibility of a public official for the realization of national interests and the fate of specific people who depend on the performance of their official duties in the position entrusted to them.

During the period when our country was under the influence of the Western ideology of the "consumer society" (and for the ruling elites this period began 40 years earlier than for the majority of Russians; not in 1991 after the collapse of the USSR, but in the mid-1950s, after the death of Stalin and the onset of the "Khrushchev thaw"), a certain "genotype environment" was created in Russia, which is currently "reproducing" destructive "genes" for the statehood. As experts write, "***legal nihilism is the main feature of Russian society. And officials in this sense are no exception***"[23]**.**

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[22] For example, here is a brief reference about the arrested ex-governor of Kursk Region A. Smirnov (Source: *Zavtra*. 17.05.2025. Available at: https://zavtra.ru/events/zaderzhani_eks-gubernator_kurskoj_oblasti_i_ego_pervij_zamestitel_?ysclid=m9se7duucz274550190):

A. Smirnov graduated from Ivanov Kursk State Agricultural Academy obtaining a specialty "organizational economist" (1995) and the Kursk branch of the Orel Regional Academy of Public Service with a degree in "state and municipal management" (2001).

From 1998 to 2004 he held various positions in the Kursk Region Housing and Utilities Committee: consultant of the department for the development of domestic and communal services and licensing, head of the economic department, deputy chairman of the committee, first deputy chairman of the committee.

In 2004–2010 he was deputy mayor of Kursk – chairman of the Kursk Housing and Utilities Committee, deputy mayor for housing and utilities, transportation, property and land relations.

In 2010–2011 he was director of the Kursk branch of the non-profit partnership "Association of Construction Organizations of Medium and Small Businesses". As the publication "Bloknot" recalled, **"at that time, several criminal cases were initiated against him. The situation was so critical that Smirnov had to leave the Kursk Region and hide out in the Moscow suburbs".**

In 2011 for several months he was deputy head of the administration of Sergiev Posad urban settlement.

In 2011–2012 he was advisor to the minister of housing and communal services of the Moscow Region, head of the Department of Standardization and Reconstruction of Housing and Communal Facilities.

In 2012 he was appointed deputy minister of construction complex of the Moscow Region, in 2015 – first deputy minister.

In 2016 he became first deputy director general of the Fund for Capital Repair of Apartment Buildings in Moscow.

November 3, 2018 he was appointed deputy governor of Kursk Region under Roman Starovoit, on March 16, 2021 – first deputy governor (simultaneously from August 2022 he was chairman of the Government of the region). He was in charge of the economy, transportation, road infrastructure, internal and youth policy, information sphere, as well as state property management.

From May 12, 2024 he was acting governor of the region due to Starovoit's transfer to the Government of the Russian Federation, on May 15, 2024 this decision was confirmed by a decree of the President of Russia.

In June 2024 he joined the United Russia party, later he was elected secretary of the Kursk regional branch of the United Russia.

On September 8, 2024 he was elected governor of the Kursk Region in the direct election (with 65.28% of votes), on September 16 he officially took office.

He was a member of the State Council of the Russian Federation. A protégé of the Rotenberg group, like Starovoit. He is an honorary worker of the housing and utilities sector of the Russian Federation. He was awarded the Certificate of Honor of the President of the Russian Federation, the Belarusian badge "80 Years of Liberation of the Gomel Region from Nazi invaders".

[23] Ideology as the main way to fight corruption. Available at: http://uraldaily.ru/april/2/ideologiya-kak-glavnyi-sposob-borby-s-korruptsiei

And this "environment" was not "suddenly" created after the start of the SMO. Experts spoke about daily arrests and their futility in the fight against corruption **without the formation of an "*ideology of rejection of corruption*"** in society and among civil servants back in 2011.

The above facts and the consequences that follow from them point to the importance of paying attention to the issues of culture and the "cultural code" of Russian society; to the issues of preserving what scientists call "genotype"[24] of the Russian civilization. And, accordingly, it is important to pay attention to the question of forming a state ideology in Russia – not just as the only possible way to fight against corruption in power, but also as a formulation of the **Image of the Future, a certain "*self-portrait of society", "an Idea that will be common for the most diverse categories of citizens – regardless of age, profession, status or place of residence*"**[25].

"Every newspaper today publishes information about the exposure of one or another corrupt official. **Every day we hear about new arrests of bribe-takers and bribe-givers.** Some of them even receive real prison sentences. At the same time, most experts agree that **punitive measures cannot be called an effective tool in the fight against corruption. As long as there is no change in society's attitude toward this phenomenon, we cannot expect any significant results.**

One of the main tasks of the state in this regard is **to create an ideology of rejection of corruption not only on the part of the public, but also on the part of civil servants themselves. Propaganda of universal and social values should become an indispensable component of public policy in the sphere of civil service.**

At the same time, it should be noted that **democratization of society in our country is accompanied by its de-ideologization... Legal nihilism is the main feature of Russian society. And officials in this sense are not an exception.**

The mixture of traditions and cultural stereotypes, **uncontrolled bureaucracy, as well as political irresponsibility contribute to the fact that today the basic ideological values are highly deformed. Many officials view public service solely as an opportunity to improve their financial situation.**

The formation of a generation of civil servants who meet the demands of modern society **is possible only on the basis of a purposeful change in the legal consciousness of society as a whole. Otherwise, nothing will change: some bribe-takers will be replaced by others, and so it will be endless, no matter how strict punitive measures are taken by the State... Alas, but to date there are no effective programs to improve the moral and ethical standards in the behavior of domestic employees.** *This indicates the lack of attention of the government to this problem.* **The norms enshrining the rules of behavior, as a rule, are of a recommendatory nature and are declarative, not viable"**[26].

[24] Gorshkov M.K., Komissarov S.N., Karpukhin O.I. (2022). *Na perelome vekov: sotsiodinamika rossiiskoi kul'tury: monografiya* [At the Turn of the Century: Sociodynamics of Russian Culture: Monograph]. Moscow: FNISTs RAN. P. 7.

[25] "It is a self-portrait of society": An analyst at the Belarusian Institute for Strategic Research on Directive 12 and the role of ideology in the life of the State. Available at: https://belta.by/society/view/eto-avtoportret-obschestva-analitik-bisi-o-direktive-12-i-roli-ideologii-v-zhizni-gosudarstva-708206-2025/

[26] Ideology as the main way to fight corruption. Available at: http://uraldaily.ru/april/2/ideologiya-kak-glavnyi-sposob-borby-s-korruptsiei

Here we should note that an important event for the Union State took place on April 9, 2025: President of the Republic of Belarus A. Lukashenko signed Directive 12 "On the Implementation of the Fundamentals of the Ideology of the Belarusian State". This document enshrines the notion of "state ideology" at the state level, lists the "foundations of the ideology of the Belarusian State", its "components", main goals, principles, subjects, mechanisms of "ideological work", etc. According to V. Pertsov, deputy head of the Administration of the President of the Republic of Belarus, "***the time for such a document has objectively come***... In brief, such a document was necessary in order to: 1) ***to describe the concept of statehood in clear and comprehensible language,*** to make unified approaches to organizing and conducting ideological work with people; 2) to convey the state agenda to the citizens ***employed in the private sector of the economy***"[27].

S. Aleynikova, analyst at the Belarusian Institute for Strategic Research, on Directive 12:

"This is a very important event in the public life of the country. **Belarus has been working toward it for more than 20 years** – starting from the first seminar of ideological workers with the participation of the head of state. Why such a long time? **Because neither the national idea, nor the principles of ideological policy and ideology of the Belarusian state as a whole can be formulated overnight. They have to be crystallized.** This was preceded by a great deal of analytical, expert, and scientific work to identify the values of the Belarusian society, its demands, expectations, and needs. **It is with such an approach that any ideological concept can become a unifying, consolidating link. An idea that will be common for the most different categories of citizens – regardless of age, profession, status or place of residence.** This is the very unifying factor, to which the country has really been moving for quite a long time...

The document reflects our reality. Its development was preceded by a really long way of studying public opinion. The document contains the results of large-scale scientific research, sociological surveys... But it should be understood: like any normative legal act, **the Directive is not just a fixation of some theses. It is a guideline. It is a vector of work – for society, for all categories of citizens.** Those goals and ideals, which are outlined in it, are not realized by themselves. It is a great labor. The labor of the whole society...

No society, no State can exist without ideology, even if it claims that it has no ideology. Because ideology is a set of values, expectations, and people's requests: to the State, to the authorities, to society. It is, if you like, a self-portrait of society. It is a mirror that reflects its best qualities, traditions that have been formed not just for decades, but for centuries. Therefore, ideology is not just a necessity. It is a property of any society, any State. It is a permanent property, inseparable from the life of society. A living social organism cannot exist without ideology, no matter what anyone says"[28].

[27] Pertsov commented on Presidential Directive 12 "On the Implementation of the Fundamentals of the Ideology of the Belarusian State". Available at: https://www.sb.by/articles/pertsov-prokommentiroval-direktivu-prezidenta-o-realizatsii-osnov-ideologii-belorusskogo-gosudarstva.html?ysclid=m9h36zfq9q610471293

[28] "It is a self-portrait of society": An analyst from the Belarusian Institute for Strategic Research on Directive 12 and the role of ideology in the life of the State. Available at: https://belta.by/society/view/eto-avtoportret-obschestva-analitik-bisi-o-direktive-12-i-roli-ideologii-v-zhizni-gosudarstva-708206-2025/

Perhaps, we can agree with some experts that for our country the adoption of the foundations of the state ideology by the Republic of Belarus is "***a landmark event that cannot be passed by... Minsk sets an example for Moscow***, shows that the time has come to be seriously concerned about the creation of an ideological document for the Russian State..."[29]

There are several reasons that make it necessary for Russia to seriously address the issue of ideology.

The first reason is global and consists in the aggravation of cultural issues, the preservation of the "cultural code" in the conditions of the civilizational crisis faced by the world community in the 21st century.

At present, the whole world is in the "hot" phase of a civilizational conflict, which scientists predicted 30 years ago, based on the analysis of the very logic of the unipolar world development, established after the collapse of the USSR in 1991.

For example, the famous American sociologist and political scientist Samuel Phillips Huntington in his article "The Clash of Civilizations" (1993) wrote that *"the clash of civilizations will become a dominant factor in world politics", because even "at the peak of Western power", "among non-Western civilizations there is a return to their own cultural roots"*.

Relying on S. Huntington's ideas, the Russian philosopher, political scientist, and public figure A.S. Panarin in his book The Reversal of History: Russian Strategic Initiative in the 21st Century (1998) wrote about *"the unprecedented and final loneliness of the happy frontrunners of progress, who will have to* ***eat their food under the jealous gaze of those who are forever excommunicated and therefore ready to explode in despair. It is thus not so much a conflict of civilizations as a conflict between the "golden billion" and the rest of humanity***"[31].

> *S. Huntington:* **"The great divisions among humankind and the dominating source of conflict will be cultural... The clash of civilizations will dominate global politics. The fault lines between civilizations will be the battle lines of the future.**
>
> The growth of civilizational consciousness is dictated by the bifurcated role of the West. On the one hand, the West is at the pinnacle of its power, and on the other hand, and perhaps precisely because of this, **there is a return to their own roots among non-Western civilizations.... In many non-Western countries there is an intensive process of de-westernization of elites and their return to their own cultural roots...** At the height of its power, the West is confronted with non-Western countries that have **the drive, will and resources to give the world a non-Western image"**[30].

Russian historian A. Fursov writes that "we are leaving the world of modernity and entering a new, post-capitalist world"[32], and this period "***was fully programmed by the development of the world system in the post-war period, is the logical result of this development"***[33].

In fact, the hegemons of the unipolar world (the USA and the Collective West led by it) were warned about the same civilizational crisis of the 21st century by the RF President Vladimir Putin when he said at the Munich Security Conference on February 10, 2007 that "the world of one sovereign is destructive to all who are in it".

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[29] Stepanov A.D. Belarusian ideology: Pros and cons. Available at: https://ruskline.ru/news_rl/2025/04/11/belorusskaya_ideologiya_plyusy_i_minusy

[30] Huntington S.P. (1993). The clash of civilizations? Foreign Affairs, 72(3), p. 22.

[31] Panarin A.S. (1998). *Revansh istorii: rossiiskaya strategicheskaya initsiativa v XXI veke* [Revenge of History: Russian Strategic Initiative in the 21st Century]. Moscow: Logos. P. 9.

[32] Fursov A. The world of post-capitalism. Available at: https://zavtra.ru/blogs/kruglij_stol_fursov?ysclid=m9tkkjx3q161305128

[33] Fursov A. The 21st century will be won by the person who will be able to create a new science about human, about society. Available at: https://dzen.ru/a/Yfzci0QqzmymRuhG

"A unipolar world, no matter how the term is embellished, ultimately means only one thing in practice: it is one center of power, one center of strength, one center of decision-making. **It is a world of one master, one sovereign. And this is ultimately destructive not only for all those who are within this system, but also for the sovereign itself, because it destroys them from within"**[34].

Given the civilizational nature of the crisis (more precisely, its "hot" phase, which humanity faced in the first quarter of the 21st century), we should note that **culture (in the broad sense of the word, i.e. as a "cultural code" and "genotype of civilization") acquires key importance in it.** In 1991, the English philosopher Arnold Joseph Toynbee wrote in this regard: "***Culture is the soul, blood, lymph, essence of civilization… As soon as a civilization loses the inner force of cultural development, it immediately begins to absorb elements of alien culture"***[35].

"**It is culture as the center of humanity in man that is the genotype of civilization,** therefore cultural contradictions are the driving force behind the clashes of civilizations. In culture there is a semantic and value awareness of reality, which **genetically determines and legitimizes all socio-political and economic transformations...**

Domestic culture, which is the bearer of traditional spiritual and moral values and the genotype of Russian civilization, **has now become the main obstacle to American hegemonism"**[36].

And, given the importance of culture as "the essence, blood and lymph of civilization," we agree with contemporary experts who note that **cultural sovereignty is the main, "*most important*" component of full sovereignty; it is "*with its absence that the road to nowhere begins*".**

"What is Full State Sovereignty? It consists of five sovereignties:

1. Recognition by the international community of the country's territory, flag, coat of arms and anthem.
2. Diplomatic sovereignty - the ability to conduct independent international policy....
3. Military sovereignty.
4. Economic sovereignty.
5. **Cultural sovereignty. As our history has shown, it is the most important. Its absence starts the road to nowhere"**[37].

Thus, the first (global) reason for the need to adopt ideology in Russia is that ideology alone can protect culture as the "genotype" of civilization in the conditions of the "hot" phase of the civilizational conflict.

"The whole course of world history in recent decades clearly shows the importance of culture as the genotype of civilization in any of its existing forms. It is culture that represents the main meaning and the main value of the existence of individual peoples and small ethnic groups, as well as states. Without culture, their independent existence is meaningless"[38].

[34] Vladimir Putin's speech at the Munich Security Conference on February 10, 2007. Available at: http://www.kremlin.ru/events/president/transcripts/24034

[35] Toynbee A.J. (1991). *Postizhenie istorii* [A Study of History]. Moscow. P. 285.

[36] Komissarov S.N. (2023). Russian culture in the clash of civilizations. Culture on the verge of otherness? *Gumanitarii yuga Rossii=Humanitites of the South of Russia*, 12(4)(62), p. 32.

[37] Starikov N.V. Shortage of state sovereignty. Available at: https://nstarikov.ru/defitsit-gosudarstvennogo-suverenite-6047

[38] Gorshkov M.K., Komissarov S.N., Karpukhin O.I. (2022). *Na perelome vekov: sotsiodinamika rossiiskoi kul'tury: monografiya* [At the Turn of the Century: Sociodynamics of Russian Culture: Monograph]. Moscow: FNISTs RAN. P. 7.

The second reason is that the Russian Federation is facing a civilizational crisis not only at the global level (associated with the change in the form of the world order, with the transition from a unipolar to a multipolar world and with the need to occupy a worthy place in this new world), **but also at the national level, associated with the beginning of recovery from the semi-colonial existence in which the country found itself after the collapse of the USSR in 1991.**

This is also a civilizational crisis, and it is also connected with the threat to the existence of the "cultural code", because in 1991 Russia became a victim of a new type of war – a "hybrid" war, a "war of meanings". This new type of war, which emerged as a result of the emergence of nuclear weapons, is realized through "soft power" and, as E. Balatsky notes, has as its goal "**the destruction of the culture of the opposing nation".**

Even the very reasons for the collapse of the USSR, in fact, prove the accuracy of the interpretation of culture as a "genotype of civilization", because the phenomenon of the emergence in the history of the country of the "gravediggers of the Soviet Union" in the person of Gorbachev, Yeltsin, Burbulis, Yakovlev, Chubais and many others personally responsible for the collapse of the USSR, became (as J.T. Toshchenko writes) **"a crime that has no statute of limitations"**[40]. The emergence of these "genes" destructive for the state organism did not happen by chance, but **precisely in the conditions of changes in the "genotype environment"**, which was observed since the mid-1950s and was characterized by the gradual liberalization of the ruling class, the penetration of the values of the Western "consumer society" into the ruling elites of the country.

In addition, as experts note, the collapse of the USSR was accompanied by *"social trauma"*[41] of the Russian society and had the deepest cultural implications. It "***ruptured the progressive development of the State and society", "led to the emergence and consolidation of new traumatic features (characteristics) of public consciousness – disorientation and disorganization… split, bifurcation, contradictory and conflictual development"***[42].

> *"***Hybrid war is a war of meanings and nerves… the task of the war of meanings is to destroy the culture of the enemy nation –** its traditional picture of the world, ethical and aesthetic coordinates, values, faith and other elements of the worldview…. The war of hybrid type is inherently informational, its "blows" are embedded in the national economy and culture, breaking their original format and direction of evolution… Its end, just as in a conventional hot war, ends with **the victory of one side and the defeat of the other with all the ensuing consequences…**
>
> **This is exactly what happened in 1991, when the Soviet Union, represented by its leadership, recognized its defeat in the Cold War** and was subjected to post-war reparations **in a new, modified form"**[39].

> Here it will be appropriate to recall what is meant by the term "genotype" proposed by the Danish biologist W. Johannsen in 1909:
>
> "Genotype is the totality of all hereditary factors of an organism…, a carrier of hereditary information transmitted from generation to generation. It represents a system that controls the development, structure and vital activity of an organism… It is a **unified system of interacting genes, so that the manifestation of each gene depends on the genotypic environment in which it is located"**[43].

[39] Balatsky E.V. (2022). Russia in the epicenter of geopolitical turbulence: Accumulation of global contradictions. *Ekonomicheskie i sotsyalnye peremeny: fakty, tendentsii, prognoz=Economic and Social Changes: Facts, Trends, Forecast*, 15(4), p. 44.

[40] Toshchenko Zh.T. (2022). The abyss of betrayal – Aleksandr Yakovlev. *Pravda*, 91(31294), August 19–22.

[41] Toshchenko Zh.T. (2020). *Obshchestvo travmy: mezhdu evolyutsiei i revolyutsiei (opyt teoreticheskogo i empiricheskogo analiza)* [Trauma Society: Between Evolution and Revolution (Experience of Theoretical and Empirical Analysis)]. Moscow: Izdatel'stvo "Ves' Mir".

[42] Toshchenko Zh.T. (2015). *Fantomy rossiiskogo obshchestva* [Phantoms of the Russian Society]. Moscow: Tsentr sotsial'nogo prognozirovaniya i marketinga. Pp. 19, 37.

[43] Great Soviet Encyclopedia. Available at: https://dic.academic.ru/dic.nsf/bse/78399/%D0%93%D0%B5%D0%BD%D0%BE%D1%82%D0%B8%D0%BF

"The roots of the collapse of the USSR can be traced back to the 1950s, i.e. to the time of Khrushchev. A successful command system creates its own gravediggers. First of all, it is the nomenklatura itself, which simply wants to live without fear of the dictator. The desire is reasonable, but in solving their small philistine tasks, the bureaucracy, in addition to their own will, jams the system of government"[44].

After the collapse of the USSR, for more than 30 years, Russia's "cultural code" continued to be subjected to aggressive external influence, and only the special military operation announced by the RF President on February 24, 2022, became for our country "**a mechanism, a tool for a comprehensive transformation"**[45]. By and large, this is exactly what Vladimir Putin spoke about (which some experts have called his words "revolutionary" for good reason"[46]) that Russia ***should not "return to the path it was on before 2022"***[47].

We recall that the SMO began as Russia's forced defensive response to the impossibility of diplomatically resolving with the United States the issue of NATO's further advance to the East (this time into the territory of our nearest neighbor, Ukraine), which posed a direct threat to Russia's national security[48].

However, it became clear almost from the very beginning that Russia's struggle for its national security is not only about Ukraine's neutral status and not only about the return of NATO military forces to the 1997 borders, **but about something much deeper, going far beyond political, military or territorial threats to national security.**

Vladimir Putin: **"I would not like Russia to return to the path it was on before 2022, as I said in my speech.** And this was a path that involved such **a hidden, veiled intervention against our country,** aimed at subjugating it to the interests of some other countries that still thought they had the right to do so"[49]

It is no coincidence that in his address to Russians on February 24, 2022, when the President of the Russian Federation – Supreme Commander-in-Chief announced the beginning of the SMO, explaining its essence, reasons and compulsory necessity, he spoke not so much about Ukraine as about the aggressive imposition by the West of its "***pseudo-values***" that would "***corrode us, our people from within***, leading them "***to degradation and degeneration***"; about the "***attitudes***" that "***contradict the very nature of a human***", as well as

[44] Derlugyan G. (2013). *Kak ustroen etot mir. Nabroski na makrosotsiologicheskie temy* [How This World Works. Sketches on Macrosociological Topics]. Moscow: Izd. Instituta Gaidara.

[45] Ilyin V.A., Morev M.V. (2025). Vladimir Putin's 25 years of presidential terms: "Warrior", "Ruler", "Creator". *Ekonomicheskie i sotsyalnye peremeny: fakty, tendentsii, prognoz=Economic and Social Changes: Facts, Trends, Forecast*, 18(1), 9–45.

[46] Popov D. Putin has recognized the betrayal of the elites: The revolution from above has begun. Available at: https://www.mk.ru/politics/2024/11/08/putin-priznal-predatelstvo-elit-nachalas-revolyuciya-sverkhu.html?ysclid=m4mavvlteb25960798

[47] Vladimir Putin's speech at the Valdai International Discussion Club meeting on November 7, 2024. Available at: http://www.kremlin.ru/events/president/news/75521

[48] On December 17, 2021, the Russian side officially presented the requirements to the U.S. and NATO countries to provide legal guarantees of national security, including the requirements to exclude further NATO expansion to the east and the accession of Ukraine to the alliance; to refuse any NATO military activities in Ukraine, Eastern Europe, Transcaucasia, Central Asia; not to establish military bases in post-Soviet countries, etc. (Source: On Russian draft documents on the provision of legal security guarantees by the U.S. and NATO). Available at: https://www.mid.ru/ru/foreign_policy/news/1790809/).

Nevertheless, on January 26, 2022, U.S. Secretary of State A. Blinken stated that "the U.S. will not abandon the principle of 'open door policy' in NATO" (source: Blinken: The U.S. will not abandon the principle of "open doors" in NATO. Available at: https://tass.ru/mezhdunarodnaya-panorama/13535663), and NATO Secretary General J. Stoltenberg said: "We cannot compromise on the principles on which our security has been based for decades" (source: NATO and the U.S. reject Russia's security proposals. How will Putin respond? Available at: https://www.business-gazeta.ru/article/537506).

[49] Vladimir Putin's speech at the Valdai International Discussion Club meeting on November 7, 2024. Available at: http://www.kremlin.ru/events/president/news/75521

about the "*powerful **root system of own culture and values, experience and traditions of ancestors***", on which "***the very existence of entire countries and nations***" depends. As Vladimir Putin emphasized, "***this concerns not only Russia… It concerns the entire system of international relations".***

Further publicly voiced plans by representatives of the Western political establishment to inflict a "*strategic defeat*" on Russia"[50], attempts to not only "*defeat Russia on the battlefield*"[51] and "*tear apart the Russian economy*»[52], **but also to abolish its culture, its place in history**, proved in practice the validity of the President's words that "*for our country, it is ultimately a matter of life and death, a matter of our historical future as a nation*"[53].

"As of December 1, 2023, more than 3 thousand monuments to Soviet soldiers-liberators were demolished in the EU countries. This was stated by the representative of the Russian Ministry of Defense Andrey Taranov at the round table "Revenge of nationalists, or who in Europe is against the monuments to Soviet soldiers"[54].

Excerpts from Vladimir Putin's address to Russians on February 24, 2022, revealing the civilizational basis of the special military operation:

"What I am talking about now concerns not only Russia and not only us. **It concerns the entire system of international relations**, *and sometimes even the U.S. allies themselves…* it seems that almost everywhere, in many regions of the world, where the West comes to establish its order, the results are bloody, non-healing wounds, plagues of international terrorism and extremism…

Until recently, attempts to use us in their own interests, to destroy our traditional values and impose their pseudo-values on us, which would eat us, our people from the inside, the attitudes that they are already aggressively imposing in their countries and which directly lead to degradation and degeneration, because they contradict the very human nature… have not stopped.

For the U.S. and its allies, this is the so-called policy of containment of Russia, obvious geopolitical dividends. **But for our country, it is ultimately a matter of life and death, a question of our historical future as a nation**. And this is not an exaggeration – it is true. This is a real threat not just to our interests, **but to the very existence of our State, its sovereignty…**

The well-being, the very existence of entire states and peoples, their success and viability always originate in the **powerful root system** of their culture and values, experience and traditions of their ancestors and, of course, directly depend on the ability to quickly adapt to the ever-changing life, on the cohesion of society, its readiness to consolidate, to gather together all the forces to move forward"[55].

[50] *From the U.S. perspective, the ultimate goal is the **strategic defeat** of Russian President Vladimir Putin",* U.S. undersecretary of state for political affairs V. Nuland said on March 9, 2022 (source: https://russian.rt.com/world/news/973180-nuland-ssha-rossiya).

[51] On April 9, 2022, the EU high representative for foreign affairs and security policy J. Borrell, declared that ***"this war will be won on the battlefield"***. Available at: https://www.gazeta.ru/politics/news/2022/04/09/17546431.shtml

Later (May 22, 2023), European Council president Charles Michel stated that ***"the EU will work with its G7 partners to strike at every pillar of the Russian economy"*** (source: https://www.rline.tv/news/2023-05-22-sammit-g7-v-khirosime-podtverdil-tsel-zapada-nanesti-strategicheskoe-porazhenie-rossii/).

[52] *"Sanctions against Russia will remain in place **until its economy is ripped apart***", European Commission chief Ursula von der Leyen said in her annual report on the work of the European Commission to MEPs in Strasbourg on September 14, 2022 (source: Available at: https://www.vedomosti.ru/politics/news/2022/09/14/940737-glava-sanktsii-protiv-rossii-ostanutsya-v-sile).

[53] Vladimir Putin's address to Russians on February 24, 2022. Available at: http://www.kremlin.ru/events/president/transcripts/statements/67843

[54] Arkhipov D. Defense Ministry reveals the number of monuments to Soviet soldiers demolished in Europe. Available at: https://www.gazeta.ru/social/news/2023/12/05/21855121.shtml

[55] Vladimir Putin's address to Russians on February 24, 2022. Available at: http://www.kremlin.ru/events/president/transcripts/statements/67843

And, as many times before in Russian history, threats to national security of **such a high level**, and coming from external enemies, made this conflict for our country (as V. Baghdasaryan writes) "***civilizational, value and worldview-related***".

This means that in order to get out of the value and worldview-related conflict our country **will need value and worldview-related changes**: within the elites, within the general population, within the state and state policy in all its manifestations (in the economy, education, science, culture, etc.). Otherwise, how can a value and worldview-related conflict be completed without at least partial elimination of its value and worldview-related causes?

The threats to national security emanating from NATO countries have created a situation for Russia of a compulsory need to intensify the adoption of managerial decisions on a wide range of issues concerning both the continuation of the general course of national development and the regulation of everyday life of citizens (we have been monitoring these issues since the very beginning of the SMO; *Insert 2*).

However, along with activities aimed at supporting the participants of the SMO and their families, socio-economic support of the general population, increasing the efficiency of the Russian economy, military-industrial complex, etc., the State pays special attention to issues related specifically to culture and the creation of conditions for the upbringing of younger generations.

Vladimir Putin: **"Culture directly influences the solution of many social and economic issues and, above all, the tasks of educating the younger generations of citizens who will determine the future of Russia"**[56].

V. Baghdasaryan: **"Russia's conflicts with external adversaries had a value and attitudinal dimension and can be defined as civilizational conflicts. Civilizational conflicts were, in particular, the periods of acute phases of confrontation between Russia and the West. At stake in these confrontations was the very civilizational existence of Russia, its sovereignty and fundamental values...** Signs of civilizational wars had, in particular, the confrontation of Russia to the aggression of the Crusaders to the East, the Livonian War, the Russian-Polish wars, the reflection of Napoleon's aggression, the Crimean War, the reflection of the Entente intervention, the Great Patriotic War, the Cold War. **The confrontation between Russia and the forces of the Collective West, acting in the format of a proxy war with the focus of the theater of hostilities in Ukraine, has all the signs of a civilizational conflict..."**[57]

For example, let us cite only some, in our opinion, the most important decisions taken by the President and the Government of the Russian Federation after the beginning of the SMO, which relate, first, directly to the formulation of the foundations of the "cultural code" of the Russian civilization, and second, to the creation of organizational mechanisms for their transmission to future generations of Russians:

July 14, 2022, Federal Law 261 "On the Russian Movement of Children and Youth" was adopted, which establishes the main goals of the youth movement's activities, its organizational structure, opportunities for citizen participation, the role of mentors, etc. As the authors of the project noted, "*if we do nothing, in terms of monumental solutions in the field of education, there are great risks of losing a large number of people – young people, teenagers, who will go into extremist movements, who will simply go into the negative*"[58].

[56] Vladimir Putin's speech at a meeting of the Council for Culture and Art on March 25, 2025. Available at: http://www.kremlin.ru/events/president/news/76525

[57] Vardan Baghdasaryan: We are a civilization. Available at: https://izborsk-club.ru/26366

[58] The authors of the law on the new children's movement called its difference from the Pioneer movement. Available at: https://www.rbc.ru/society/01/06/2022/62960b249a79473c080a122b (opinion of State Duma deputy A. Metelev).

Insert 2

The monitoring of regulatory legal acts (laws, decrees) signed by the RF President in the period from February 14, 2025 to April 20, 2025[59]

MEASURES TO SUPPORT SMO PARTICIPANTS AND THEIR FAMILY MEMBERS, TO DEVELOP THE MILITARY-INDUSTRIAL COMPLEX, MEASURES RELATED TO MOBILIZATION, ORGANIZATION OF MARTIAL LAW, INCREASE IN THE ANTI-TERRORIST PROTECTION OF FACILITIES

February 28 – Federal Law No. 15 "On Amending the Code of Administrative Offences of the Russian Federation". Fines are established for banks for aiding extremist sponsors. Administrative liability is established for organizations conducting transactions with money or other property that obstruct inspections by supervisory bodies or fail to comply with orders issued by these bodies to counter extremist activity.

March 10 – Decree No. 129 "On the Commission of the State Council of the Russian Federation on Supporting Veterans of Combat Operations - Participants of Special Military Operations and Members of Their Families." The commission was formed to strengthen coordination of activities of federal and regional executive authorities, the Defenders of the Fatherland Foundation and other organizations. Also among the tasks of the Commission is the development of measures that will help veterans to adapt more easily to peaceful life and ensure the protection of their social interests. I. Babushkin, governor of the Astrakhan Region, was appointed chairman of the Commission.

March 10 – Decree No. 137 "On additional social guarantees for certain categories of citizens of the Russian Federation". It was decided to provide lump-sum payments depending on the disability group to the disabled participants of combat operations, who were part of the Armed Forces of the DNR, People's Militia of the LNR, military formations and bodies of the republics since May 11, 2014. For group I - 6,054,415 rubles, for group II - 5,236,250 rubles, for group III - 4,418,086 rubles.

April 7 – Federal Law No. 64 "On Amendments to Article 128 of the Labor Code of the Russian Federation". The right to leave without pay for up to 14 calendar days a year was granted to parents, spouses and children, including those of full age, of dead or deceased servicemen, volunteers, members of the National Guard troops, employees of the internal affairs bodies, Federal Security Service, customs authorities, institutions and bodies of the penal enforcement system, and compulsory enforcement bodies. Leave without pay of up to 35 calendar days per year can be granted to parents, spouses and children, including those of full age, of wounded participants of the military service for their care in accordance with a medical report.

MEASURES TO PROTECT INFORMATION SECURITY, REGULATE THE ACTIVITIES OF FOREIGN AGENTS, AND UPBRING AND EDUCATE THE YOUNGER GENERATIONS

February 28 – Federal Law 28 "On Amending Certain Legislative Acts of the Russian Federation". According to the law, only the Ministry of Health will be able to develop and approve standard additional professional programs of medical education. Educational organizations must obtain the opinion of Roszdravnadzor on the availability of personnel and material and technical support. In the implementation of medical and pharmaceutical education programs, it is prohibited to use electronic and distance learning, except in cases established by FSESs. Additional professional medical education will be licensed by type of programs and specialties.

[59] The insert is a continuation of the monitoring of the most important regulatory legal acts signed by the President of the Russian Federation, which we have been conducting since June 2022 (the first issue of the monitoring is presented in the article: Ilyin V.A., Morev M.V. (2022). A difficult road after the Rubicon. *Economic and Social Changes: Facts, Trends, Forecast*, 15(3), 9–41).

Continuation of Insert 2

February 28 – Federal Law 29 "On Amendments to Articles 19 and 20 of the Federal Law 'On Education in the Russian Federation'". For the purpose of participation of pedagogical and scientific workers in the development of federal state educational standards, federal state requirements for training programs for scientific and scientific-pedagogical personnel in graduate school (adjuncture), federal basic general education programs and model educational programs of secondary vocational education, coordination of organizations engaged in educational activities, federal and regional educational and methodological associations are created.

February 28 – Federal Law 31 "On Amending Article 167 of the Criminal Code of the Russian Federation". Article 167 of the Criminal Code of the Russian Federation on liability for intentional destruction or damage to other people's property is supplemented with a qualifying feature of committing a crime on the grounds of political, ideological, racial, national or religious hatred or enmity or on the grounds of hatred or enmity against a social group.

March 20 – Federal Law 33 "On General Principles of Organization of Local Self-Government in the Unified System of Public Power". The law is aimed at improving the legislation on local self-governance taking into account the provisions of the Constitution of the Russian Federation, which stipulate that local self-governments and state authorities are part of a unified system of public power.

The Law provides for three types of municipalities: urban okrug, municipal okrug and intra-urban municipalities in cities of federal significance. Regions with socio-economic, historical and other peculiarities may retain a two-tier system of local self-government (settlements (rural and urban) and municipal districts). The general structure of local self-governance bodies remains unchanged. The new law allows for the creation of territorial bodies of local government for the operational solution of LSG tasks.

April 1 – Federal Law 40 "On Conducting an Experiment to Expand Accessibility of Secondary Vocational Education". It is envisaged to conduct the experiment in the federal cities of Moscow and Saint Petersburg and in the Lipetsk Region. Within the framework of the experiment, the executive bodies of the constituent entities of the Russian Federation shall establish special legal regulation of relations related to the conduct of the state final attestation under educational programs of basic general education and admission to training under educational programs of secondary general and secondary vocational education. The executive bodies of the constituent entities of the Russian Federation participating in the experiment, together with the Government of the Russian Federation, shall monitor and evaluate the results of the implementation of the experiment and submit information on the preliminary results of the experiment to the State Duma of the Federal Assembly of the Russian Federation no later than December 10, 2025.

April 2 - Decree 205 "On Improving State Management in the Migration Sphere". According to the Decree, the Service for Citizenship and Registration of Foreign Citizens of the Ministry of Internal Affairs will be established on the basis of the Main Directorate for Migration Issues of the Ministry of Internal Affairs.

April 7 – Federal Law 58 "On Amendments to the Federal Law, 'On the Security of Critical Information Infrastructure of the Russian Federation'". The government will establish requirements for computer systems, databases and radio-electronic equipment, as well as the procedure and terms of transition of critical infrastructure to Russian software. In financial spheres, this process should be coordinated with the Bank of Russia. In each industry, the Government will determine the types of information systems that should be classified as significant critical information infrastructure objects. Companies using critical infrastructure must comply with the requirements of the authorities and replace programs with domestic ones in time.

April 7 – Federal Law 72 "On Amendments to Article 12 of the Federal Law on Combating Extremist Activity and the Federal Law on Advertising". From September 1, 2025 it is prohibited to distribute advertising on information resources of foreign or international organizations whose activities in Russia are recognized as undesirable. This also applies to other information resources, access to which is restricted in accordance with the law. In addition, advertising will not be allowed on the websites of public and religious associations or other organizations in respect of which a court has issued a legally enforceable decision on liquidation or prohibition of activity on the grounds provided for by the Law on Countering Extremist Activity or the Law on Countering Terrorism.

End of Insert 2

MEASURES TO PROVIDE SOCIO-ECONOMIC SUPPORT TO THE GENERAL POPULATION, STRENGTHEN THE COUNTRY'S ECONOMY, INCLUDING IN THE INTERNATIONAL ARENA

March 10 – Decree 141 "On Amending the Food Security Doctrine of the Russian Federation, approved by Presidential Decree 20 of January 21, 2020". The Food Security Doctrine has been supplemented. The strategic goal and main tasks of ensuring global food security are established. The main goal is to maintain stability in the world food markets, including through cooperation with countries that pursue a constructive policy toward Russia. The main objectives are to develop domestic production of agricultural products, raw materials, food and mineral fertilizers to increase export potential, to create favorable external conditions for the maintenance and progressive development of international trade, economic, transport, logistics and financial relations on the basis of mutual benefit and equality, as well as to provide humanitarian assistance to countries in need. Risks and threats include internationally illegal acts and unfriendly actions of foreign countries that hinder trade in Russian products and the development of the agro-industrial complex.

March 20 – Federal Law 39 "On Amendments to Article 121 of the Federal Law 'On State Social Assistance'". The federal law is aimed at optimizing interdepartmental interaction in the establishment of pensioners regional social supplement to pension. It provides for the possibility of transferring to the Pension and Social Insurance Fund of the Russian Federation the authority to establish and pay this additional payment on the basis of agreements concluded between the Fund and the supreme executive authority of the subject of the Russian Federation.

April 1 – Federal Law 41 "On the Creation of a State Information System to Counteract Offenses Committed with the Use of Information and Communication Technologies, and on Amendments to Certain Legislative Acts of the Russian Federation". Provision is made for the creation of a state information system to counteract offences committed with the use of information and communication technologies in order to organize interaction between the Prosecutor General's Office, the Investigative Committee, the Bank of Russia, credit organizations, telecommunications operators, as well as federal executive authorities and organizations, the list of which is approved by the Government of the Russian Federation. In order to protect citizens' funds, measures are envisaged to counteract cash withdrawals using ATMs without the voluntary consent of the client, including the establishment of a cooling-off period. A number of measures are envisaged to protect citizens from fraudulent telephone calls.

November 9, 2022 – Decree 809 "On Approval of the Fundamentals of State Policy for Preserving and Strengthening Traditional Russian Spiritual and Moral Values". The document defines traditional values ("*moral guidelines that form the world outlook of Russian citizens, transmitted from generation to generation, underlying the all-Russian civil identity and the common cultural space of the country, strengthening civil unity")*. Traditional values are listed *("life, dignity, human rights and freedoms, patriotism, citizenship, service to the Fatherland and responsibility for its fate; high moral ideals, strong family, creative labor, priority of spiritual over material, historical memory and continuity of generations, unity of the peoples of Russia"*).

January 25, 2023 – Decree 35 "On Amendments to the Fundamentals of State Cultural Policy approved by Presidential Decree 808, dated December 24, 2014". It introduced for the first time the term "cultural sovereignty" among the concepts of state policy, where it is defined as "*a set of socio-cultural factors that allow the people and the State to form their identity, avoid socio-psychological and cultural dependence on external influence, be protected from destructive ideological and informational influence, preserve historical memory, and adhere to traditional Russian spiritual and moral values*".

March 31, 2023 – Decree 229 "On Approval of the Foreign Policy Concept of the Russian Federation", which contains the following text: *"more than a thousand years of experience of independent statehood, the cultural heritage of the previous era, deep historical ties with traditional European culture and other cultures of Eurasia, the ability developed over many centuries to ensure the harmonious coexistence of various peoples, ethnic, religious and linguistic groups on a common territory determine the* ***special position of Russia as an original civilization-state, a vast Eurasian and Euro-Pacific power that united the Russian people and other nations, the components of the cultural and civilizational community of the Russian world***".

November 20, 2023 – Letter of the Ministry of Education of the Russian Federation 08-2142 on the "Conversations about Important Things", which "initiated in Russian schools a cycle of extracurricular activities 'Conversations about Important Things'. The main topics are patriotism and civic education, historical education, morality, ecology and other socially significant issues".

March 23, 2024 – Federal Constitutional Law 1 "On Amending Article 4 of the Federal Constitutional Law, 'On the State Flag of the Russian Federation'", according to which the State Flag of the Russian Federation must be permanently displayed on the buildings of educational organizations regardless of ownership or permanently installed on their territories.

May 8, 2024 – Decree 314 "On Approval of the Fundamentals of State Policy of the Russian Federation in the Field of History Education". The decree defines the goals, basic principles, tasks and mechanisms for the implementation of state policy in the field of history education. The latter is understood as state-regulated activities to disseminate reliable and scientifically substantiated historical knowledge in society. It is aimed at forming a scientific understanding of Russia's past and present, which is one of the foundations of all-Russian civil identity and collective historical memory, as well as at countering attempts to belittle the feat of the people in defense of the Fatherland.

September 11, 2024 – Resolution of the Government of the Russian Federation 2501 "On the Strategy of the State Cultural Policy for the period up to 2030", which, in particular, points out that "*the State remains the* ***main strategic investor of culture*** *and cultural institutions in the Russian Federation... this makes the State a* ***key subject of cultural policy****, obliged to clearly formulate investment objectives in combination with a value-based approach*".

December 28, 2024 – Presidential Decree 1124 "On Approval of the Strategy for Countering Extremism in the Russian Federation". The new

Strategy analyzes the state and sources of extremism threats. Such concepts as xenophobia and Russophobia are formulated. The content of the terms "radicalism", "countering extremism" and "subjects of countering extremism" has been revised. Special attention is paid to countering the spread of ideas of radical nationalism and neo-Nazism in the context of the SMO and the incorporation of new regions into the country. An important role is given to the participation of civil society institutions and educational organizations in countering extremist manifestations.

In addition to the listed (by no means all) legislative acts in the sphere of culture and upbringing of the younger generations, it is necessary to add a purposeful system-wide policy of the State to limit the possibilities of negative influence of foreign agents, to tighten migration legislation; the personnel program "Time of Heroes" (which is also aimed at making the elite from "*those who serve Russia, not those who filled their own pockets in the 1990s*"[60])...

At the same time, an important role is played directly by personnel appointments made by the President, as a result of which strong "statespeople", such as M. Mishustin and A. Belousov, are appointed to key positions in the public administration system.

Perhaps, it is worth mentioning the joint decision of the presidents of the Russian Federation and the Republic of Belarus (adopted on April 17, 2025) to appoint former advisor to the President of the Russian Federation S.Yu. Glazyev to the post of Secretary of the Union State. Some experts called this event "not just bright, but revolutionary", first of all, because S.Yu. Glazyev is "a man with his own quite definite political and ideological position", namely, "***a consistent critic of the vulgar-liberal doctrine of market fundamentalism***"[61], "***a real scarecrow for systemic liberals and the most ideologized employee of the Presidential Administration of all time***"[62].

> **"Glazyev's appointment to the post is not just a smart decision, but a revolutionary one,** because this is not just an official who, once appointed, will follow some instructions. **This is a person known for his clear position,** a consistent supporter of integration both in the post-Soviet space and within the framework of the Belarusian-Russian union, **a person with a quite definite political position, and an economist-professional, who, in all likelihood,** will try to promote his own agenda. In this case, this is a revolutionary appointment, because it is **the first time that such a bright person with a definite ideological and political face has been appointed secretary of state of the Union State"**[63].

[60] Address of the President of the Russian Federation to the Federal Assembly on February 29, 2024. Available at: http://www.kremlin.ru/events/president/news/73585

[61] Academician Sergey Yu. Glazyev celebrates his 60th anniversary. Available at: https://www.ras.ru/news/shownews.aspx?id=69bee026-94c1-4d33-a0fa-900a57f72c4b

S.Y. Glazyev is author of more than 200 scientific papers (including more than 20 monographs). Here are some of his papers:

- ✓ **Restoration of the empire is salvation for Russia.** Available at: https://izborsk-club.ru/26125?ysclid=m9sfvzvlql219787497);
- ✓ **A crime without a statute of limitations.** Available at: https://glazev.ru/prestuplenie-bez-sroka-davnosti/?ysclid=m9sfx4pmuj327756237);
- ✓ **Economics of Russian victory.** Available at: https://zavtra.ru/blogs/ekonomika_russkoj_pobedi);
- ✓ **Central Bank dooms Russia's economy to further lagging behind.** Available at: https://argumenti.ru/economics/2021/12/752908?ysclid=m9sfzqluwe319341960);
- ✓ **Ideology or death!** Available at: https://zavtra.ru/blogs/ideologiya_-_razmishleniya) and others.

[62] Ivanov A. Sergey Glazyev will become State Secretary of the Union State of Russia and Belarus. Available at: https://zavtra.ru/events/dolzhnost_gossekretarya_soyuznogo_gosudarstva_rossii_i_beloruccii_zajmet_sergej_glaz_ev

[63] Sergei Glazyev's appointment is a revolution in integration. Available at: https://sputnik.by/20250417/shimov-lusch-naznachenie-sergeya-glazeva--eto-revolyutsiya-v-integratsii-1095499797.html (Vsevolod Shimov, Candidate of Sciences (Politics), Senior Researcher at the Institute of Europe of the Russian Academy of Sciences).

"Glazyev early formed an image of *a* **patriotic statesman, firm and principled, who does not trade his convictions.** This has been the case since September 1993, when he was **the only minister in the Chernomyrdin government to oppose Yeltsin's decree to dissolve parliament and resigned in protest...**

Sergey Glazyev is a loyal member of Putin's team, **not a member of his inner circle, not an old acquaintance, but a like-minded person, a man who has been tested many times over"**[64].

Thus, faced with the need to liberate the country from semi-colonial dependence on Western liberal dogmas in the cultural sphere and to strengthen national cultural sovereignty, the President and other authorities are implementing measures that are multifaceted and comprehensive. **In fact, the State is trying to create conditions for changing the very "genotype environment" that once gave birth to the "Chubais" and "Gorbachevs" who took a direct part in the collapse of the USSR. Because only if the "genotype environment" is changed can we expect that new "genes" will appear in the state "organism" (for example, from the "Time of Heroes" personnel program), capable of returning Russia to its original "cultural code"; of cleansing its genotype from 30 years of exposure to a culture that is essentially alien to it.**

However, as experts noted even before the beginning of the SMO, "***a hostile ideology can only be countered with an alternative ideology. Ideas can only be effectively countered by counter-ideas***"[65]. Nevertheless, until now, according to V. Fadeev, advisor to the President of the Russian Federation, chairman of the Presidential Council for the Development of Civil Society and Human Rights, "the constructors of modern Russian ideology" face an "**insoluble problem**": "they easily explain against whom and what it is necessary to fight", but **they cannot "formulate a clear, precise, ideal or at least desirable picture of the future for the majority of the population".**

"This is the unsolvable problem of the designers of Russia's new state ideology. **Based on a fairly broad public consensus, they easily explain who and what to oppose.** This could be Russophobia, "unpatriotic" historical assessments, propaganda of unconventional values, or disrespectful attitude toward religion. Media resources, cultural and scientific centers can be widely labeled as "pro-Western," "anti-patriotic," or ideologically harmful. **But it is quite difficult for them to formulate a clear, positive program that unites the majority of society, to outline a clear and comprehensive system of views, to offer a picture of an ideal or at least desirable future. It is even possible that they do not really need it yet.**

This purely defensive, reactive approach leads to the fact that the main instrument of ideological policy is censorship, protection of minds from "dangerous" trends. **This situation does not seem to pose any threat to the constitutional provision on the prohibition of state ideology, since there is no state ideology itself"**[66].

[64] Why Sergey Glazyev was given a second chance as Union State Secretary. Available at: https://dzen.ru/a/aAZC8JmDBXmr3gE_

[65] Can violence, extremism and separatism be defeated without ideology? Available at: https://tsargrad.tv/articles/mozhno-li-pobedit-nasilie-jekstremizm-i-separatizm-bez-ideologii_245164

[66] There is no state ideology yet, but ideological censorship is already in place. Available at: https://www.ng.ru/editorial/2023-06-08/2_8745_red.html

G. Zyuganov (Chairman of the CPRF Central Committee): "**The ruling class does not see itself outside the world system of capitalism. A significant part of it is satisfied with Russia's role as a peripheral "power".** Their position is frankly vicious: to supply the "first world" with raw materials and import finished products, including high-tech products... **The ruling class always subordinates national interests to its own benefit. The Russian oligarchy wants the West to take its interests into account. In the conditions of capitalism, this means the desire to protect its sphere of influence and have privileges in it.** It does not need to change its economic model. The bourgeoisie is not ready to change its internal liberal-market policy either. **Its essence is the enrichment of oligarchs at the expense of the exploitation of the labor force and natural resources of the country..."**[67]

S.A. Markov (political scientist, director general of the Institute for Political Research): "**Does Russia need a new ideology? It is needed, but... our elite is unable to create an ideology**, because one of its characteristics is cynicism. Cynicism contradicts ideology, because ideology is a system of values. That is, **people who spend huge amounts of money on consumer behavior hate any ideology because it limits their behavioral style"**[68].

A. Dugin (philosopher, publicist): "It is quite obvious that we need very serious changes. And here it is not about the course, but about speed and passionarity. It is about honesty and sincerity. **The course is right, and everyone agrees with it. But our elite frankly does not pull it. Even acting in the right direction, following the President, it is barely keeping up, not forgetting about itself along the way and hoping that everything will return to the way it was... The rotation of elites is necessary. The cadres that have been in office since the 1990s, even with all their loyalty, are simply unfit for the profession.** The President has begun to call for a new elite, **but here point steps will do nothing, the element will swallow them up. Something more radical is needed"**[69].

Perhaps that is why the main internal problem of the modern Russian society and state remains unresolved – **the inability and unwillingness of a significant part of the ruling elites to meet the requirements of the time, the tasks of national security and national development.**

Such "black swans" (i.e., "events that initially appear to be rare, difficult to predict, but after the fact often turn out to be quite logical based on the current situation"[70]), as an attempted armed coup carried out by the head of the PMC "Wagner Group" E. Prigozhin on June 24, 2023, corruption in the Ministry of Defense (revealed after the detention of T. Ivanov on April 23, 2024), the Kursk "anomaly" in the form of the activities of the "Development Corporation" (which became known after the detentions that began in December 2024) – all of these are just private manifestations of the problem, but each of them entails not "private" consequences, but consequences of such a scale, which are almost impossible to overestimate: we are talking about lost human lives and the existence of the Russian State.

The solution of the problem of overcoming corruption in the government, which is quite a natural consequence of the worldview and system of values formed in the ruling elites during the period when it was subjected to the aggressive

[67] G. Zyuganov's report "On the work of the CPRF branches on the social protection of workers in the conditions of the special military operation and the system-wide crisis of capitalism" at the plenum of the Central Committee of the Party on April 12, 2025. Available at: https://kprf.ru/party-live/cknews/233519.html

[68] Our elite is incapable of creating an ideology because one of their characteristics is cynicism. Available at: https://www.business-gazeta.ru/article/659313

[69] Dugin A. Russia needs a radical rotation of elites. Available at: https://www.discred.ru/2025/02/22/aleksandr-dugin-rossii-neobhodima-radikalnaya-rotatsiya-elit/

[70] Zuikova A. A "black swan" – what it is and how to prepare for it. Available at: https://trends.rbc.ru/trends/futurology/60be57219a794724c40c369a

influence of Western ideology of liberalism and "consumer society", certainly has a direct connection with the success of Russia in achieving the goals of the special military operation and its beneficial exit from the civilizational crisis as a whole. "Beneficial" – that is, guaranteeing it the possibility of safe sovereign development in the new conditions of a multipolar world in the strategic perspective.

Vladimir Putin: "What we need is not a ceasefire, **we need peace – long-term, lasting, with guarantees for the Russian Federation and its citizens"**[71].

However, without an ideology; without a clear idea of the image of Russia's future, not just cultivated by the State, but shared by the majority of all segments of Russian society, this task is extremely difficult to realize, because one of the main lessons that the era of "liberal fog" taught us is that **there is no such thing as a State without an ideology; if the State does not have its own ideology, something else is bound to take its place.**

"Everyone knows the words, "education does not tolerate emptiness", it will certainly be filled, only the question is by whom and with what"[72].

Especially if we take into account the fact that in the 21st century "managerial wars" and "soft power" with their focus on the "destruction of the culture of the "opponent people" have become a common reality, a new type of warfare that has replaced "hot" hostilities.

"Today, under the conditions of the most brutal hybrid war not only in the military, but, most importantly, in the economic and social spheres, declared by the United States and the Collective West against Russia, **the country is objectively, whether we like it or not, at a fork in the road of choosing the further direction of political and economic movement.**

Either Russia continues its course on the basis of economic liberalization, market fundamentalism, external financial management – **and this is a direct path to disaster and even with the possible subsequent collapse of the Russian Federation**, which is what the Collective West seeks.

Or, based on the theory of development of socio-economic formations, the practice of the USSR and the current socialist-oriented countries, Russia develops further along the renewed socialist path, based on the positive socialist experience of the USSR, China, Vietnam, Cuba and India. Based on the world experience, **the model of socio-economic socialist development based on the state planning-market mechanism** could be the most acceptable for the Russian Federation. Planned-market on a state basis!

Russia needs a state nationwide ideology of renewed socialism, enshrined in the Constitution of the Russian Federation, on the basis of which citizens, especially young people, develop genuine statehood, internationalism, love for the Motherland and pride in its past, patriotism, not a desire to leave it, an ideology that should contribute to rejecting the flawed ideology of the West, including neo-Nazism, the ideology of the liberal fifth column, corrupting the minds and souls of young people.

[71] "Direct Line" with Vladimir Putin on December 19, 2024. Available at: http://www.kremlin.ru/events/president/news/75909

[72] Kireev M., Koreneva E., Kireeva N. (2024). The cultural code of Russia and its evolution. *Nauka, iskusstvo, kultura=Science, Arts, Culture,* 3(43), 22–35.

...Russia's political leadership should finally realize that even if we achieve decisive successes on the military field of the SMO, even if a compromise is found as a result of the negotiation process, the economic war declared by the U.S. and the Collective West against Russia, unfortunately, as foreign experts and specialists persistently say, will be continued and intensified, will be very, very tough. Without socialist ideology, Russia has no future, no chance to resist the powerful economic potential of the West, preserving the old model of oligarchic capitalism, which generates enormous social inequality and division of society"[73].

If we follow the logic proposed by some experts, which is that the civilizational confrontation between the unipolar and multipolar world in the 21st century is a continuation of the confrontation between liberalism and socialism of the 20th century, then the outcome of Russia's development **without ideology, but with the understanding of the need to strengthen national sovereignty**, is as follows – when answering the question "What society would you like to live in?":

1) representatives of all major socio-demographic groups are significantly (almost 2 times) more likely to say that **socialist society is better than capitalist society** (34 vs 19% in the poll as a whole; *Table*);

2) however, the most widespread answers are "in some other" and "I'm unsure" (46%).

Distribution of responses to the question "What society would you like to live in?", %

Indicator	Socialist	Capitalist	In some other; I'm unsure
Gender			
Men	34.4	19.5	46.1
Women	34.2	19.2	46.6
Age			
Under 30	29.2	17.7	53.1
30–55	33.8	18.9	47.4
Over 55	36.7	20.5	42.8
Education			
Secondary and incomplete secondary	33.1	20.1	46.8
Secondary vocational	34.8	17.4	47.9
Higher and incomplete higher	34.9	20.8	44.2
Income group			
Bottom 20%	33.0	18.7	48.3
Middle 60%	34.9	19.0	46.1
Top 20%	38.5	22.0	39.6
Territory			
Vologda	34.1	17.4	48.6
Cherepovets	40.2	22.7	37.1
Districts	31.0	18.5	50.4
Region	**34,3**	**19,3**	**46,4**

Source: data of the VoIRC RAS survey (December 2024).

[73] Voronin Yu. Russia has no future without socialist ideology. Available at: https://argumenti.ru/opinion/2025/03/942344 (Yu. Voronin – Doctor of Sciences (Economics), Professor, deputy chairman of the Council of Ministers of the Tatar ASSR, chairman of the State Planning Committee of the TASSR; first deputy chairman of the Supreme Soviet of the Russian Federation; deputy of the State Duma (second convocation); auditor of the Accounts Chamber of the Russian Federation).

"The confrontation between capitalism and socialism, which was **the main ideological contradiction in the 20th century**, can be regarded *as the* **first stage of the confrontation between Western civilization and a number of non-Western civilizational poles**... Therefore, the civilizational confrontation between supporters of a unipolar world and supporters of a multipolar world is, in a certain sense, *a* **continuation of the confrontation between capitalism and socialism"**[74].

We should note that this survey[75] was held not in the capital, but in one of the most traditional Russian regions – the Vologda Region[76].

Perhaps, these rather contradictory data we obtained in December 2024 most accurately reflect the current state of society and the question that has been repeatedly addressed to the President of the Russian Federation, including by S. Karaganov, who directly asked Vladimir Putin: "***Do we even know what model we are building?***"

"We are doing something – obviously, but it is quite clear that we have not yet decided what we are doing.... I don't think we have a master plan... economists, unfortunately, most of them – I know them, I'm a former economist myself, although there are no former economists, of course – **are stuck in the old model... do we know what model we are building?** *I would say that the ideal model for Russia* **is authoritarian social capitalism, so that it would be clear where we were going. Because we are supposedly going the right way, supposedly we used to go the liberal way – I don't get it..."**[77]

In conclusion, we note that the outcome of the "hot" phase of the "confrontation of civilizations", which we have been observing in recent years and which is getting a little closer together with the beginning of the negotiation processes between Russia and the United States[78], as experts rightly point out, will depend "*not only on the balance of power and interests in the world arena,* ***but also on the***

[74] Volkonsky V.A. (2023). The logic of withstanding between civilizational poles. *Ekonomicheskie i sotsyalnye peremeny: fakty, tendentsii, prognoz=Economic and Social Changes: Facts, Trends, Forecast*, 16(1), p. 41.

[75] The sociological survey was conducted by Vologda Research Center of the Russian Academy of Sciences in November – December 2024 as part of the public opinion monitoring. Monitoring parameters: surveys are conducted 6 times a year in Vologodsky, Cherepovetsky, Babaevsky, Velikoustyugsky, Vozhegodsky, Gryazovetsky, Tarnogsky, Kirillovsky, Nikolsky municipal okrugs and in Sheksninsky Municipal District of the region. Survey method is questionnaire poll based on the place of residence of the respondents. Sample size is 1,500 people aged 18 and over. The selection is targeted and quota-based. Representativeness of the sample is ensured by observing the proportions between the urban and rural populations, the proportions between residents of various types of settlements (rural settlements, small and medium cities), and the gender and age structure of the adult population of the region. Sampling error does not exceed 3%.

[76] According to the 2020 All-Russian Population Census, the Russian population in the Vologda Region is 975,683 people (85.38% of the total population).

[77] Plenary session of the St. Petersburg International Economic Forum on June 7, 2024 (words of S. Karaganov). Available at: http://www.kremlin.ru/events/president/news/74234

[78] February 12, 2025, a telephone conversation took place between President of the Russian Federation V. Putin and President of the United States D. Trump. As a result, the presidents agreed to continue contacts.

February 18, Riyadh (Saudi Arabia) hosted the first (since the beginning of the SMO) meeting of representatives of Russia and the United States on the restoration of bilateral diplomatic relations. The delegation from Russia was represented by Foreign Minister S. Lavrov, Presidential Aide Yu. Ushakov and head of the Russian Direct Investment Fund (RDIF) K. Dmitriev.

March 24, the second negotiations took place. The main topic was the Black Sea grain initiative. Russia was represented by G. Karasin, head of the Federation Council Committee on International Affairs, and S. Beseda, advisor to the FSB Director.

April 2–3 (for the first time since the beginning of the conflict), K. Dmitriev, special representative of the President of Russia for investment and economic cooperation with foreign countries, head of the Russian Direct Investment Fund (RDIF), visited the United States. In an interview, he noted that Russia and the United States had made "three steps forward on a large number of issues", in particular, they had begun "active work on restoring direct flights" (source. Available at: https://www.rbc.ru/rbcfreenews/67eef5039a79473cb4cd8c1f?from=article_body).

April 10, at the next round of negotiations in Istanbul, the issue of the return of seized diplomatic property and the resumption of direct flights was discussed. The Russian Federation was represented by Russian ambassador to the United States A. Darchiev, and Washington – by deputy assistant secretary of state for European and Eurasian affairs S. Coulter.

internal stability of the most important States"[79]. Of course, we are talking about political, economic and military stability... But given the civilizational nature of the crisis that Russia and the whole world are experiencing; and the fact that in 2022 our country is facing this crisis **at two levels at once** – not only at the external level (related to the objective process of forming a multipolar world and the need to find its place in it), but also at the internal level (related to the West's attempts to abolish Russian culture, language and place in history, as well as Russia's own attempt to rethink the epoch of the previous 30 years and return to the roots of its own "cultural code"), **this is, first of all, a question concerning civilizational self-determination and the achievement of cultural sovereignty**.

> **"In the coming decades we will see a new stage when some societies, deprived of passionarity, will perish, while others will form collective and individual forms of responsibility...**
>
> **Russia was one of the first to embark on this search for itself in the future...** Unlike everyone else, we are not limited by resources, technology and passionarity. The coming victory in the war with the West and the ongoing processes of psychohistorical, mental purification create favorable conditions for an evolutionary, social breakthrough. A big victory in the past, a big project in the present and a big goal in the future"[80]

As experts say, "*a country that has forgotten its past and abandoned its traditions will sooner or later perish, disappear"[81], and "cultural sovereignty is the cornerstone of any statehood, which is at the forefront of ideological and information-psychological confrontation and global competitive struggle"[82].*

The system-wide nature of corruption, which has affected a significant part of the ruling elites, is a consequence of the deformation of the "cultural code" of the Russian civilization, which, in turn, was a consequence of the "hidden, veiled intervention against our country" observed for decades before the special military operation.

And, as practice shows, even with all the activity of decisions taken by the authorities aimed at correcting the "cultural code", without ideology, they still remain largely fragmented, non-systemic, reacting to the fact, rather than ahead of time.

In this case, the issue of time is of fundamental importance (which, in fact, reminds us of the decision on Directive 12 "On the Implementation of the Fundamentals of the Ideology of the Belarusian State", which the country "has been working on for more than 20 years", which has been "maturing" for a long time, but was eventually adopted in the Republic of Belarus"[83]). As experts say, "*the world is entering a new era. A dangerous and unpredictable one. Only those countries and politicians who demonstrate the strength of strategic thinking, the strength of principles and willpower will be able to survive it without losses and, moreover, to take a favorable position in the future..."*[84]

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[79] Evstafiev D. Vladimir Putin's "New Yalta": A strategic perspective for Eurasia. Available at: https://eurasia.expert/novaya-yalta-vladimira-putina-strategicheskaya-perspektiva-dlya-evrazii/

[80] Shkolnikov A. Third demographic transition. Available at: https://zavtra.ru/blogs/tretij_demograficheskij_perehod

[81] Hendus G. Cultural sovereignty of Russia. Available at: https://ruskline.ru/analitika/2023/05/02/kulturnyi_suverenitet_rossii

[82] Dzyatkovskaya E.N. (2022). Cultural sovereignty of the country: The role of ecological culture. *Vestnik mezhdunarodnoi akademii nauk (Russian section)*, special issue 1, p. 8.

[83] "It is a self-portrait of society": An analyst from the Belarusian Institute for Strategic Research on Directive 12 and the role of ideology in the life of the State. Available at: https://belta.by/society/view/eto-avtoportret-obschestva-analitik-bisi-o-direktive-12-i-roli-ideologii-v-zhizni-gosudarstva-708206-2025/

[84] A. Chesnakov (head of the Scientific Council of the Center for Political Conjuncture). Time of the strong. Available at: https://actualcomment.ru/vremya-silnykh-2504101152.html

Vladimir Putin, speaking at the Plenary Session of the Future Technologies Forum on February 21, 2025, noted: "***To be successful, we need to play ahead of the curve"***[85]. Perhaps, this can be attributed not only to the development of technologies, but also to any other areas of government activity aimed at addressing the key tasks of national development:

- ✓ working out ideological foundations of the Russian society,
- ✓ overcoming corruption at all levels of government (federal, regional, municipal),
- ✓ changing the elites hindering Russia's further development toward strengthening national sovereignty.

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[85] Vladimir Putin's speech at the plenary session of the Future Technologies Forum on February 21, 2025. Available at: http://www.kremlin.ru/events/president/news/76304

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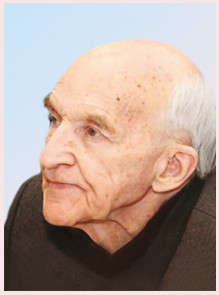
The Epochs of Passionaries and Conservatives and the Image of the Future in Historical Processes



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Abstract. The article considers the problem of structuring history "in time and space", i.e. constructing its schematic picture (or model) in the form of a small number of large communities, differing in types of culture and patterns of development (structuring "in space"), the development of which takes place over long periods that differ in their semantic content (structuring in time). For a long time, the functions of such a model were performed by categories of socio-economic formations and civilizations. In recent decades, the categories of formations have become less and less suitable for reflecting rapidly transforming historical processes, as shown in the paper. To address the task of structuring, we suggest using the socio-psychological type of passionaries introduced into historical science by Lev Gumilev; we also propose to introduce an alternative type of conservatives. L. Gumilev and other researchers used the psychological type of passionaries as a factor in the processes of ethnogenesis. The paper demonstrates the possibility of effectively applying the categories of passionaries and conservatives as drivers of political, ideological, economic and other changes in the social structure and for structuring much shorter periods of society's development. The article examines the socio-psychological phenomenon of society's attitude toward the past and the future – its role in the revival of social life and in the formation of differences in the moral and ideological foundations of Western and Russian civilizations in different historical periods. Its connection with the epochs of domination of passionaries and conservatives is shown.

Key words: socio-psychological types of passionaries and conservatives, epochs of passionaries, epochs of conservatives, changes in the social structure, socio-economic formations, image of the future, image of the past.

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Introduction. The problem of revival of public life

For the social sciences, it is necessary to structure the history of humankind "in time and space", i.e., to build its general schematic picture in the form of a small number of large communities differing in peculiar types of culture and patterns of development (structuring "in space"), which goes through peculiar long-term periods differing in their semantic content (structuring in time). The first step in creating a scientific picture of this kind was the development of categories of socio-economic formations in the theory of Marxism. With regard to structuring "in space", the theory of civilizations by Danilevsky and Toynbee divided humanity into specific communities.

Other features and models of structuring "in time and space" have been proposed in historical science, but the picture (or scheme) of history based on the categories of formations and civilizations has long remained the most convenient and generally accepted. However, in recent decades (or in the last century), the category of formations has become less and less suitable for reflecting historical processes: this is due to the fact that economic factors and problems cease to occupy indisputable first places in the general system of historical development factors. This article reveals the signs of deterioration in the adequacy of the category of formations. It is necessary to search for new principles of structuring history. The article demonstrates the possibilities of using the category of socio-psychological type of passionaries for this, as well as the phenomenon of society's attitude toward images of the Future and the Past.

To demonstrate the significance of the proposed approach, let us start by presenting a specific problem. Now the entire writing world is paying attention to the signs of the onset of a global crisis, which seems inevitable and comprehensive. The expected economic crisis is far from its main part. The geopolitical confrontation between supporters of a unipolar and multipolar world (UPW – MPW) poses a threat of global upheaval and the destruction of the established world order, now it can be called the main contradiction defining the movement of history. The countries are divided into two groups: the countries of Western civilization, where the power center is "charged" with the goal of spreading its societal structure and its position as a hegemon to the entire planet (globalists), and the countries that are ready to resist this pressure, forming a multipolar world. But perhaps more importantly, this geopolitical confrontation is unfolding in the context of the fading spiritual energies of the great communities designated as civilizations.

In the present-day Russia, a serious part of this crisis consists in personnel shortage, more specifically, a shortage of qualified workers in the industrial sector. Young people do not want to get a job at a factory either as a worker or an engineer, preferring (despite lower salaries) the service sector. Working at the factory is accepted exclusively in "clerical and intellectual" positions. We can assume that it is easier to improve one's social status (and income level at the same time) in the service sector and administrative and managerial activities than in industry.

T. Voevodina analyzes the motives for such behavior[1]. The main reason is the rejection of work related to responsibility and discipline, with a daily presence at the enterprise and a regulated working day. A person wants to "be their own master". Comfortable working conditions such as coffee, air conditioning, keyboard, are important. In service sector enterprises, employees spend a very small proportion of their time on actual productive work. Neither the heads of enterprises nor the employees themselves are concerned about this. Analysts and journalists, for instance, Sergey Anureev in his article "The Purge of White Collars"[2], show that managers do not take advantage of opportunities to reduce the number of excessive white-collar workers who "shuffle papers"; and they themselves do not tend to seek promotion at the present time, as a rule.

[1] Voevodina T. (2024). The school of craftsmen. How to form a new industrial class in Russia. *Zavtra*, 31

[2] Anureev S. (2024). The purge of the "white collar workers". Simple methods to increase labor productivity. *Zavtra*, 31.

The lack of citizen activity and incentives that awaken and raise the energy of society is one of the most important Russian problems. In my opinion, when solving it (as well as when solving most other problems related to historical processes), it is necessary to use approaches of social psychology. Such approaches were developed by C.G. Jung, Z. Freud, E. Fromm and other great psychologists, as well as philosophers and historians since O. Spengler, Lev Gumilev and others (Volkonsky, 2002). Their works provide a system of concepts that allow us to begin constructing a new theoretical picture of historical development in time and space, a new classification of periods and civilizational differences. The aim of the work is to show the importance of this area of research in relation to the latest historical processes.

Passionaries and conservatives

At the beginning of the 20th century, as at the present moment, Europe and Russia were facing a crisis. It is more correct to call it a global catastrophe – two world wars, the Great Depression. (Let us hope that the crisis now expected will not become such a disaster). What is the difference between the current run-up to the crisis and the beginning of the 20th century? This is primarily a socio-psychological and spiritual difference. The current global crisis is not only expected, it has already occurred in some areas of human life, in particular, in the spiritual and semantic sphere (Chiesa, 2019). Cultural scientists talk about an "ideological vacuum". The importance of ideological and cultural-psychological factors is often underestimated by representatives of the social sciences. Science requires reliance on clearly defined and verifiable facts and processes. These factors usually do not meet these requirements. Currently, one of the urgent problems both in Russia and in Western countries is the need to increase economic growth. Forecast options are usually developed on the basis of models (essentially behaviorist) based on the strict dependence of the production volumes of many private and public economic organizations on the financial and resource parameters that stimulate their activity. Such models, with the same resource constraints, will produce dramatically different results when applied in an epoch of growth or in an epoch of spiritual decline and recession. In an epoch of growth, there will be a much larger number of people who want to launch their own business, become an entrepreneur, or find a new job – a higher-paying one with career opportunities.

The worldviews underlying the forecasts lack an indicator that characterizes the overall level of social activity. In this article, when studying such issues, we propose to consider it necessary to take into account the psychological state of society, and regularly use concepts whose content relates to psychology, more precisely to social psychology, namely, the concept of passionaries, people of a passionate psychological type, introduced by L. Gumilev. These are people who have a lot of energy and direct it to great things, as a rule, to transform society, who are ready to risk their own lives and the lives of their community in the name of a great goal. The main stimuli for the activity of a passionary individual, as a rule, are "transpersonal" values and meanings, i.e. not individual, personal interests, but spiritual and ideological entities or semantic attitudes related to the life of the community with which the passionary individual identifies themselves (Volkonsky, 2002).

The socio-psychological type of passionary can be illustrated by the movements of nonconformism during the period of perestroika in the USSR and in the 1990s, the emergence of numerous rock groups of a social orientation ("Grazhdanskaya oborona", "Instruktsia po vyzhivaniyu" and many others). Oleg Sudakov's memories[3] of this time are essentially a documentary about passionaries who have the opportunity to fulfill their dreams of freedom: "On December 19, 1993, there was a big concert at Gorky Palace of Culture... About three

[3] Sudakov O. (2024). Conversation with M. Krasnikova "Wide open and forever. About punk rock, nonconformism and the boiling point of water". *Zavtra*, 49.

thousand people gathered in front of the building. The director of the palace of culture, having looked at the whole horde of listeners who had come, refused to let them in. People protested, shouted political slogans, and then riots began: windows in the building were smashed, bottles, cobblestones, and ice floes were thrown at riot police who arrived to handle the situation... As a result, we had a desire to prolong that protest enthusiasm. This is how the musical and political action "Russian Breakthrough" was invented... We wanted the country to be stirred up, so that all real, active, "violent" personalities would be involved in this process. There is a point of concentration that can be compared to boiling water.

L. Gumilev and other researchers used the category of passionaries as one of the factors of the theory of ethnogenesis. This article demonstrates the possibility of effective application of this category as one of the factors in the shorter-term development processes of society. Along with passionaries, it is proposed to use an alternative socio-psychological type – conservatives.

The history of the five centuries of Modern Times shows that the factors and conditions that generate such meanings and incentives that encompass society and last for a long time can be either a capitalist system with a focus on personal enrichment and power, or transpersonal values and meanings, identification with the goals and ideology of society or the largest steadily developing organizations. The most important part of these systems is the socio-psychological idea of goals, the idea of the Future.

The spiritual and ideological foundations of society, including the images of the Future, differ dramatically in countries of different civilizations. The experience of the 1990s – an attempt to turn Russia into a capitalist country on the Western model – shows that such a transformation in Russia leads to the destruction of the socio-economic system and the resistance of all healthy forces of society. The works (Volkonsky, 2024; Volkonsky, 2025) present the concept of confrontation between two civilizations: the countries of the Collective West and the countries of the emerging civilization of the multipolar world. The ideological basis of the former is individualistic liberalism, the latter – ideology of statehood.

As a rule, the conditions of long-term stability of a society began to be perceived by passionaries as "dark times", as the need to change the trajectory of historical development (Balatsky, 2024; Volkonsky, 2025), but they do not always have such an opportunity.

Most of society consists not of passionaries, but people who seek to prevent the dangers associated with drastic changes in the conditions of their lives and society. Their dominant priority is reliability and stability. This part of society should be called conservatives (from Latin conservate – preserve) and it should be paid no less attention than passionaries (Volkonsky, 2002). For them, the image of the Future does not mean the image of desired or necessary changes. Values and indicators characterizing time periods play an important role in the worldview of conservatives. But often this is not the "time of the Future", but the "time of the Past".

Here are some thoughts on the role of passionaries and conservatives in historical processes. The desire to make changes in the existing social structure was noted above as the main feature of a passionary. Moreover, it is necessary to carry out transformations in the near future in order to directly participate in the events. The main feature of conservatives is their commitment to the long-term preservation of the foundation of society (let us call it the framework). There are situations in history when quite radical transformations are necessary for the long-term preservation of the framework. If conservatives dominate during this period and they have power in their hands, their desire to avoid changes, or at least postpone them, often leads to the loss of power by the conservative ruling elite and, possibly, the transfer of power to the counter-elite that consists of passionaries.

Examples are periods of waiting for a crisis: in the United States, the years leading up to the presidential election on November 5, 2024, and in

the USSR, the years leading up to its collapse in 1991. In the United States, during Biden's presidency, the ruling part of the elite (globalists of the Democratic Party, including the press and social media) strongly supports and promotes the "culture of abolition, rejection" – the abolition of traditional values and moral norms: strengthening the position of LGBT people, supporting the "deep church" of Satanists as a tool to eliminate Christianity[4]. Representatives of the ruling elite deny the past in order to pose as passionaries. But the main attitude, and the entire political course of this community, and its real historical task is to preserve and promote the formation of Western global supremacy, which confirms the conservatism of this community.

Trump is a representative of the psychological type of passionaries. He and his supporters see the inevitability of a turning point in world history – a period of changing socio-economic formations that has already begun in other countries. He is convinced of the need for the United States to find a place in a new multipolar world in order to remain one of the leading powers. To "make America great again", it is necessary to change the political course and all priorities: from the priority of international problems to domestic problems, from the reckless outbreak of wars and their step-by-step escalation to the preference for peaceful, at least temporary, conflict resolutions. The loss of power by the conservatives was historically a foregone conclusion.

A similar picture was observed in the USSR. The party-state ruling elite after 1968 was afraid of any serious reforms, preserving and continuing the epoch of conservatives. The attempt to incorporate market elements into the mechanism of economic management (the Kosygin reform) had to be postponed. Dissident and pro-Western sentiments were growing in the country. The West was quite successful in solving its problems and preparing for economic and political attacks on the Soviets (the Reaganomics period). The need to update the governing system and ideology in Russia was obvious. A new attempt to make a reform "from above" turned out to be belated. The socialist formation was defeated by the expansion of the Western formation of global supremacy. The conservative ruling stratum in the USSR lost its power.

The use of categories of passionaries and conservatives allows us to hope for the creation of theoretical concepts capable of explaining such important processes as wars: their emergence, escalation, and end. In 2024, Christopher Blattman's book *Why We Fight* (Blattman, 2024) was published. The book examines many approaches to explaining the causes and processes of the deployment of wars. With regard to the outbreak of serious military conflicts between large countries, the process described in Chapter 3 of Part 1 is closest to the subject of our article. As a result of previous historical events, the ruling social group (or party), an alternative to the official government, is charged with the intention of unleashing war (let us call it a militant group). The radio and the press are at the disposal of this group. A significant part of society (but far from the majority) is "predisposed" to war. Due to propaganda and the desire of local leaders to benefit and raise their public status, after a short time the militant group gains the majority of supporters in society and becomes the official government.

Blattman did not answer a question that has a simple explanation when using the categories of passionaries-conservatives. What distinguishes the militant group? Due to what factors does such a group gain significant power opportunities, is it an accident or a fairly natural phenomenon? Our answer is as follows. A group of militarists are passionaries who have not found or created an ideological basis for using their excessive energy in a peaceful way. In such situations, the passionaries always have a "backup plan" – to launch a war. The described phenomenon is highly probable.

[4] Katasonov V.Yu. (2024). Masks are thrown off. *Pyataya gazeta*, 40.

Taking into account and analyzing socio-psychological factors is becoming especially important now, when the world remains on the verge of a radical danger – the danger of an escalation of inter-civilizational confrontation and the outbreak of a world war. It is among the representatives of passionaries that there are always groups who are ready to risk not only their lives, but also humanity for the sake of a great goal. They may be in those social strata that possess powerful capabilities.

We can conclude that the role of passionaries and conservatives deserves to be taken into account as an independent driving force of history, to be taken into account when shaping a political course and when developing theoretical concepts.

The participation of people of the psychological types under consideration in historical processes has a serious impact on their destinies. Passionary personalities in periods of rapid social change, wars and revolutions take on the first roles in society. In calm times, conservatives as representatives of the majority, fearing that the passionaries will break the established way of life, push them on the sidelines. Of course, reforms are often carried out "from above". Carrying out such reforms undoubtedly requires the energy and will of passionaries. Some of the passionaries find their vocation within the framework of a quietly developing, stationary social structure. But many passionaries do not find a suitable career in government and public structures and often perceive this as a personal tragedy. At such times, many of them use their excess energy to fixate on a particular idea and become creators of new ideologies and new cultural trends.

Russian poet Mikhail Lermontov is a typical representative and brilliant exponent of the fate of passionaries in the conservative epoch:

> Below the mirrored azure brightens,
> Above the golden rays increase –
> But you, wild rover, pray for tempests
> As if in tempests there was peace!
> [translation by Vladimir Nabokov].

Lermontov longs to fight the storm, but there is no storm. And he sees it as a tragedy: "I expect that nothing more goes... I would like to fall asleep forever" [translation by Yevgeny Bonver].

Another example is Nietzsche. He is waiting for people who possess psychological qualities – "the will to grow in strength, the will to power". "What is happiness?", Nietzsche-Zarathustra asks. The answer is "The feeling that power is growing, that some resistance has been overcome". Nietzsche is waiting for the passionaries to come. Nietzscheanism is a call for them to come to the fore: "Don't put up with the current order, push the falling, the weak one!" And the call was heard. The Silver Age of Russian culture, hatred of capitalism, and the anti-capitalist revolution are all, among other reasons, a response to the Nietzschean challenge[5].

And he was waiting for the appearance of such passionaries primarily in Russia: "Willpower is strongest and most amazing in Russia, in the vast middle kingdom, where Europe seems to be returning to Asia. There, the power to want has long been postponed and accumulated. There, the will is waiting in a threatening way to free itself"; "We Germans need unconditional rapprochement with Russia... The British are utilitarians, we cannot allow the establishment of English stencils and the American future, but we should conclude an alliance with Russia"; "There must be a will that awakens an instinct, anti-liberal to the point of brightness – a will for tradition, for authority, for responsibility for centuries, for solidarity of past and future generations. The only country that currently has a future... is Russia"[6].

Nietzsche saw Dostoevsky's Raskolnikov as essentially a psychological portrait of a passionary who, however, could not withstand the weight of his vocation.

[5] Baghdasaryan V. (2024). Indomitable. To the 180th anniversary of Friedrich Nietzsche. *Zavtra*, 41.

[6] Ibidem.

Eras of domination by passionaries or conservatives, and socio-economic formations

When analyzing historical processes, it may be useful to identify periods when passionaries predominate (epochs of passionaries, epochs of change) and when conservatives predominate (epochs of conservatives, epochs of stability). Like socio-economic formations, these epochs may be different in different countries, and in some periods one can say that there is a global dominance of one of the two psychological types.

These epochs usually have different rates of economic growth. Extremely high rates of economic growth (breakthroughs, "economic miracles") often occur within the framework of the conservative epoch, although, as a rule, the conservative epoch is characterized by moderate rates. The epochs of passionaries are usually characterized by high rates of inflation and the activity of financial markets (stock and bond markets), the epochs of conservatives are characterized by relatively low inflation and the passivity of financial markets.

It is important to emphasize that the epoch of the dominance of conservatives is a time of stability of economic, political and other social structures, but the economy of this time is not in stagnation or recession. The pace can be moderate, and in some periods it can be very high. At the same time, in order to overcome economic and political volatility, and to implement their aspirations for stable and effective social development, conservatives often need efforts no less than passionaries for radical changes. Examples include the periods of post-revolutionary dictatorships, when participants in a ruling group seeking to ensure stability and security are required to be resolute and make tremendous efforts in all spheres of life.

Perhaps it would be more appropriate to return to Gumilev's basic definition of passionaries as people endowed with "excessive" energy, and to use the word, for example, innovators for people with a psychological propensity for change. To make the material of the article more understandable and interesting for specialists, we use the term passionaries rather than innovators. The nature of the psyche of passionaries (according to Gumilev) proves that this is the object that has been called a psychological type since the works of Carl Jung. The nature and structure of the individual and collective psyche of innovators and conservatives are less stable, there is no reliable data on the genetic (hereditary) rootedness of the corresponding inclinations. Perhaps it is more appropriate to use the psychological attitude rather than the term psychological type to define them (Jung, 1997).

The use of the psychological type of passionaries has long been included in the arsenal of social sciences. However, the reasons for the emergence of passionaries and the mechanisms of their influence on historical processes have clearly not been studied enough. The most important question is whether the growth of passionary tension should be considered the root cause of historical processes, or, conversely, passionary tension is a consequence of the current historical situation? As already noted, Lev Gumilev considered periods of passionary influence only of very long duration, like the phases of ethnic group development; but according to his theory, the emergence and growth of passionarity in society is determined by natural factors and does not depend on historical processes.

Many experts disagree with this concept, for example (Balatsky, 2022; Ekimova, 2024; Turchin, 2024). P. Turchin believes that the potential for passionarity is always present in the elite. The passionary core of the elite is usually concentrated in the counter-elite and appears on the stage of History during periods of the conflicts of elites. E.V. Balatsky's work presents a step-by-step process of the emergence of passionary tension in society. The "explosion of passionarity" is a response, a "hyperreaction" to a cascade of external challenges as a "release of hidden reserves" of passionarity. We agree with this idea of the causes of the emergence of passionary tension and formulate it as follows: it does not emerge, but manifests itself in certain historical conditions.

Another question concerns the assessment, positive or negative, of the rise of passionary tension, as well as innovative and conservative attitudes. The answer to this question cannot be given regardless of the prevailing historical situation. In modern Russia, many people have the impression that the most important problem in an epoch of stability and stagnation is always ensuring an increase in the proportion of passionaries in society with their excessive energy, creating conditions for the rise of passionary tension. But we must remember that all the "color revolutions" (including Gorbachev's perestroika and Yeltsin's coup of the 1990s) were associated precisely with the growing influence of passionaries and innovators in society with the need for radical change. In the following sections of the article, the situation in modern, Putin's Russia is considered in more detail, in which the ideology of conservatives plays a significant role. However, this is a complex problem in its own right, which we are not ready to give definite answers to.

In my opinion, using the categories of the epoch of change and the epoch of stability can provide a structuring of history that is sufficiently significant and more adequate to its modern course than the framework of formations. Let us illustrate this in more detail. It is possible to "link" the epochs of passionaries to "turbulent" periods of changing socio-economic formations and serious military conflicts, and the epochs of conservatives to quiet periods of peaceful development without serious wars and changes ("fractures") in the fundamentals of social structure.

We should note the simplicity and compactness of the picture of world history offered by the model of formation-civilization synthesis (Volkonsky, 2025). Modern times are characterized by the presence of two mainly independently developing civilizations. One is the countries of Western Europe, which are closely connected and interact with each other, where even before the emergence of the capitalist system, the culture and deep ideology of individualistic liberalism were formed. Another civilization is a group of countries dominated by the value of the State and its organizational structure. A new formation arises and develops first within the framework of the previous one, and the "moment" of the change of formations should be considered a certain landmark event when its dominance in the economic, political, and institutional fields is achieved, as a result of which there is a sharp shift (turning point) in the deep ideology (Volkonsky, 2025) of the majority of the population or at least the elite. Usually, during periods close to such events, social, political, military clashes and other turbulent historical processes occur. We should note that the orders and social structures of the previous formation always persist for a long time after the "moment of change" of formations, so the use of the word "change" is conditional.

The period of the change of "feudalism – capitalism" formations in Europe can be considered the period from the Great French Revolution to the end of the Napoleonic Wars (1815). The idea of the passionary epoch is quite consistent with this. Of course, the spread of the capitalist formation in Europe, as well as the preservation of feudal structures of power and property, took place throughout the 19th century. But the most important process at that time was the powerful economic, institutional, and cultural development within the framework of the capitalist formation. The dominant ideological (and diplomatic) orientation was the prevention of wars and the search for peaceful solutions. It can be considered that the epoch of conservatives lasted until the beginning of the revolutionary events in Russia in 1905. The period of the change of formations of "capitalism – socialism" – from 1905 to the end of the Russian Civil War in 1922. This period includes the First World War, the 1917 Revolution, the Russian Civil War, and other tumultuous events, a typical epoch of passionaries.

How can we determine the semantic essence and dating of the formation that appeared in the civilization of liberalism in response to the expansion of socialism? This formation manifested itself most clearly and meaningfully with the rise

of the Nazis to power in Germany and during the Second World War (the epoch of the passionaries). During the Cold War, a common ideology of the formation (including the ideology of neo-Nazism as an extreme option) was formed – the ideology of Western global supremacy. This term can be accepted as the name of the formation. This ideology includes elements taken from both the ideology of liberalism (the principle of total liberation of the individual) and the ideology of statehood (the covert center of supreme power, the "deep state").

During the Cold War period of 1946–1991, until the destruction of the Soviet Union (the period of confrontation between the formation of Western supremacy and the formation of socialism), conservatives dominated. 1991 can be called the beginning of a short period of undivided dominance of the Western supremacy formation.

We can say that this period ended when Russia announced the beginning of the Special Military Operation (SMO) in 2022, when the emerging political and ideological system of relations between the countries becomes a generally recognized new driving force of history. In the work (Volkonsky, 2025), this emerging system is called a new formation – the formation of a multipolar world (MPW). But is it advisable to view this political and economic system as a new formation, or is it considered that the categories of socio-economic formations are not applicable to the study of a new historical situation? Is it possible to use the categories of "the epochs of passionaries and conservatives"? New theoretical tools are needed to answer these questions.

War is not necessarily a time of passionary dominance if society and the elite are united and stable. But this is the time to identify the passionaries. And the post-war stage is always associated with the change of a significant part of the elite. This change can take place under the control of the State – personnel reform "from above". These considerations make it possible to show the seriousness of warnings about dangers and indicate ways to analyze them.

Are the categories of formations no longer suitable?

With the increasing complexity of the social life of humankind, the formation-civilization model and the concept of formations as applied to specific historical processes lose their simplicity and clarity, as the importance of the historical factors themselves that determine formations weakens. Let us will point out the following processes. A very effective category of formations for the philosophy of history was defined in Marxism as a set of industrial relations that generates a superstructure, in particular, political and ideological relations between States and other communities. The rapid progress of production and technology by historical standards has led to a significant shift of the main drivers and problems of historical development, the driving forces of history from the sphere of material production to the sphere of political and ideological relations, and the shift of priority problems and factors from the field of domestic to the field of international relations and geopolitics.

During the periods of dominance of certain formations, each of them extended to the entire group of countries leading in the corresponding civilization. And it was possible (albeit with reservations) to define "moments of change of formations" as points separating the course of a common historical time. But already in the 20th century, it became problematic to determine such moments: several formations coexist and interact simultaneously over centuries of time. And with the emergence of a multipolar world, new powerful sovereignly developing countries with different traditions and cultures, with different histories, and countries of different civilizations have entered the world stage. And it is now possible to talk about a consistent change of formations only in relation to each country individually.

Another process that leads to a loss of clarity and unambiguity in defining specific formations is the process of convergence of their institutional and ideological content, as well as their mixing. Most of the 20th century was marked by the confrontation (sometimes escalating to hot wars)

between capitalism and socialism. The ideologies of these formations were the ideological expression of significantly different, "divergent" codes of Western and Non-Western civilizations. However, in parallel, there was an ideological and institutional convergence of their social structures (Volkonsky, 2025), especially after the destruction of the Soviet Union. Both the divergence and the convergence were mainly related to domestic issues and factors.

In the developed countries of Europe and America, signs of a convergence between the formations of capitalism and socialism are the recognition of the State's obligation to ensure a minimum necessary standard of living for citizens, the availability of education and healthcare services, the inclusion of the thesis of a Welfare State in the official ideology, etc. In the former countries of the Socialist Commonwealth, this is the widespread use and inclusion of market mechanisms, theses on human rights, etc. in the dominant ideology. Both in ideology and in other spheres of social structure, the rapprochement led to a combination (far from always effective) of elements of capitalism and socialism, Westernism and patriotism. The ideologies of these countries have lost their clear formality.

Important changes have occurred with the concepts of classes and the class structure of society – their adequacy to modern reality and their role in historical processes. In Western countries, the ruling class, which once consisted mainly of capitalists, has radically expanded to include a layer of economic managers and the scientific and technological elite. In socialist countries, the bourgeoisie class practically ceased to exist, so that the class division of society was replaced by the division of society into a stratum of managers and scientific and technological workers (the elite) and the mass of other citizens, including workers, employees and peasants.

Concepts that do not take into account such changes may contain dangerous errors. An example is B.K. Kuchkin's article "Fascization of Russia"[7], where he accuses G.A. Zyuganov and other Communist Party theorists of being nothing less than like-minded and ideological associates of the national socialists. In my opinion, Kuchkin's mistake is that he considers the very attitude toward the "community of the people", toward the creation of a "unified social consciousness" to be a distinctive feature of the fascist ideology, an element that distinguishes it from the ideology of socialism. This difference was relevant when voiced by Georgy Dimitrov in his speech at the 7th Congress of the Comintern (1935). At that time, it was about revolutionary socialism in the countries of Europe where fascization was taking place. But even then, this did not apply to socialism in the USSR. The socialist basis of the Communist Party's ideology is not revolutionary socialism. Indeed, both modern socialism and fascism use the ideological and institutional structures of nationalism and statehood. But they differ radically in goals and values. The goal of fascism (and neo-fascism) and its idea of the unity of society is to assert and preserve the hegemony of the West (it is a product of the formation of global superiority of the West). And the goal of modern socialism is to ensure equality, fraternity, justice and the ideals of a multipolar world.

The considered historical trends lead to the following changes. The internal factors and problems that determine the divergences and confrontations of formations fade into the background, and their influence weakens. The problems of inter-country relations, primarily geopolitical problems, came to the fore. It turns out that a long-term stable confrontation between large groups of countries is determined only by rational-volitional factors and decisions of their power elites? This does not correspond to the much more meaningful definition of the category of formation in theory.

[7] Kuchkin B.K. (2024). Fascization of Russia. *Pyataya gazeta*, 44; see also (Volkonsky, 2025).

The image of the Future in different historical periods

An important socio-psychological factor is the attitude of society toward the future. It has already been noted above that at the beginning of the 20th century, as now, Europe and Russia were experiencing a pre-crisis. But these periods radically differ in the dominant socio-psychological and spiritual atmosphere. An important feature of this difference is the belief in the possibility (and often the inevitability) of a better Future that will follow the upheaval crisis. This belief, or faith, was based on the successes of the industrial revolution, on the development of scientific and production corporations – the basis of future Progress. Back then, all this was developing powerfully, capturing more and more countries and social strata.

But this same powerful scientific and technological Progress is perceived by a part of humanity as a harbinger of the Future, not at all Bright, but Catastrophic. Here is what the great German physicist Max Born writes, who survived (in the UK!) the defeat of German Nazism, in the book My Life: "Although I am in love with science, ... the current political and militaristic horrors, the complete disintegration of ethics ... are a necessary consequence of the growth of science".

To live for the sake of the future, putting aside the values and possibilities of the current moment, to put all your efforts into achieving the Image of the Future that has developed in your system of meanings, if necessary, to risk your life – people with such a state of mind, with such a psychological attitude have always been a significant part of the European peoples. And it is not just passionaries. Conservatives often become heroes for the sake of maintaining a stable order and preventing its loss in the future. Passionaries differ in that their Image of the Future necessarily includes change. In the religions of Christianity and Islam, the image of the Future is the other world. However, in them this Image refers only to the future of each believer individually, and not to the state of society as a whole.

However, in Russia in the period of the late 19th and early 20th century, the aspirations to the future capture the entire society. These are not only the "new people" of M. Gorky – Nil, Shishkin (The Philistines), Pavel Vlasov (Mother) – people who believe that the rule of the "old life" is over, who are ready to defend their right to live in a new way. These are Chekhov's heroes, who can only dream of the future. Here is Olga (one of the Three Sisters): "Our sufferings will turn into joy for those who will live after us, happiness and peace will come on earth".

In Russia, faith in a Bright Future was largely the result of a new socio-economic formation, which was the response of Russian civilization to the challenge of an alien capitalist formation coming from the West (Volkonsky, 2025).

It must be said that the Western attitude toward the Future was often associated with war and the destruction of the old life, the Russian attitude almost always imagines the Future to be bright, happy, and stable (Volkonsky, 2017).

Russians usually have a good idea (if not from school, then from the stories of the older generation) of life in the Soviet Union in the 1930s and 1960s. many people say that the reason for the high semantic significance of the Future among the population of the USSR is the fact that the determination to build a future communist society was a central part of the state ideology. But back then, confidence in the constant improvement of life was not only a part of the communist worldview, but simply an unquestionable reality. Not everyone knows that at the beginning of the 20th century, the semantic attitude toward the Future was also typical for the worldview of Western countries. Here is a quote from F.T. Marinetti's Manifesto of Futurism (1909): "We are standing on the edge of centuries! Why should we look back, when what we want is to break down the mysterious doors of the Impossible?"

The expectation of "explosive" socio-economic development was then typical for a large proportion of the population of the United States and the capitalist countries of Europe. This aspect of

the development of the USA and Europe in the 1930s and 1950s is perfectly shown in Maksim Kalashnikov's articles. We would like to specifically mention his excellent description of the 1939 New York World's Fair "The World of Tomorrow" (Kalashnikov, 2023), which reflects the general mood at that time, the belief in "explosive" scientific, technological and economic growth.

Although the post-war decades were not a period of high prosperity for Russians, most of those generations invariably recall those decades (and even the pre-war 1930s, recalled by those who were not affected by repression) as a bright epoch; the poet D. Samoilov writes about it in the collection "Days": "We have not forgotten these days, we are burning with the fire of those days in which we lived the coming day".

Images of the Future and the Past as a tool for structuring historical processes

Currently, the spiritual vacuum has left no trace of the universal aspiration for a Bright Future, which was described above. At the same time, it is obvious that faith in one or another Image of the Future undoubtedly plays an important role in solving the problem of revitalizing society. In this section, we will briefly describe the role that Images of the Future and the Past play in the difference between the codes of Western and Russian civilizations.

The idea of the Future as a constant improvement in living conditions began to assert itself in Western countries in connection with the development of capitalism. Adam Smith explains the reasons for the unprecedented process in history – the constant growth of the economy. Value is created by labor (meaning entrepreneurial activity) rather than land, as was the case in medieval societies. The land and the crops harvested from it are limited. But under capitalism, industry began to develop. Its development is unlimited due to the development of technology, updating the product structure, localization, etc. The idea of endless accumulation of wealth and unlimited Progress arises, which becomes the most important postulate of the ideology of capitalism. With the development of the capitalist system, the importance of the economic and political-ideological spheres of life is changing. Economic problems and indicators come to the fore, become targeted, while political ones turn out to be secondary, becoming the means to achieve them and solve problems.

The belief in the inevitability of a Better Future is in itself an important driving force that increases social activism. When the deep-seated shortcomings of the capitalist system accumulate and the ideology of the socialist formation begins to develop, one of its main tenets becomes the postulate of unlimited economic and technological progress. And the Image of a Bright Future occupies one of the first places in it.

Traditional societies (in particular, feudal societies) are societies based on religion and traditional social structure. The preservation of traditions and their sacralization are supported, in particular, by the dominance of agricultural production, its dependence on the ever-recurring change of seasons, which determines the need for stability of the way of life. Therefore, traditional societies are opposed to the innovations of Modernity, and ideologists and figures of the Modern Times have to fight against traditions and their defenders. A.G. Dugin formulates the result of these processes in a generalized form: "Modernity is the negation of Tradition" (Dugin, 2020, p. 151). In other words, it is not just a belief in the Future, it is a denial of the Past.

For a Westerner of the Modern Times, there is only the Future, the purpose of his/her activity. The past can only be an obstacle on the way to the goal. The path traveled, as soon as it is passed and has become the past, loses its meaning and value. For a person of a traditional society (Pre-modern), the future is only imagination, dreams, and the past is the actual reality, without which humanity would remain only a creation of imagination, emptiness. The whole significance and value, the whole reality of Humanity, lies in the path traveled, in the heights reached, in the discovered, constructed, created treasures, in the realized goals. And these values, this built-up world, are eternal.

The constant updating of economic and technological living conditions creates an atmosphere of priority value of innovation in all spheres of life; the future is identified with the new. The general attitudes of Modernity create priority conditions for passionaries. Meanwhile, the inevitable uncertainty of the Future is a serious disadvantage of focusing on the Future and rejecting reliance on the Past. This strengthens the position of conservatives, defenders of the stability of the social order and traditional values. The image of the Future is bifurcated into a Future for passionaries and a Future for conservatives. This creates the potential for a split in society.

In recent decades, the socio-psychological phenomenon of attitudes toward the Future and the Past has turned out to be one of the key characteristics of the modern period of development of the Collective West and its civilizational difference from most countries of the rest of the world. The "deep state" of the United States and the extreme part of its elite, relying on a number of minorities, hoping to activate society at the expense of their energy. A whole "cancel culture" has been created, the abolition of all traditional values and moral norms related to the past as outdated (for example, the LGBT ideology and the entire transgender orgy). As the former US Vice President Kamala Harris said: "What can be, unburdened by what has been".

In the United States, the result of such an ideology and policy was not the economic breakthrough that ideologists had hoped for, but a political and ideological split between the elite and the entire society. Currently, the two parts of the elite have different visions of the near future. Donald Trump's supporters are hoping for his stated policy of shifting attention to internal problems, of which the United States has accumulated a lot. By solving these problems, it is expected to overcome the slow but steady process of the country's loss of its global hegemony. Another part of the ruling elite, the globalists– categorically rejects a change in the political course that requires maintaining by any means (including military and terrorist means), or rather the return of geopolitical control over the world achieved by victory in the Cold War.

In the countries of the East in the conditions of a multipolar world, social structures are diverse. They are not subject to the homogenizing influence of the Center. The leading countries, Russia and China, have gone through an epoch of striving for change with the transfer of meanings to the Future and the split of society during the period of the change from capitalism to socialism. The modern confrontation with Western globalism requires the creation of an ideology that stably opposes its expansion. The answer is to increase the importance of tradition and history. In other words, the Past is becoming a weapon of the countries of the East.

By creating a great multi-ethnic State, Russian civilization has demonstrated a rare example of peaceful coexistence and cooperation between ethnic groups with different cultures professing different religions, beliefs and cults. It is a rare and valuable achievement of Russian civilization that, having embraced and creatively developing the opportunities opened up by Western Modernity, it has preserved in its original integrity and values the best systems and qualities of spirituality of past times (for example, the phenomenon of Christianity undistorted by Protestantism). Western civilization cultivates those qualities of the psyche that give strength and the ability to overcome resistance, while Russian civilization cultivates those qualities that give an attitude and the ability to understand people of another culture, achieve harmony and cooperation without violence, and the need to coordinate and combine new meanings with old ones. One of the reasons for the destruction of the socialist State of the USSR was the determination to "abolish the Past" that contradicted the code of Russian civilization.

The period of Putin's Russia is characterized by the restoration of this ability of Russia, a deep and official process of gradual integration of the Past, its best moments, with a focus on the Future. The value of history is included in ideology, and right-wing conservative values are becoming increasingly

important. This is not a "return of the Past", but its attraction and fusion with the Present and the Future. This is the process of creating a single space "Past – Present – Future", or "Eternal Development".

Hopefully, this process will provide a historically effective solution to the problem of "passionaries in the epoch of conservatives".

The problem of economic breakthrough in modern Russia

Knowledge about the influence of psychological types on society would be very valuable for Russia now. The social structure of modern Putin's Russia is probably best defined in the book (Sergeitsev et al., 2020) as a "people's State". Its main defining features are:

– people's trust in the State and the State's trust in the people;

– mass participation of the people in the work of the State, rejection of any class structure.

The most important feature of Putin's political course is the commitment to stability, minimizing the risks of division, disintegration of the unity of society and the State, and comprehensive support for the most peaceful and politically stable historical process of our time – a multipolar world. This is a typical conservative epoch. The anti-Putin opposition consists not only of supporters of Western liberalism, but also includes patriots, whose attitude is the need to move to high rates of economic growth. Some of them are those who consider the current system of Russia to be capitalism, from which the main troubles and threats originate, including the danger of its fascization. Pyataya gazeta newspaper[8] (on the role of capitalism) is often the exponent of this ideology. The articles of B.K. Kuchkin have already been mentioned above. Their main ideology is revolutionary socialism. And here is an article[9] that "exposes" the Kazan Declaration of the 16th BRICS Summit as a "subproject" for projects of globalization and "sustainable development" promoted by Western curators. These are examples of "passionaries in the epoch of conservatives".

There are examples of "passionaries in the epoch of conservatives" who have not only found their place, but also have a profound positive impact on the development of the country. We will talk about periods of extremely high growth rates, economic breakthroughs ("economic miracles"). Such breakthroughs usually occur when there are no external or internal threats to the destruction of the unity of society and the stability of the State, i.e. in the epoch of the dominance of conservatives. But P. Turchin (Turchin, 2024) and E. Balatsky (Balatsky, 2023) shows that rapid economic growth itself usually disrupts the balance in many sectors of life and may pose a danger of disintegration of elites unity. It is unlikely that cautious conservatives become initiators of economic breakthroughs. Most likely, these are the passionaries who managed to convince the conservatives, overcome their resistance and found their vocation in the great cause of economic and technological transformation of the country.

Currently, a significant part of the patriotic elite is convinced of the possibility and necessity of high rates of economic breakthrough for the Russian economy now and in the near future[10]. S.Yu. Glazyev developed a concept of outstripping development that allows increasing growth rates in a mixed market-state economy (Glazyev, 2021). Its key idea is as follows. The State, through planning mechanisms or targeted, project financing and lending, ensures the development (and growth) of the sector of reproduction of productive forces more intensively, with faster growth rates than the "market" rates of consumer demand. Priority is given to the development of production and technological complexes of a new technological paradigm. The outstripping growth in the number of workers in this sector and their incomes

[8] Rashin I.Ya. (2024). On the practice of fascism. *Pyataya gazeta*, 45.

[9] RIA "Katusha" (2024). On the agenda of globalists. *Pyataya gazeta*, 45.

[10] Glazyev S.Yu. (2024). Rise. On the paradigm of Russia's outstripping development. *Zavtra*, 38.

leads to an increase in the growth rate of general consumer demand, followed by food and light industries, utilities and transport services. This is how the Soviet economy developed, outstripping the possibilities of reproduction compared to the growth in demand, demonstrating the world's first economic miracle. Such ideas of the passionary elite and their development are undoubtedly an important component of the success of a political course that integrates the objectives of sustainability and good economic growth. Right now, Russia has enough resources for an economic breakthrough. Perhaps the main issue is the shortage of passionaries. Perhaps the gradual intensification of economic and technological development will lead to the emergence of an increasing number of passionaries.

So far, the problem of the influence of conservatives and passionaries, the connection of their dynamics with political, economic, and ideological processes remains unexplored. The question regarding what determines the change of the epochs of "conservatives – passionaries" and "passionaries – conservatives" remains important both for the theory and for the formation of public policy. The conservative epoch continues. Is the transition to the dominance of passionaries the result of the accumulation of economic, political, scientific and technological factors and contradictions, leading to a cascade of rapid changes in the social structure, which opens up a field of activity for passionaries? Or is the most important reason the increase in numbers, the accumulation of energy, the ideas of rebuilding society in the very social stratum of passionaries?

A modern turning point in the historical trajectory

In Western countries, such a turning point is expected by many political scientists and journalists as a deep crisis (sometimes even as a catastrophe) associated with the Trump presidency in the United States, and in Europe with the possible rise to power of the "right-wing". While the West is still expecting a turning point, in Russia the nature of Putin's rule, especially after the beginning of the SMO, proves beyond doubt that a turning point has occurred. Russia is demonstrating the end of Western hegemony; it has become one of the leading poles in the multipolar world. A similar transformation took place in China even earlier: during the Deng Xiaoping period, and even more convincingly during the Xi Jinping period. In this section, we will try to dispense with the categories of formation and use psychological types and images of the Future and the Past.

There are few radical transformations taking place in the state-political, socio-economic, and institutional structures of Western countries, so we can assume that the epoch of conservatives is still going on there. However, in the United States, the period following the presidential election on November 5, 2024 and D. Trump's victory in it may become the epoch of passionaries. Simon Hunt, an industry expert, gives a vivid description of the global situation expected after the election in an interview (titled "Before the Storm"[11]) a few weeks before November 5. He shows how Iran, China, and large US corporations are preparing for a possible big war, not wanting it and fearing risky steps.

For 30 years, the United States has pursued a policy of preserving the ideology and the entire formation of Western superiority (this is a necessary condition for the unity of the elite and the unity of the people). This is a policy aimed at fragmenting Russia, controlling China's economy, using Israel as a springboard in the Middle East, etc. But in recent decades, this policy has led to an obvious, gradual but steady loss of this superiority, in other words, to a loss in the confrontation between Western civilization (with a view to a unipolar world) and the East (with a view to a multipolar world).

D. Trump's assuming office as president means the destruction of the entire ideological structure that has been built for decades by Democrats and Neocons in conjunction with the "deep state". But more importantly, the mass of participants in the

[11] Hunt S. (2024). Before the storm. On the possible financial strategy of BRICS and more. Interview with the magazine "Soar Financially". *Zavtra*, 43.

created structure will surely lose their seats. Many observers predict, if not a civil war, then "serious civil unrest" We must expect the beginning of the passionary epoch. Of course, it is not yet known how much of Trump's statements he will be able to put into practice. But here are the goals that emerge based on his statements and intended appointments[12]. For example, Trump promises to impose universal duties of 10–20% on all imports and up to 60% on all Chinese goods. Another area of Trump's reforms should be the protection of the country from illegal immigration. This is the construction of a wall along the southern border of the United States and the expulsion of illegal migrants (if necessary, even with the involvement of the army). He is also going to ask the US Congress to lift "environmental" restrictions on energy development. Trump will demand drastic spending cuts from US foreign policy and from their participation in all external conflicts. In general, Trump's intentions are aimed at reorienting the entire political course from the tasks of ensuring US global hegemony to domestic tasks. For this, he is ready for confrontation with the all-powerful "deep state" and its "cleansing".

In the information and ideological space of Western Europe in 2024, a pair of categories "left" and "right" became more active and widely used. The difference in ideas about the future plays a crucial role in the political movements of the left and the right and in the understanding of these categories. Usually, political movements based on the value of national cultures and defending the established customary class structure of society were considered right-wing, while ideas and movements aimed at reducing economic inequality, limiting the power of the oligarchy, and generally fighting for socialist values were considered left-wing. Extreme variants of right-wing and left-wing movements are Nazism and communism.

[12] A selection of such statements was made by British political scientist David Charter in *The Time*s (see: Charter D. (2024). Trump is on the White House doorstep. What should America and the whole world wait for? *Sovetskaya Rossiya*, 125).

Since the Great French Revolution, the concepts of "left" and "right" have been used in the struggle between the emerging capitalist social order and feudal-monarchical regimes. The "leftists" have become entrenched as supporters of change and the elevation of the value of the future, while the "rightists" are committed to preserving the established order and values of the past. Individualistic liberalism, the main ideological weapon in the process of building the capitalist system, has become the most important symbol of the left. In the 19th and 20th century, the dominant contradiction of the historical process was the class struggle. Leftists were called fighters for the interests of the lower classes, for their liberation from the rule of the bourgeoisie. By the beginning of the 20th century, the ideology of socialism had taken shape, and the left became its main carrier, while adherents of national culture, the established class structure and the State were considered right-wing.

At the same time, the capitalist system has successfully developed on the basis of technological progress. This system was heading for a "revolution of managers" and it did not need the symbols of the Past. In both socialist and capitalist countries, the expectation of a Better Future prevailed. The juxtaposition of time, Past and Future, has receded into the background. The categories left and right were rarely used. In the minds and cultures of most countries, the left-wing political trend has remained associated with the struggle for the interests of the lower classes against the rule of the bourgeois oligarchy and for the expansion of individual rights and freedoms.

In mid-2024, anti-globalist parties such as Marine Le Pen's National Union, the Alternative for Germany, and the Freedom Party of Austria, which advocate national sovereignty, unexpectedly performed well in the elections to the European Parliament, and then to the parliaments of France, Saxony, and Thuringia in Germany and Austria. Globalists began to use the categories of "left – right" as a weapon to combat this danger. The globalists, the "fighting group" of the financial

oligarchy, have appropriated the name "leftists", leaving in this category only liberal liberation meanings and, as a rule, not mentioning the attitude toward the struggle of the lower classes against the bourgeoisie. They call successful nationalist parties "ultra-right" in order to link them with the threat of a resurgence of fascism. Although the globalists' support for Ukrainian and other neo-Nazis brings them closer to the fascist ideology. In the Western media, the accusation of right-wing conservatism has become almost an expletive. This is how Hungarian Prime Minister Viktor Orbán is "called". Cooperation with European or American right-wingers in elite circles is considered "indecent"[13].

The concepts of "left" and "right" in politics have lost the stability of their meanings, clearly not suitable for theoretical analysis. The concepts of passionaries and conservatives that are close to them turn out to be more reliable. This is understood and taken into account by Sahra Wagenknecht, whose party (the Sahra Wagenknecht Alliance) pursues a leftist policy in the conventional sense of the term and opposes the expansion of American hegemony. She offers Germans "left-wing conservatism" – a hybrid of an economy with fair income redistribution and traditional social policy (described in detail in an article by British political scientist Fraser Myers in the publication Spiked, Russian translation)[14].

Of course, the revival of the "left – right" categories is not the main sign or symptom of a historical turning point in Western Europe. Such a symptom of its brewing can be considered the very entry of new political and ideological forces onto the historical scene. But more important is the state of the spiritual and ideological vacuum, which was mentioned at the beginning of the paper. It can be illustrated with the help of socio-psychological categories. As it was noted, now in the countries of the Collective West the entire spiritual and ideological structure is based on the Image of the Future and the "culture of the abolition of the Past". That is why the lack of new "inclusive" ideas is so painful for them and opens up a field of action for passionaries. For Russian society, the lack of new ideas is not so painful at all, since the value sense of Eternal Development plays an important role in Russian civilization.

The categories "the epoch of passionaries" and "the epoch of conservatives", "Images of the Future and the Past", probably will not be able to replace the framework of socio-economic formations, but they can serve as a good additional theoretical construct clarifying important and relevant problems.

Conclusion

The paper shows the recent decline in the adequacy of the Marxist tools of socio-economic formations. The results of the work can be considered a demonstration on the basis of historical processes of the need for regular consideration of social psychology factors in scientific research and in the formation of public policy, namely the psychological types of passionaries and conservatives, as well as the phenomenon of society's attitude toward the future and the past. The use of the category of psychological types makes it possible to give a meaningful division of historical time into the epochs of the dominance of passionaries and the dominance of conservatives. The use of the phenomenon of the image of the Future characterizes the transition from traditional societies to societies of the Modern Times.

These psychological factors characterize the division of society based on them, primarily the elite, and have a serious impact on the relationship between the divided parts. This has a serious impact on other social processes. In other words, we must consider the role of these psychological factors as an independent driving force of history. It is proposed to use the division of historical time into the epochs of the dominance of passionaries and the epochs of the dominance of conservatives. This makes it possible to assess the mistakes of the ruling elites

[13] Tetekin V. (2024) And the Left will become the Right. On the substitution of concepts on the example of American elections. *Zavtra*, 36.

[14] Myers F. (2024). The rise of "left conservatism". *Sovetskaya Rossiya*, 98.

and state authorities associated with the inability to identify the moments of change of these epochs and take measures to account for them. For this purpose, we provide historical examples.

The paper considers the important task for modern Russia of constructive use of the energy of passionaries in the epoch of conservatives to enhance economic and technological development, as well as the use of the image of the Past in shaping the ideology of conservatives in the period of universal orientation toward the Future.

We would like to end the paper by confirming a well-known but often forgotten thesis: the development of history, economics and other social sciences is directly related to advances in scientific psychology.

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Socio-Political Stability of Russian Society as a Criterion of the Legitimacy of the State

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Abstract. The paper uses the database of the all-Russian sociological monitoring "How are you, Russia?" to analyze the dynamics of socio-political stability of Russian society as a criterion and indicator of the legitimacy publicly expressed by citizens to the State, creating conditions for decent life in the present and future. By analyzing theoretical foundations of stability, we show the dialectical nature of socio-political stability, its predetermination by the nature of the social structure, distributive relations and the implementation of the principles of social justice in society. Based on the analysis of empirical information, we show the alienation of the majority of Russian citizens from the neoliberal government model, an expressed preference for choosing a socially oriented type of government, which leads to the people's demand for administrative socio-political management. The dynamics of satisfaction with the political system, the assessment by the population of the State's fulfillment of social, including constitutional guarantees, prove a high degree of stability of Russian society; however, this stability is based on only four factors: ethno-territorial; defense (trust in the Army); complete trust in the RF President (Vladimir Putin); social support of the population by the State, provided for in the Constitution. The factor analysis reveals the importance of various groups of contradictions in Russian society (economic, ethno-religious, class-related) that affect socio-political stability. We identify the sustainability risk zones associated with a low level of institutional trust in most government institutions and civil society structures. Based on the findings of the study, we put forward recommendations to strengthen the socio-political stability of Russian society and the State.

Key words: socio-political stability of society, legitimacy of the State, social contradictions, trust in government institutions, constitutional guarantees, Welfare State.

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Introduction

Issues related to the possibilities of political legitimation are constantly faced by researchers due to the fact that political elites in different countries are experiencing a lack of political legitimacy today, regardless of the forms of government, the practice of political communication and the level of civil society development (Hinsch, 2010; Callaghan, 2022; Mikhailova, 2023). The need for additional mechanisms of legitimation among government institutions increases in transitional evolutionary and crisis moments, when it is important to maintain manageability and socio-political stability.

In this case, public legitimacy is the most important indicator of the stability and effectiveness of the political system. The foundation of the legitimacy of the state is based on the conviction of citizens that their well-being depends on maintaining the existing order in society, when the state expresses the interests of citizens, and the government secures the order not only using coercive measures, but also ensuring political participation of the population. In the postmodern era, scientists increasingly face issues related to the manipulative nature of modern legitimation practices (Omelchenko, Gasratova, 2015, p. 38; Saccà, Velikaya, 2024), when a person "only periodically 'approaches' the power-political order using such procedures as elections, referendums, and opinion polls" (Martianov, 2009, p. 83).

At the same time, research on legitimacy has shifted in recent years from describing the axiological-normative foundations of legitimacy that define political identity to studying the frames of political communication, including on the basis of the evolution of the discourse "inclusion – exclusion" of violence and its transformation into the discourse of political legitimation as a distinction between "legitimate" and "illegitimate" coercion, the symbolic derivative of which is political legitimacy itself (Zavershinskiy, 2016, p. 6). In other words, the state, having a monopoly on legality, in the conditions of a democratic form of government does not force its decisions into public opinion, but, on the contrary, tries to integrate the opinion of society into its decisions, which ensures the effective implementation of its policies (Beshe-Golovko, 2011, p. 135). In general, most researchers agree with the position of J. Habermas, who considers the legitimation of government as the integration of a society, the majority of which supports the values and norms proclaimed by the government "in order to settle these claims, i.e. to show why existing institutions are worthy and competent to exercise legitimate authority in such a way that the values fundamental to the identity of society are realized" (Habermas, 2010, p. 183).

The authors consider legitimacy as the result of stable development of society and the state, the content of which is determined by a wide range of social and political factors (Levashov, Velikaya, 2021). The weight and significance of these factors vary in different historical periods, which can be assessed based on the results of monitoring studies.

The empirical base of the paper is data from the all-Russian sociological monitoring "How are you, Russia?" (Levashov et al., 2024) conducted by the Institute of Socio-Political Research of the Federal Center of Theoretical and Applied Sociology of RAS (ISPR FCTAS RAS)[1], which allows analyzing the dynamics of indicators relevant to the legitimacy of the state: trust in political institutions and political leaders, respect and obedience to the law, a shared system of values accepted by the majority and value-based worldviews, the existence of a consensus between the government and society on significant political and economic goals.

The theoretical concept of the sociological analysis of the stability of society

Consolidation is more often used to characterize the political life of a society than stability, although the latter is broader in content and more accurately reflects the dialectical nature of the structural and functional model of society. The stability concept is used to characterize not "perfection", but the balance of social relations, taking into account their objective permanent inconsistency, the predictability of the evolutionary trend of contradictions and the compromise form of their resolution. Consolidation of society is the cohesion of citizens of the state based on the identity of values (Rutkevich, 2001; Levashov, 2003; Cohen, Arato, 2004; Sacc , Velikaya, 2024). In political research, the stability of a political system is defined as the ability to maintain its development in a given line (a planned trajectory) and stay in a given functioning mode, despite the impact of disturbances (Grishin, 2015), which is ensured by the ability of the government to make decisions and implement them without resorting to open violence (Varlamova, 2015).

In this research, the stability of the political system in the sociological aspect is considered as a conflict-free variability of socio-economic conditions of society, equivalent to the natural dynamics of the social and professional structure and distributive relations corresponding to the

[1] The sociological monitoring "How are you, Russia?" (Scientific Supervisor – Doctor of Sciences (Sociology) V.K. Levashov) has been conducted by ISPR FCTAS RAS since 1992. The research is based on the all-Russian quota proportional sample which takes into account the following components of the population: gender, age, education, place of residence. The territorial distribution of the sample is based on the economic and geographical zoning (the proportions of the population and the proportions between the urban and rural populations are observed). In different years the sample size ranged from 1,312 to 1,866 respondents; the 2024 field stage was conducted from March 23 to April 08, 2024 in 22 Russian regions. (N=1,700).

expectations of citizens, their perception of these relations as socially just. Unlike affective-mental consolidation (Popov, 2004), the dialectical stability of society allows for political pluralism in norms mediated by individual interests, and consensus in defining criteria for socially just distributive relations.

The dialectical inconsistency of the stability content of a particular structural and functional model of the state, both market-based and predominantly socially oriented, can be analyzed using practical and epistemological approaches. In terms of the practical component, the stability of the structural and functional model of the state is necessary for the accumulation of the economic and intellectual potential of society. However, dialectics presupposes the presence of two contradictory components which, in a multidirectional interaction, permanently generate the process of social development.

Scientifically, it would be incorrect to absolutize the stability of the political system, since the methods of political management in ensuring it can be oppositely disposed: either democracy, theocracy, or dictatorship. The authors consider the concept of stability, on the one hand, as a socio-economic community association into a social institution of a democratic state, organically incorporating social contradictions regulated by the state using political and economic methods to find a compromise. Institutional (Kushnir, 2023, pp. 134–140) and political (Teplyakov, 2010, pp. 239–241) aspects of regulating the balance of society and, accordingly, the state, are considered as methods that, as evidenced by social revolutions, are not always sufficient to ensure the stability of society.

In everyday consciousness, the understanding of the stability of the social organization of people is based on the concept of social justice of the distribution principles. The importance of such masses' perception of their attitude toward the state as an indicator of its stability is much higher than the quantitative criteria of the economic component of distributive relations. An example of this is the long-term stability of the political organization of a Soviet society with a highly differentiated ethnic and confessional composition. From this perspective, the interpretation of the concept "state stability" may sound like the correspondence of political governance to the objective laws of social development and the understanding of the justice of the existing political order. This is how Aristotle understood it, considering the core of the balance of city states to be the observance of the principle of social justice (Aristotle, 1983, p. 603). According to Aristotle, this concept is closely related to the government policy of creating conditions for the increase in the share of the "middle stratum" in the total city state population: "... the welfare of the state is that its citizens possess medium but sufficient property; and in cases where some people own too much, while others have nothing, either extreme democracy, or oligarchy... or tyranny arises..." (Aristotle, 1983, p. 508)[2].

On the occasion of classical capitalist states, the constitution became a codified form of stability of the political organization of society as a set of basic principles and regulatory laws for the voluntary association of citizens into a state of market relations. It is generally accepted that, politically, the constitution is a tool limiting state power and guaranteeing individual rights. Even if a law contains only institutional norms of codified law, without taking into account various interests of a citizen who is aware of the obligation to comply with prescribed legal norms, the person will still subjectively perceive these norms as securing his or her rights or in a broader aspect – ensuring social justice. However, the state cannot be right or wrong, good or bad for absolutely everyone, once and forever. Therefore, the question should be formulated as follows: does the state ensure the stability of society in these historical, political,

[2] It is reasonable to assume that by "extreme democracy" Aristotle meant "anarchy". The principle formulated by Aristotle is a prototype of the concept of the middle class, which is the core of the modern ideology of developed capitalist countries.

economic and social contexts? If it does not, then there is a risk of social conflicts. If it does, then the issue of reproduction and maintenance of stability is resolved and society becomes stable within the structural and functional model that this state represents.

The classics of sociology also drew attention to the connection between the stability of society and legitimacy. In particular, D. Easton understood legitimacy precisely in this way – as an ability of the political system to cope with the issues of ensuring the stability of the system (Easton, 2000, pp. 319–321). The role of legitimacy in the process of maintaining the stability of the system was emphasized by M. Lipset, who considers political legitimacy as "the quality of a political system, as its ability to maintain the belief of the population and social groups in existing political institutions as best corresponding to the society" (Lipset, 2012, p. 42). The approach proposed by the authors to the research of legitimacy is based on an understanding of state legitimacy as the result of conscious scientific support of the dialectical process of stable socio-political development of relations between subjects and institutions of society and the state in the interests of citizens in the present and future (Levashov, 2023; Berezina et al., 2024, pp. 4–6).

Citizens delegate the right to choose methods and tools regulating the socio-political balance of relations in society, creating conditions for the profitable functioning of the economy to their representatives in government structures, while citizens deal with their "cares" without burdening themselves with the bureaucrats' work that is paid by their taxes. Therefore, there should be indicators for monitoring the effectiveness of government acting on behalf of, in the interests of, and at the expense of citizens.

There is a concept of the state and government, but there are no "substances" of them – neither the state nor the government. The state is the people, and the government is the socio-political status of some of the people in the context of democracy. It is no coincidence that the modern stage of society development, determined by the influence of globalization and digitalization, has changed the configuration of civil society, which is losing its ideological interpretation "in terms of the market and proprietary individualism" (Lane, 2012, p. 99) and becomes an environment providing self-sustained dynamics, in which various informal networks of solidarity with various forms of support and mutually beneficial associations are intertwined. At the same time, the social roles of various population groups are differentiated by the social division of labor and its derivative, the principle of surplus product distribution. This principle changes in accordance with the growth of productivity of social labor and, consequently, the amount of the surplus product. For example, in a monarchical feudal state, the main part of the surplus product is expropriated, mainly in natural or in a mixed, natural-monetary form. With the introduction of private property as an inalienable right, a part of the surplus product is expropriated in monetary form as a "citizen tax" according to a unified principle and proportionally, which creates the illusion of social justice among citizens. This process is objective and contributes to the stability of a market state as a socio-political entity, as it harmonizes the contradictions between rural and urban areas, between intellectual and physical labor, between employees of civilian production enterprises and employees of defense enterprises and, in general, between the producing and dependent parts of the population.

A significant social contradiction between the population and the government as a political representative of the state is the contradiction between citizens and the bureaucracy, as mentioned by A. Tocqueville, analyzing the practice of democracy at the initial stage of the formation of the United States as a democratic state: "In aristocratic governments the individuals who are placed at the head of affairs are rich men, who are solely desirous of power. In democracies statesmen

are poor, and they have their fortunes to make[3]. The consequence is that in aristocratic States the rulers are rarely accessible to corruption, and have very little craving for money; whilst the reverse is the case in democratic nations" (Tocqueville, 1992, p. 177).

Sociologically, the importance of the social division of labor as the natural basis of people's cooperative aspirations was emphasized by E. Durkheim: "... the division of labor is the main, if not the only, source of social solidarity" (Durkheim, 1996, p. 69), and the solidarity produced by the social division of labor "... contributes to the general integration of society" (Durkheim, 1996, p. 71). The Constitution is the guarantee of this integration. However, if the constitution is given a purely socio-regulatory function, regardless of the form of government or other economically structured community, then it does not matter how it is called: law, code, decree, covenant, etc. In epistemology, a clear definition of concepts is required, otherwise the scientific reasoning is replaced by subjectively interpreted historical precedents.

The Constitution cannot be a law in itself, and although nowadays the constitution is called the basic law of the state, actually it is a set of principles that cannot be divided into subordinate acts. The nature of the constitution and the law differs: the constitution guarantees citizen's rights, it does not just permit: it would be illogical to permit what a citizen possesses naturally. Citizens unite into the state, provided that their vital interests are guaranteed. This is a compromise that the government must agree to in order for the state to exist. And in this case, the issue of the stability of the compromise is relevant, as well as the ability to duly correct the principles of the relationship between the state and society. For example, studying the nature of the Constitution, Tocqueville admired the new principles of the civil society: "The general principles which are the groundwork of modern constitutions – principles which were imperfectly known in Europe, and not completely triumphant even in Great Britain, in the seventeenth century – were all recognized and determined by the laws of New England: the intervention of the people in public affairs, the free voting of taxes, the responsibility of authorities, personal liberty, and trial by jury, were all positively established without discussion" (Tocqueville, 1992, p. 51).

Sociologically, the analysis of the socio-consolidating effect of the Constitution of the state is carried out by considering the assessment by citizens of the premises that directly relate to their vital interests. Since the interests of citizens vary in form, an indicator of their consolidation can only be a unified subjective assessment made by the citizens themselves. This is also confirmed by the wide range of goals of socio-economic cooperation formulated in the Constitution. In particular, the state-consolidating role of the Constitution of the Russian Federation, contributing to the stability of the state, can be judged on the basis of the assessment by citizens of the implementation of state obligations to guarantee their fundamental rights and freedoms using the methods of applied sociology (Articles 6–48)[4].

The range of guarantees that the state assumes, according to the Constitution of the Russian Federation, is great. Many guarantees related to social security could be omitted, but social funds cannot fully cover them due to the devaluation of savings in the context of high, prolonged inflation. Such a guarantee as the right to rest should be implemented by the labor union using an agreement with the employer, and not by the state. The guarantee of submitting appeals to state bodies contrasts the state and citizens, highlights the role of the state as a "caregiver". In a rule-of-

[3] The legitimacy of Tocqueville's conclusion is confirmed by the "urgent" policy of the current administration of U.S. President D. Trump aimed at the reduction of bureaucracy due to "frivolous" expenditures of public funds and the need to react to activities destructive to the interests of the state and society.

[4] Constitution of the Russian Federation. Available at: http://pravo.gov.ru/constitution/ (accessed: December 8, 2024).

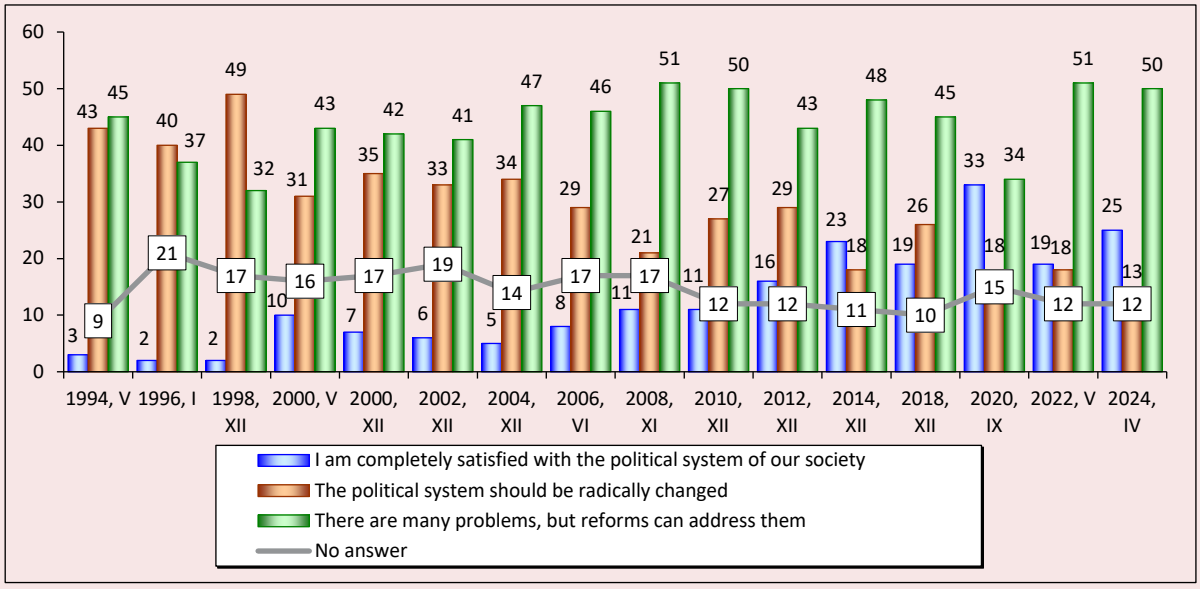
law state, industrial disputes should be resolved by arbitration, and civil disputes – by the court. Lip service is paid to guarantees of freedom of choice of profession, place and type of work. They were relevant during the Soviet period, when these rights were limited by residence registration: a villager could not go to work in the city or factory if there was no intention by the authorities. Currently, the limits of professional self-determination of citizens are set by the production technology, its market profitability, and the state can influence this only to a small extent, mainly by correcting the higher and vocational education systems and creating additional jobs within state (national) projects.

Empirical and sociological analysis of socio-political stability of society

In the empirical research of socio-political stability, various groups of indicators are used in ISPR FCTAS RAS[5]: acceptance/rejection of the existing political order, trust/distrust in government institutions and constitutional political practices, civic and political activism, self-assessment of the financial situation, etc.

The dynamics of the "attitude toward the political system" allows us to note the expansion of the stability area that has developed in Russian society and the state of the political model. With the growing mass of citizens who fully support the configuration of the political system, the number of supporters of radical change has decreased. At the same time, the last three years have demonstrated a stable opinion of citizens regarding the possibilities of transforming the political system. Half of our citizens see existing problems and shortcomings, but consider reforms as a possible way to address them *(Fig. 1)*.

Figure 1. Respondents' attitude toward the political system of society (RF, % of respondents)



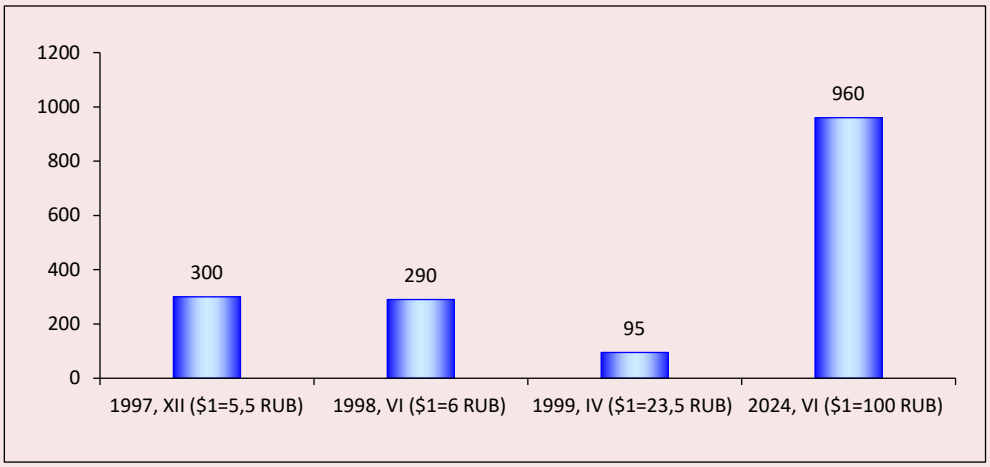
Source: (Levashov et al., 2024).

[5] The study is conducted annually using a comparable methodology based on a quota-based geographically-zoned sample of 1700 respondents in 22 constituent entities of the Russian Federation, including Moscow and St Petersburg, in the form of a personal interview. The territorial proportions in the sample are observed taking into account the statistical data of Rosstat for all federal districts and five types of settlements: metropolises, administrative centers of the constituent entities of the Russian Federation, district centers, small towns, villages. Quotas for 12 socio-professional groups are also observed and calculated based on Rosstat data. According to the listed parameters, the average sample error does not exceed |3%|.

The key factor here remains the level of public trust in the government, political actors and policy decisions made by them, as well as in public structures, which allows us to consider institutional trust both as social capital and as a social resource that ensures social interaction (Sztompka, 2012). Empirically, this is confirmed by the correlation between the level of institutional trust and the attitude toward the political system (Berezina et al., 2024, pp. 86–109).

Currently, the presidential election of the Russian Federation held in March 2024 can legitimately be considered as the most reliable indicator of the high stability of Russian society: voter turnout exceeded 70% and became the highest in the history of similar elections in the Russian Federation; voting for Vladimir Putin was almost 90%, which is also a historical record. The steady trend of consolidation of Russian society in the election of the President of the Russian Federation Vladimir Putin in 2024 is a natural phenomenon which originates from the period of the deepest and most severe socio-economic crisis and financial default in the late 1990s, which determined the actual resignation of Boris Yeltsin from the post of President of the Russian Federation *(Fig. 2; Tab. 1)*.

Figure 2. Dynamics of the average monthly budget of a family of three[6], USD



Source: (Sheregi, 2003; Levashov et al., 2024).

Table 1. Dynamics of the proportion of population groups by financial situation in the period before and after the financial default in the Russian Federation (August 1998), %

Population groups by financial situation	June 1998	October 1998	January 1999	April 1999	June 2024
High income	0.9	0.2	0.2	0.9	1.7
Middle income	34.3	22.4	19.6	16.7	71.8
Low income	54.5	57.4	59.6	57.3	14.8
Below the poverty line	10.3	20.0	20.6	25.1	11.7
Total	100	100	100	100	100
The poor, total	*64.8*	*77.4*	*80.2*	*82.4*	*26.5*
Source: (Sheregi, 2003; Levashov et al., 2024).					

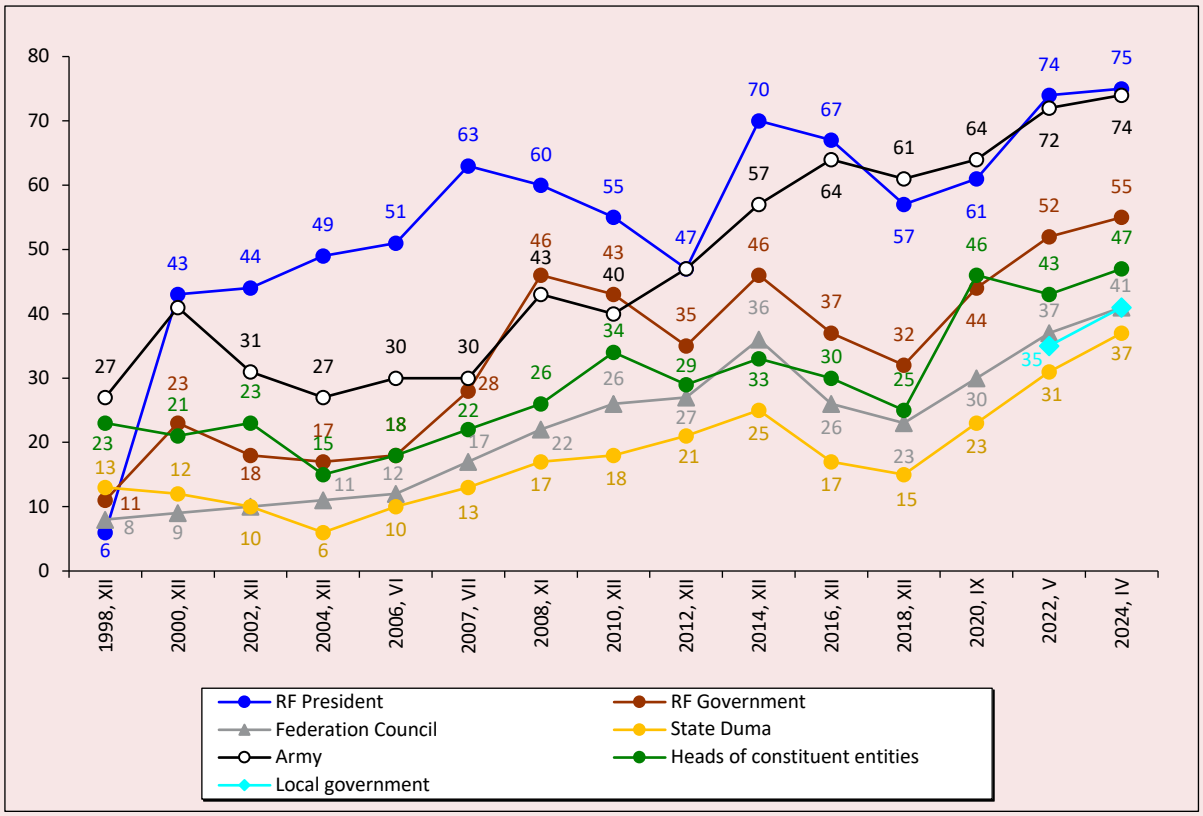
[6] The data source for the period 1997–1999 in Fig. 1, Tab. 1, Fig. 2 (Sheregi, 2003, p. 438, p. 390). All the data presented in the article for 2024 are the results of the 54th stage of the all-Russian sociological monitoring "How are you, Russia?" (Levashov et al., 2024), conducted by ISPR FCTAS RAS in June 2024 (headed by V.K. Levashov).

Fig. 2 and Tab. 1 show the economic consequences of the 1998 financial crisis – the extreme polarization of society before 1999 in terms of well-being, which "echoed" in public opinion in the form of citizens' trust in the executive and legislative authorities *(Fig. 3)*.

The threat to the stability of society is manifested not only in the loss of citizens' trust in the RF President (Boris Yeltsin) reaching almost zero in 1999, but also in the fact that trust in other executive and legislative authorities did not reach 20%. Only the proportion of citizens who trust the Russian army remained relatively high. It should be noted that the growth of citizens' trust in executive and legislative authorities began only in 2000, and today the majority of citizens legitimately consider the RF President (Vladimir Putin) and the Russian Army to be the guarantors of the stability of the development of Russian society and the legitimacy of the state in the present and future.

At the same time, the civil consolidating effect on the stable socio-political development of civil society institutions, parties and the State Duma, public organizations and local authorities is still weak (Levashov et al., 2024, pp. 17–18). Most likely, one of the reasons for the low rates is not only the poor clarity and publicity of the results of their activities, but also the unsuccessful implementation of the following paragraph: "Local self-government bodies and state power bodies should be integrated in the unified system of public authority in the Russian Federation, and should cooperate to efficiently resolve tasks in the interests of population inhabiting the relevant territory"[7].

Figure 3. Dynamics of the proportion of Russians who trust the executive and legislative authorities (RF, % of respondents)



Source: (Levashov et al., 2024).

[7] RF Constitution, Art. 132, paragraph 3. Available at: http://pravo.gov.ru/constitution/ (accessed: December 8, 2024).

During all the years of reforms in Russia, a structure of effective civil society institutions that could compare with the Soviet system of people's deputies has not been created. Neither labor unions, nor non-governmental organizations, nor parties have become publicly effective instruments of social integration and solidarity of citizens. At the same time, in recent years, since the start of the special military operation, Russian citizens have demonstrated an increase in public trust in almost all government institutions, which objectively indicates the consolidation of both Russian society and the legitimacy of state authorities due to the socio-political situation of resistance to external threats *(Tab. 2)*.

However, in 2024, there remains a significant gap between the public trust in the current RF President and other authorities. In particular, the level of trust in local and regional authorities is 30 points lower than in the RF President (Tab. 2). Such serious discrepancies in trust in institutions of political power lead to the development of a person-type regime (Popova, 2019), where regional and local authorities are integrated into a common hierarchical vertical subordination, and the president is in charge of the resolution of all issues, including at the local level (Velikaya, 2024). However, it obscures the long-term prospects for socio-political stability when it depends only on the attitude of citizens toward RF President Vladimir Putin.

There are a number of factors that are synchronous with the content of the constitution and directly affect the interests of the population. In particular, although the current RF Constitution does not specify the ideological and political system of the state, Russians are largely differentiated, by genetic predisposition or just keeping the way, in terms of their preference for the ideological and political system, gravitating either to socialism, which is perceived as a Welfare State, or to capitalism *(Fig. 4)*.

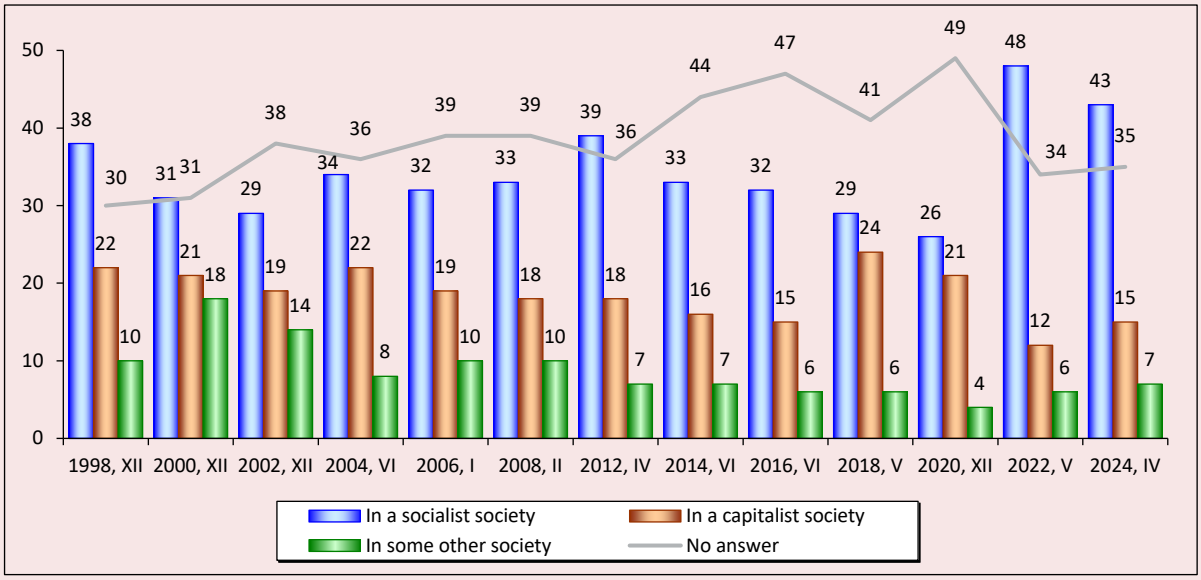
Table 2. Dynamics of respondents' attitude toward public structures and government institutions (answer option "I trust") (RF, % of respondents, 2012–2024)

Public structures and government institutions	2012, XII trust	2014, VI trust	2016, XII trust	2021, VI trust	2023, VI trust	2024, IV trust	Trust index (It) to 2024*
RF President	47	72	67	50	73	75	0.60
RF Government	35	49	37	35	53	55	0.28
Federation Council	27	38	26	27	39	41	0.09
State Duma	21	27	17	23	34	37	-0.9
Executive Office of the RF President	28	42	32	36	47	51	0.26
Security Council	32	48	36	46	52	53	0.31
Police, judiciary, prosecution service	18	21	17	25	37	36	-0.4
Army	47	61	64	66	69	74	0.62
Heads of constituent entities	29	36	30	39	50	47	0.19
Public Chamber	23	29	19	29	35	35	0.07
Labor unions	21	25	19	34	34	36	0.4
Church	52	55	45	40	52	54	0.31
Parties, political movements	22	19	15	20	22	26	-0.15
Non-governmental organizations	31	29	21	37	35	47	0.11
Media	26	24	17	22	27	31	-0.1
Local government	-	-	-	-	41	41	0.5

Note: (-) – the question was not included in the survey.
*Trust index (It) is measured in the range [-1; 1]. The closer its value to 1, the higher the level of trust in the institution. The closer to -1, the lower.
Source: (Levashov et al., 2024); data from the Center for Strategic Social and Socio-Political Research of ISPR FCTAS RAS.

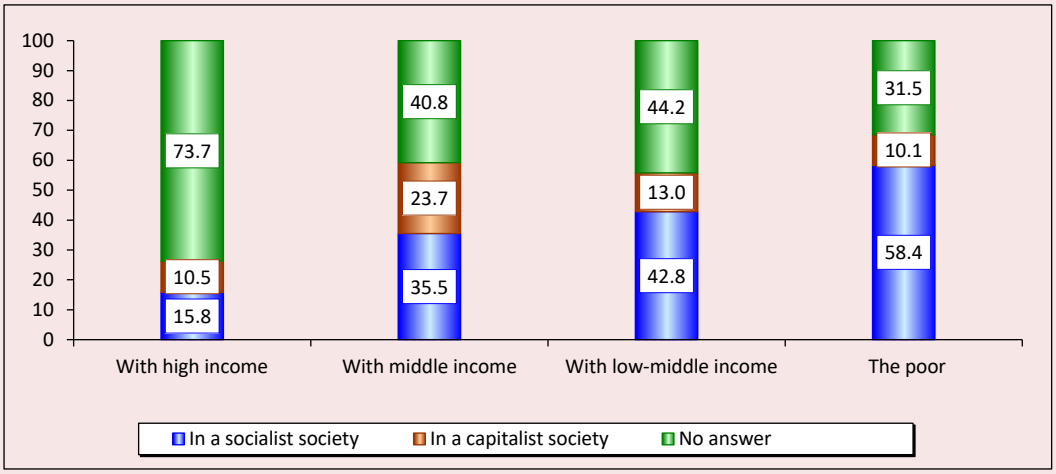
The significant disunity of Russians' opinion on the preference for an ideological and political system (which determines distributive relations in the state) explains the lack of a description of an ideological and political system in modern constitutions of market states. Russia initiated the implementation of radically liberal market relations in the country, but the privatization of the economy in the 1990s was socially ineffective. As a result, the vast majority of the population had only their apartments privatized, which was not enough for a seed capital required for entrepreneurial activity. That is why the orientation toward socialism is most pronounced among the poor *(Fig. 5)*.

Figure 4. The opinion of Russians about the society they would like to live in (RF, % of respondents, 1998–2024)



Source: (Levashov et al., 2024).

Figure 5. The opinion of representatives of groups with different financial situations about the society they would like to live in (RF, % of the respondents in 2024)



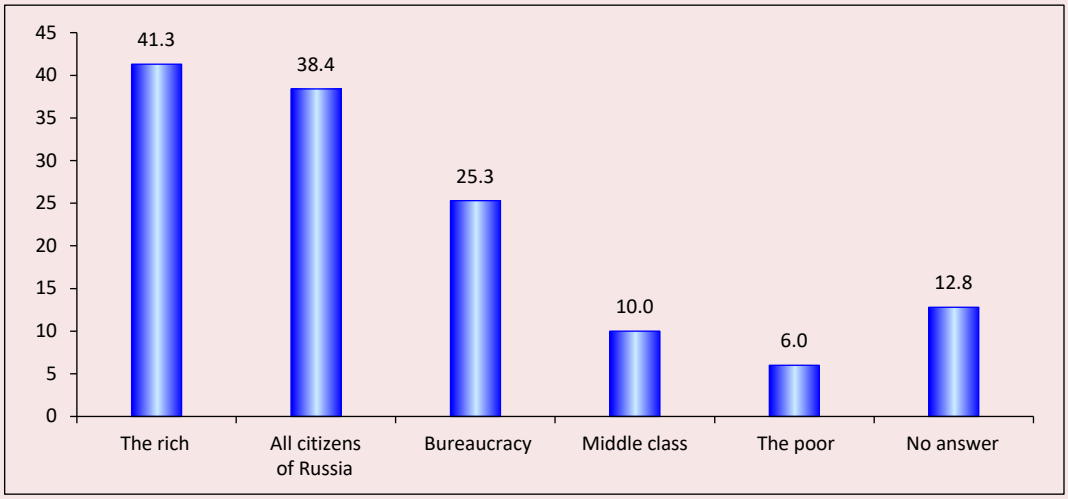
Source: (Levashov et al., 2024).

The data in Figures 5 and 6 indicate that the majority of Russians are oriented toward a social, paternalistic state. It also follows from this that the ideological and political system of the Russian Federation today is not in itself consolidating for citizens: it does not divide purposefully, but supports the public consciousness regarding socio-economic reforms in an unstable state. The reliability of this statement is evidenced by the opinion of the respondents about whose interests the state primarily protects today *(Fig. 6)*.

Given this public opinion, it is not surprising that 40% of citizens consider it advisable to nationalize all previously privatized enterprises, and another 45% – to nationalize part of these enterprises. Such a position of Russians is inconsistent with many of the targeted socially oriented parameters of the state economic policy aimed at developing stable market relations. One of the reasons for the rejection of the spontaneous neoliberal market by the population is the inactive participation of the small and medium-sized business communities in the social policy of the state.

Nevertheless, according to the research data, it is legitimate to currently consider the Russian state as quite stable. The factor analysis revealed that the main component of generating stability is the state policy on social guarantees. At the same time, guarantees of political freedoms are not essential in ensuring stability. Russian citizens traditionally combine the guarantees formulated in the RF Constitution into two associated groups: *social guarantees and political guarantees (Fig. 7)*[8].

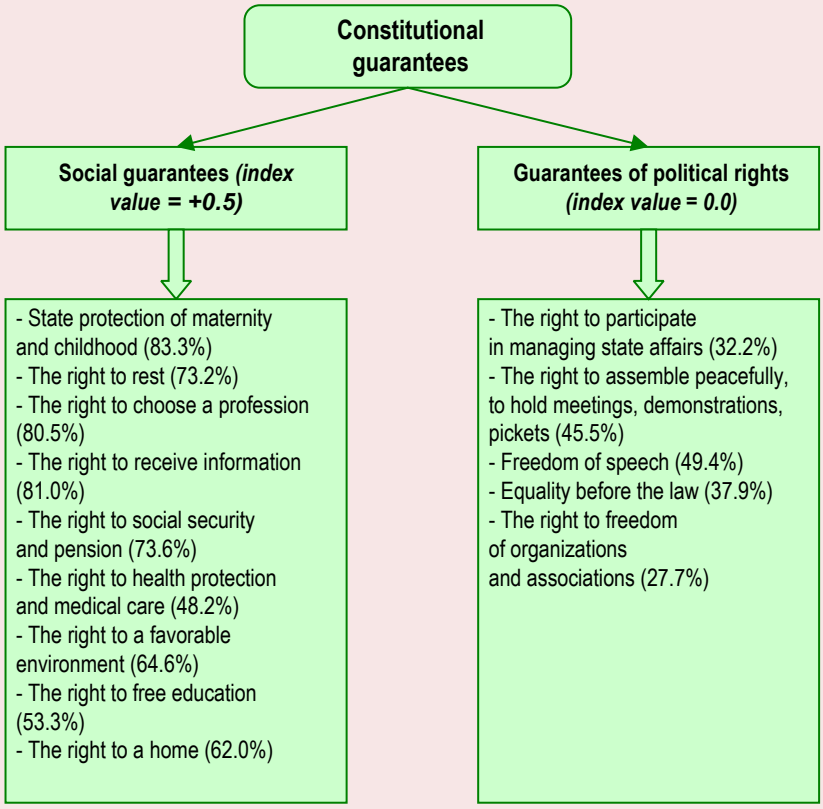
Figure 6. Respondents' opinion about whose interests the state protects today
(RF, % of respondents in 2024)



Source: (Levashov et al., 2024).

[8] Hereinafter, the principal component analysis (SPSS class program) is used to calculate the factors. A lower threshold with a value |0.5| is set as a condition for the creation of factors. The weights of the "social guarantees" factor are in the range 0.85–0.54, and the weights of the "guarantees of political rights" factor are in the range 0.87–0.64. In the units of the second row, the indices (in parentheses) are calculated as the arithmetic mean of the indices of the individual guarantees included in the corresponding factor. Interpretation of the values of the index of constitutional guarantees: the state completely fulfills the guarantees – "+1", the state does not fulfill the guarantees at all – "-1", intermediate positions of citizens are between them.

Figure 7. The factor scheme of citizens' associations for constitutional guarantees



Compiled based on: (Levashov et al., 2024).

Based on the index values (in parentheses in the second row of units), it can be concluded that on average up to 80% of citizens are satisfied with how the state accomplishes its promises on social guarantees, and less than 50% are satisfied with how it fulfills political guarantees. These indicators vary for individual types of guarantees, so, at the end of the name of each type of guarantee, the proportion of respondents who believe that the state *completely fulfills* the relevant guarantee is indicated in parentheses (the third row of units).

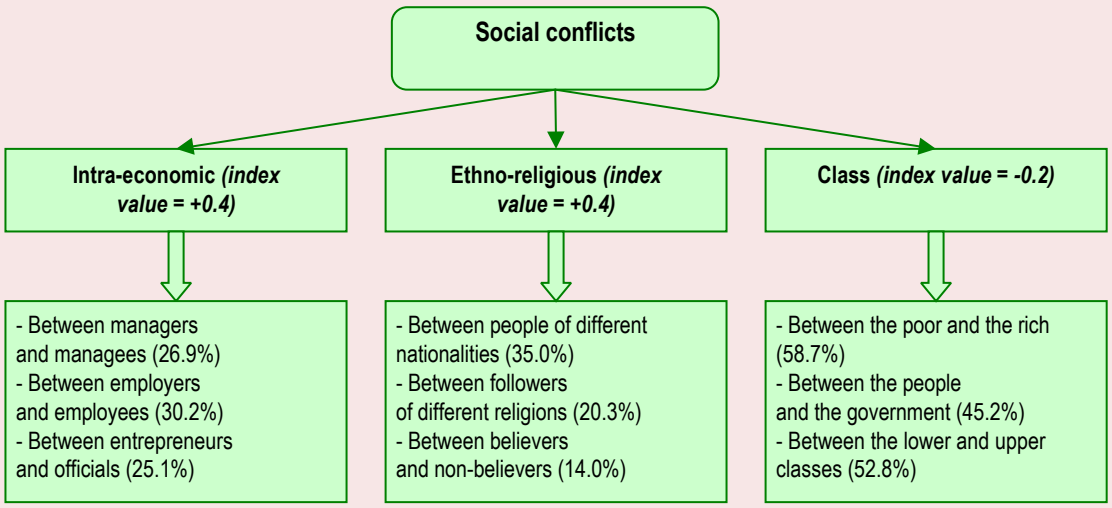
According to these indicators, it can be concluded that the state's fulfillment of social guarantees formulated in the RF Constitution meets the expectations of the absolute majority of the population, while in terms of political guarantees, a large proportion of citizens believe that the state does not meet their expectations. Regarding the fulfillment of social guarantees by the state, there are complaints about guarantees of the right to health protection and medical care, as well as about the guarantee of free education. It should be noted that in the context of the constitutionally established principle of Welfare State, the practices of the repeatedly described paternalism of Russian citizens continue to be reproduced, when interest groups cannot considerably influence the state policy. At the same time, the guarantees of ensuring equality before the law, the opportunity to participate in managing state affairs, the right to political protest and freedom of organizations and associations are not highly assessed.

The situation becomes more complicated due to the consolidation of a person-type political regime, where many issues, including governance at the regional and local levels, are handled manually at the level of the RF President. It is Vladimir Putin who is seen as the only leader capable of overcoming the crisis in Russia: about 65–70% of respondents have consistently claimed this over the past decade (Levashov et al., 2024). A number of researchers and scientists interpret this sociological fact as the "homage culture" and "authoritarian syndrome" of Russians, when citizens see support and hope in a strong power (Grigoryeva, 2014).

These empirical characteristics are subjective indicators of citizens' satisfaction or dissatisfaction with the principles of distributive relations, but they do not reveal the actual reasons that determine the discrepancy between the socio-professional structure of society and progressive changes in production technology. For example, the ratio of the rural population (25.2%) to those employed in agriculture (6.3%) is 0.25, the ratio of the nonfarm population (74.8%) and those engaged in non-agricultural labor (68.1%) is 0.91[9], while the whole population has to eat and should have guarantees.

Conflicts that can cause the "erosion" of the stability of Russian society are shown in the factor diagram *(Fig. 8)*. In parentheses next to the indicators (the third row of units), the proportion of citizens aged 18 and over who consider the conflict significant is *shown*. Judging by the value of the index (in parentheses in the second row of units), currently citizens consider the class conflict to be the most significant, actualized in the public consciousness as excessive dissimilarities in the well-being of different social groups. At the same time, the conflict between the poor and the rich is highlighted as the most acute (the index value is "-0.3"), the least acute is the conflict between the government and the people (the index value

Figure 8. The factor scheme of the relevance of social conflicts in the public opinion of Russians

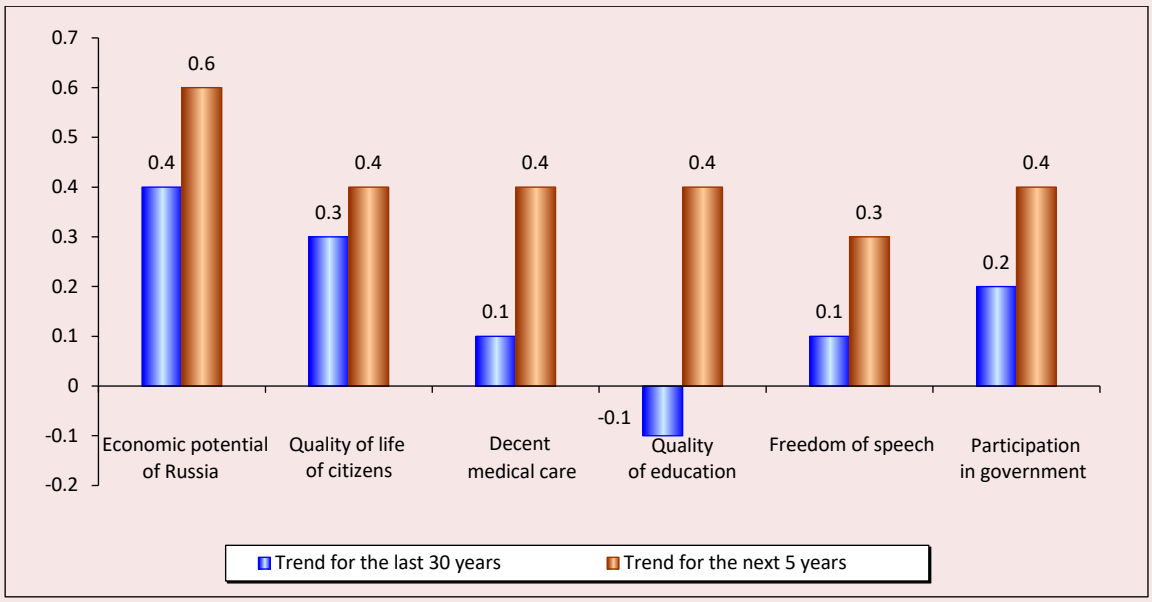


Note. Range of weights for factors (conflicts): economic – 0.84–0.66, ethno-religious – 0.85–0.69, class – 0.87–0.75. The range of the conflict significance index is from "-1" (significant conflict) to "+1" (minor conflict or no conflict).

Compiled based on: (Levashov et al., 2024).

[9] Calculated based on: Russia – Employed population | 1991–2024 Data | 2025–2026 forecast. Available at: https://ru.tradingeconomics.com/russia/employed-persons (accessed: December 18, 2024).

Figure 9. Index of Russians' opinion on the trend in significant characteristics of Russia over the past 30 years and in the next 5 years



Note. Interpretation of the trend index: "+1" – all Russians believe that this characteristic has changed / will change for the better; "-1" – all Russians believe that this characteristic has changed / will change for the worse.

Compiled based on: (Levashov et al., 2024).

is "0.0"). According to the public opinion, intra-economic and ethno-religious conflicts are insignificant, especially between believers and non-believers (index value is "+0.7"), although there is some tension in national relations (index value is "+0.1").

The conditional forecast of the socio-political stability of the Russian society indicates that there is a moderately positive trend in the country's characteristics important for citizens during the past 30 years, except for the assessment of the quality of education, which tends to decrease. The high probability of maintaining the stable legitimacy of the Russian state is evidenced by very optimistic forecast growth trends in the characteristics of public guarantees vital to the people – significant positive growth is predicted for all characteristics *(Fig. 9)*.

Discussion and conclusions

A. General conclusions based on the generalization of empirical data

1. Based on the analysis of empirical information on the values of the main indicators of socio-political stability, it has been revealed that *the trend of key indicators is positive*. The stability of the structural and functional model of modern Russian society at the stage of the continuing search for optimal transformation of the socio-economic structure of the state is based on two factors: the shift toward the socially oriented state and the high trust of the Russian citizens in the RF President as the main guarantor of the effectiveness of social policy.

2. It follows from the attitude of the population toward current state policy that the stability of the Russian political system depends to a high degree

on the social policy of the state, which should meet the principles of social justice, as well as on ideological priorities shared by the majority of the population, related to the common historical past and the traumatic experience of the transition to a liberal model of social order. The basis of a socially oriented state should be distributive relations that generate a sense of social justice and public trust in government institutions, ensuring a high level of legitimacy of the political system. To achieve this, a cost-effective socially oriented economy with a high level of labor productivity is required, capable of producing a high surplus value, or in economic terms, a large gross domestic product.

3. Currently, there are four factors in the Russian Federation that guarantee the socio-political stability of society: *ethno-territorial; defense against a foreign enemy (the army); the current RF President* (among Russians aged 18 and over, 72.4% believe that only Vladimir Putin can ensure the stable development of Russia in the future); *social support by the state provided for in the Constitution*. With the exception of elections, RF citizens participate in the political life of the state primarily as "spectators".

B. Analytical conclusions and hypotheses

4. One of the main theoretical hypotheses generated based on the analysis of research data from ISPR FCTAS RAS is as follows: currently, with capital concentration in the hands of a few owners through banks and transnational corporations, the market economy is functioning on the basis of constitutional and legal regulation, which organizes and standardizes state and public relations in order to arrange them, protect and develop stable socio-political progress in the interests of citizens. The Constitution declares the state to be the "will of the whole people", but subsequently the conceptual and declarative provisions of the "main law" are specified in codified and subordinate acts that can be manipulated by lawmakers-lobbyists. In this case, the substitution of the inviolable principles of the Constitution for "precedent" variable market laws seems to become legitimate. At the same time, *the vast majority of Russians do not accept the capitalist state system,* which limits the possibility of legitimizing it.

5. The lack of proactive citizenship among the employed population, the lack of awareness of their socio-political and socio-economic interests, rights and responsibilities hamper an effective dialogue between the state and civil society. Labor unions often act not as watchdogs of the interests of workers, but as partners of the employer, as "arbitrators" in the case of an industrial conflict, which prevents the economic dissatisfaction of workers from developing into political demands. For this reason, the population has little demand for political parties (only 26.2% of citizens trust them). *The political system of the state appears to be pseudo-market,* i.e. eclectic, playing the role of a "guardian" for both employees and the business community, which also receives subsidies from the state due to the crisis.

6. It is generally accepted that the main criterion of a market state is the dominance of legal regulation of public relations, when the priority of law ensures social balance. We consider the low assessment of the functioning of the rule-of-law state by citizens (54% of respondents believe that the state does not ensure the implementation of the principle of equality before the courts and the law) as another risk of delegitimization and destabilization of the political system.

7. Another significant factor guaranteeing the stability of society is the economic one, which presupposes the objective existence of a place for a citizen in the social division of labor and a share in the social product. At the same time, the functioning of the consumer society, predicted by the Austro-American economist and sociologist Joseph Schumpeter (Schumpeter, 2007), displaces the political content of ideology, replacing it with

consumer advertising, stimulating the consumption of wanted and unwanted products. On this basis, the main ideological instrument of the market state, the supporting "staple" of society, is consumer ideology. There is a "formalization" of personality due to the displacement of its social identity by material identity. The uniqueness of social connections is lost, they are replaced by the universality of globalized material consumption. As a result, we see the alienation of the individual from community, the replacement of spiritual values by material values, and the dependence of the socio-political stability of the state solely on satisfaction with the material aspects of life.

8. Given the contradictions in the development of the political system of modern Russia, the insufficient functional maturity of civil society institutions, representative and judicial branches of government, it seems advisable to minimize threats to the stability of society and the state by rebalancing the coordination of plans and activities between different branches of government, providing constant feedback from the population, improving legislation considering requests to increase the level of political and legal culture of citizens (Kerimov, 2015). Russians are generally optimistic about the stable development of the state in the coming five years, and this is an important indicator and criterion of the legitimacy of the state. However, citizens' optimism will remain only if the state respects the priority of social guarantees, in particular, significantly improves the quality and accessibility of education and medical care. Also, at least a moderate increase in the welfare of citizens should be guaranteed, and political risks will not be critically relevant in public opinion.

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Drivers of Economic Growth of the Nizhny Novgorod Region: Modeling GRP Using Data from Twin Regions

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Abstract. Identification of development trends and growth potential of Russian regions in the new conditions requires the elaboration of advanced approaches to modeling the main economic indicators. The aim of the article is to carry out an econometric modeling and analysis of the GRP of the Nizhny Novgorod Region using data from twin regions. The selection of twin regions was based on the similarity of industry structures, level of development and trends. Using panel data for 16 regions of the Nizhny Novgorod Region cluster for 2000–2022, the Cobb – Douglas functions with lagged variables were constructed, estimated by the maximum likelihood method with correction for group heteroscedasticity. As a result of the modeling, a positive influence of supply factors (accumulated fixed assets, current investments, number of employees), demand factors (income per capita in the past period) on the current GRP was established. The scale and structure of budget expenditures of the region also play an important role in increasing the GRP in the cluster under consideration. The average annual key interest rate of the Bank of Russia, as well as its change, have a negative impact on the GRP. In addition, the GRP of the cluster regions is positively related to the price of Brent crude oil, which indicates the historical dependence of the Russian economy on the oil sector, and the dollar to ruble exchange rate, which affects the price component of the GRP via the pass-through effect, as well as import substitution processes. The obtained results can be the basis for designing forecasts and scenarios for the development of the region

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in the future, determining the consequences of regulatory impacts at the regional level and the effects of uncontrolled macroeconomic parameters. Further development of the study is possible through the inclusion of high-frequency data, the elaboration of models with more advanced specifications, including structured and aggregated ones, as well as separate modeling of the inflationary and real components of GRP, which together will allow for the creation of more accurate short-term forecasts.

Key words: region, gross regional product, econometric modeling, factors, clustering, twin regions, budget expenditures, key rate of the Bank of Russia.

Problem statement

In recent years, the Russian economy has faced unprecedented sanctions pressure from a number of developed countries. In these conditions, it is extremely important both at the level of the country and individual regions to determine the potential for economic growth and import substitution. To understand the available opportunities, it is necessary to study resources, their dynamics and efficiency in terms of their impact on the main production indicators (primarily gross regional product), as well as trends in the development of regions in retrospect. It is important to develop adequate approaches to its modeling, allowing assessing the impact of supply, demand, macroeconomic and institutional environment factors on its level and dynamics to identify past trends and dependencies of gross regional product.

One of the problems of modeling the regional economy is the shortness of time series based on annual indicators, i.e. insufficient observations. This is especially true for Russian regions, for which the period of market history lasts just over three decades. Moreover, before the 1998–1999 crisis, the economy was in a transitional state, developed according to other trends, and the statistics of that time are incomplete. Therefore, at present modeling is possible and appropriate based on the 2000–2022 data. But this time interval also has its own structural breaks, mainly related to the 2008–2009 and 2014–2015 crises, the 2020 pandemic and the beginning of the SMO in 2022. In addition, due to the active development of the military and civilian sector in recent years, the economy of most regions has completed its Keynesian stage; it has become labor deficient and is in an overheated state, i.e. in a state of full employment. This means that previous trends cannot be unambiguously extrapolated to the future, which limits the forecasting possibilities. Meanwhile, the main trends of regional economies due to the rigidity (inflexibility) of sectoral, technological and institutional structures, the effects of state and path dependence remain relatively unchanged, which makes their study relevant and valuable for further analysis.

The aim of our research is econometric modeling and analysis of the gross regional product of the Nizhny Novgorod Region based on pooled time series and spatial sampling by regions of the same cluster as the Nizhny Novgorod Region.

To achieve this aim, we solved the following tasks: 1) to identify a cluster of regions similar to the Nizhny Novgorod Region in terms of GRP per capita, sectoral structure of the economy and development trends; 2) to establish the indicators that can explain the change in GRP of regions belonging to the same cluster as Nizny Novgorod region and the lags of their influence; 3) to model the region's GRP based on panel data; to establish the nature and degree of influence of supply, demand, macroeconomic conditions and individual tools of fiscal and monetary policy on it.

Literature review

A number of studies by Russian and foreign authors are devoted to modeling and forecasting regional indicators. They used different

approaches. ARIMA models (AutoRegressive Integrated Moving Average) are often used for modeling GRP and its subsequent short-term forecasting (Peng, 2023; Jijo, 2025). The advantage of such models is the possibility to take into account previous development trends and changing volatility of the modeled indicator. In ARIMA models, the current GRP depends on its own historical trends, but exclude the factors affecting it (changing resource and demand constraints, macroeconomic conditions and regulatory tools). Therefore, a more advanced approach is the one based on the construction of ARIMAX models – with the inclusion of a number of exogenous variables (Ugoh, 2021; Haydier et al., 2023). An important limitation of both approaches, however, is the need for a large number of observations. Models of this type are better realized on high-frequency, usually monthly data, but for many socio-economic indicators official statistics do not provide them. In addition, such data often contain seasonal and institutional components.

In the case of modeling GDP, GRP and other socio-economic indicators, it is objectively necessary to operate with short time series, which does not allow taking into account all the many factors affecting them. In addition, factors often show multicollinearity. To solve these problems, foreign researchers use the principal components analysis, which allows creating composite variables through the first principal components, covering the largest variance of attributes (Dias et al., 2015; Zhemkov, 2021). In Russian studies, the problem of shortness of time series was solved in a different way – by including all or some regions with similar indicators in the sample. The selection criteria were the size of GRP, and dummy variables were introduced for regions with different levels of GRP or independent regressions were constructed (Ivchenko, 2019).

Another frequently used approach to modeling GDP and GRP is the construction of production functions in which gross product depends on labor, capital, investment and other factors. One of the most popular is the Cobb – Douglas production function (Malkina, 2015; Vavilova, Zerari, 2024; Baranov et al., 2023); it is the power-type function, which is transformed into a linear form by logarithmization, which makes it possible to apply the least squares method for its estimation. An alternative option is the construction of the R. Solow model, which can also be based on the Cobb – Douglas function, but it takes into account a limited number of factors. For example, in (Kutyshkin, 2021) the one-sector R. Solow model of economic growth is applied to simulate the gross regional product of the Yamal-Nenets Autonomous Area. There are other types of production functions, such as the function with Constant Elasticity Substitution (CES), which allows taking into account the changing relationships between factors. Due to its nonlinearity, its estimation presents certain difficulties, but sometimes methods of approximate linearization are used (Cheremukhin, Gruzdev, 2022).

The choice of the most adequate production function for modeling GRP of this or that region is an independent research task. For example, the article (Skuf'ina, Baranov, 2017) addressed the question of finding the optimal production function when modeling GRP of the regions of the North and the Arctic. The following alternatives were considered: 1) multiplicative production function; 2) Cobb – Douglas power function; 3) production function with constant elasticity of substitution. The authors concluded that the CES function is better for four of the fifteen regions under consideration and the Russian Federation as a whole, the Cobb – Douglas function is better for one region, and no function is suitable for eight regions.

There are also other approaches to modeling GRP and GDP. For example, the article (Kuznetsov, Kuligin, 2022) develops a model of gross regional product based on the finite-time scheme of the integro-differential equation using economic and mathematical methods.

One of the advanced and rather time-consuming ways of GRP modeling is a structured approach based on separate modeling of industries or sectors of the economy and subsequent synthesis of the results. The application of such an approach allowed (Eremin, 2024) determining the potential for increasing the GRP of the Novgorod Region by changing the structure of investment, taking into account the calculated multipliers for different types of industries. Another paper (Dubovik et al., 2022) uses regression modeling and the Box – Cox transformation to estimate the contribution to GRP of the Bryansk Region of three major industries – agriculture, manufacturing, wholesale and retail trade. Some studies are devoted to modeling complex economic systems with the identification of the leading sector of the regional economy – a specific industry according to OKVED (Afanas'ev, Gusev, 2023).

Another variant of the structured approach to modeling the regional product involves separate modeling of demand (consumption, investment, government purchases and net exports) and supply components and bringing them together (Lombardini, 2024) or modeling the behavior of individual types of economic entities and then synthesizing them into a single model (Jokubaitis et al., 2021).

When modeling gross product, in addition to the lack of data, authors face the problem of changing methods of calculating indicators, which often makes statistical data incomparable (Mikheeva, 2022). To solve this issue, either recalculation of indicators according to new methodologies, which is a non-trivial task, or use of correction factors or introduction of dummy variables for new periods is used.

An important research task is the selection of factors affecting GRP. Researchers are guided by both basic provisions and concepts of economic theory and available data. The final selection of variables is made on the basis of their significance, multicollinearity, etc. testing. Usually, fixed assets, fixed capital investment, employment or labor costs are considered as factors affecting GRP. For example, in (Crespo–Cuaresma et al., 2010) using Bayesian model averaging (BMA) for a class of quantile regressions, it is shown that the main determinants of real GRP growth in EU countries with country fixed effects are fixed capital investment, labor skills and initial gross domestic product per capita, but the influence of these factors is distinctive in different quantiles. Using panel data for European countries, the work (Ghosh, Samanta, 2021) tested GRP models of different specifications: with random, fixed effects, cross-sectional data and with heteroskedasticity. The model with random effects showed the best result. The authors concluded that such indicators as investment, change in labor force and budget surplus have forecasting power for GDP.

Some studies include other factors in the production functions, in addition to the traditional ones. For example, in the paper (Ivchenko, 2019), in addition to the standard ones, the author studied such determinants of GRP as social expenditures in the regional budget, the current assets of enterprises and organizations, the balance of income and expenditures of enterprises and organizations, the indicator of purchasing power of the population of the region. In the article (Zhemkov, 2021) oil prices, real exchange rate, growth rates of the world economy and short-term and long-term interest rates on loans were used as factors for the formation of scenario indicators for modeling Russia's GDP. In the article (Zazdravnykh, 2023), an important factor for the growth of real GRP was the rise of new companies and their entry into the regional market.

Sometimes models test the impact of a specific factor on GRP. An example is the work (Fedorova et al., 2020), which studied the impact of inbound tourist flows on GRP of regions and also found positive effects of investment in fixed capital in the previous year and the volume of paid tourist services. The work (Demidova, Kamalova, 2021) investigated the spatial factor concerning the regions' economic development, and using the methods of spatial econometrics found the impact of neighboring regions on the growth of real GRP per capita adjusted for purchasing power parity.

In a number of works, the constructed models include institutional factors and various tools of economic regulation used by the Bank of Russia and the Russian Government. Usually, they solve the task of assessing these tools effectiveness and making recommendations to improve the relevant policy. For example, the article (Malkina, Vinogradova, 2024), using the case of the Nizhny Novgorod region, studied the significance and the degree of influence on the gross regional product of the volume of support from the regional budget in the form of tax benefits, grants and subsidies, as well as subsidizing the interest rate on mortgage programs. The paper also found a positive impact on the GRP of the region of internal R&D expenditures and expenditures on national economy in the consolidated budget of the region, and a negative impact on it of the key interest rate of the Bank of Russia.

Based on the previous studies, in this article, we use a whole pool of indicators that presumably affect GRP of the Nizhny Novgorod Region: resource, demand, macroeconomic and institutional. We solve the problem of short time series by identifying twin regions of the Nizhny Novgorod Region, which are similar to it in terms of a number of development indicators, which is a fundamentally new approach. We also use as a principal model the extended Cobb – Douglas production function including four types of variables and without restrictions on the scale effect, combining it with the distributed lag model to account for the influence of past values of the studied variables on the current GRP.

Selection of twin regions for modeling

As we have already noted in the literature review, the lack of data in time series severely limits the ability to model and forecast the performance of each specific region on the basis of its own values. At the same time, it is not quite correct to include all regions in the analysis due to their different sectoral and technological structures, achieved level of development and trends. Therefore, in this article we single out the regions that can serve as perfect twins of the Nizhny Novgorod Region, whose data are used to expand the panel sample.

We propose the formation of twin regions according to three criteria.

1. Similar GRP per capita (based on 2022 data) in the k-th region (Y_k) and in the Nizhny Novgorod Region (Y_N). For this purpose, their absolute difference is determined:

$$SY_{kN} = abs(Y_k - Y_N) \quad (1)$$

2. Similar sectoral structure (based on 2022 data). For its analysis, we used the shares in the gross value added of the following aggregated and combined types of economic activities:

S1 – agriculture, forestry, hunting, fishing and fish farming;

S2 – mining;

S3 – manufacturing industries; provision of electric power, gas and steam; air conditioning; water supply; water disposal, organization of waste collection and utilization, pollution elimination activities;

S4 – building;

S5 – wholesale and retail trade; repair of motor vehicles and motorcycles;

S6 – transportation and storage; activities of hotels and catering enterprises; activities in the field of information and communication;

S7 – financial and insurance activities; real estate activities;

S8 – professional, scientific and technical activities;

S9 – administrative activities and related ancillary services; public administration and military security; social security;

S10 – education; activities in the field of health care and social services; activities in the field of culture, sports, leisure and entertainment; provision of other types of services; activities of households as employers.

To assess the proximity of two sectoral structures, a similarity index to the Nizhny Novgorod Region (region *N*) is calculated for each *k*-th region:

$$SSI_{kN} = \frac{1}{10}\sqrt{\sum_{i=1}^{10}(S_{ki} - S_{Ni})^2}\ , \qquad (2)$$

where:

S_{ki} – share of the *i*-th aggregated industry in the GVA of the *k*-th region;

$i = \overrightarrow{1,10}$;

S_{Ni} – share of the *i*-th enlarged industry in the GVA of the Nizhny Novgorod Region.

3. Similar development trends of the regions. For this purpose, intertemporal correlations of all basic indicators of each k-th region with the Nizhny Novgorod Region are calculated on the basis of annual data for 2000–2022, and their simple average (Cor_{kN}) is determined.

For each of the three indicators of each *k*-th region (SY_{kN}, SSI_{kN}, and Cor_{kN}), the rank among all regions is calculated, these ranks are summed and ranked again. Then, the regions with the lowest total rank are selected among all regions. These are the regions closest to the Nizhny Novgorod Region in terms of industry structure, level of development and trends. In other words, these are twin regions, whose indicators further participate in modeling.

Table 1 presents the selected regions and their indicators.

Regional GRP modeling

The region's GRP modeling was conducted on a panel sample, including annual data on 16 regions of the Nizhny Novgorod cluster for 2000–2022. Initially, we tested 18 explanatory variables (for significance, multicollinearity, etc.), of which 12 variables were included in the final models[1]. *Table 2* presents them.

Table 1. Regions of the same cluster with the Nizhny Novgorod Region and their selection indicators

Region	Y_k* (rubles)	Rank	SSI_{kN}*	Rank	Cor_{kN}	Rank	Total rank
Nizhny Novgorod Region	739,125	1	0	1	1	1	1
Novosibirsk Region	693,656	9	1.456	22	0.705	2	2
Arkhangelsk Region	722,234	5	1.379	20	0.642	18	3
Vladimir Region	585,131	29	1.136	11	0.680	4	4
Chelyabinsk Region	673,545	14	1.292	17	0.644	16	5
Kaliningrad Region	715,359	6	1.582	27	0.639	19	7
Yaroslavl Region	623,525	25	0.665	2	0.620	25	7
Kaluga Region	647,307	21	1.427	21	0.661	12	8
Rostov Region	556,629	33	1.333	18	0.672	8	10
Sverdlovsk Region	816,092	16	0.690	3	0.568	40	10
Tver Region	516,489	39	0.938	7	0.651	15	11
Kostroma Region	480,120	46	1.135	10	0.673	7	13
Tula Region	674,432	13	2.123	41	0.668	9	13
Leningrad Region	822,794	19	1.258	16	0.581	34	16
Moscow Region	901,231	30	1.200	15	0.632	24	16
Ryazan Region	566,113	32	1.007	8	0.601	29	16
* Data for 2022.							

[1] Due to multicollinearity or insignificance, the final models did not include the following tested indicators: the population of the region (thousand people), the cost of the consumer basket (rubles), R&D expenditures (million rubles), tax revenues, non-tax revenues, gratuitous revenues to the consolidated budget of the subject of the Russian Federation (million rubles). At the same time, the models included the indicator of own budget revenues (the sum of tax and non-tax revenues) and total budget revenues (determined by summing up all three sources).

Table 2. Indicators for modeling the regional economy and their designations

Variable	Designation	Variable	Designation
Gross regional product (million rubles)	GDP	Gratuitous receipts to the consolidated budget of the constituent entity of the Russian Federation from other levels of the budgetary system (million rubles)	$BR\_transfers$
Investments in fixed capital (million rubles)	$Invest$	Expenditures of the consolidated budget of the constituent entity of the RF (million rubles)	BE
Value of fixed assets at the end of the year (million rubles)	$Assets$	Expenditures of the consolidated budget of the constituent entity of the RF on the national economy (million rubles)	BE_econ
Average annual number of employed persons (thousand people)	$Employ$	Expenditures of the consolidated budget of the constituent entity of the Russian Federation on the social sphere* (million rubles)	BE_soc
Average monthly per capita cash income of the population (rubles)	$Income\_pc$	Brent crude oil price (U.S. dollars per barrel)	$Brent$
Consolidated budget revenues of a constituent entity of the RF (million rubles)	BR	Average annual key interest rate of the Bank of Russia (%)	$Rate$
Own (tax and non-tax) revenues of the consolidated budget of the constituent entity of the RF (million rubles)	BR_own	U.S. dollar to Russian Ruble exchange rate (rubles/ U.S. dollar)	USD
* Expenditures on the following socio-cultural activities were summarized: education, health care, culture, physical culture and sports, and social policy.			

A distributed lag model, ADL(q,k), was selected based on assumptions about the lag effects of a number of variables:

$$y_t = a_0 + \sum_{i=1}^{k} \sum_{j=0}^{q} b_{kj} x_{k\,t-j} + \varepsilon_t,$$

where:

$(i = \overrightarrow{1,k})$ – exogenous variable number;

$(j = \overrightarrow{1,q})$ – lag of exogenous variable $x_{k\,t-j}$.

It is worth noting that models of this type can be built not only for time series, but also for panel data interpreted as pooled time series. The autoregressive distributed lag (ARDL) model can be used as an alternative and more advanced model. Its advantage is a more successful solution to the problem of autocorrelation of residuals and sometimes heteroscedasticity. However, the coefficients in such a model will no longer reflect the full impact of the factors concerning the production function and therefore are less interpretable.

The model was based on the Cobb – Douglas production function, which was transformed into a linear form by logarithmization. Thus, in the above formula all variables were represented in logarithmic form. Optimal lags for exogenous variables were chosen taking into account the significance of the coefficients in the regressors and the requirements of the model to the normality of residuals.

The Wald test indicated the presence of group heteroskedasticity in the fixed effects model, while the Breusch – Pagan test indicated the presence of heteroskedasticity in the residuals of the random effects model. Also, autocorrelation in the residuals was found in both cases. To eliminate heteroscedasticity as much as possible, the models were estimated using iterative weighted least squares method with selection of weights based on maximization of the likelihood function. *Table 3* presents the modeling results and the corresponding tests.

All presented in Table 3 models are significant by Fisher's criterion, coefficient estimates are significant by Student's criterion (and for most at the $p\text{-}value < 0.001$ level). The residuals are normally distributed. According to the variance of residuals (S.E. of regression), all models have high predictive power.

Table 3. ADL models of regional GRP: maximum likelihood estimates with group heteroscedasticity; dependent variable ln GDP, 16 cross sections, 352 observations

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	Coefficient (standard error), significance					
$const$	–1.456 (0.185)***	–0.975 (0.196)***	–1.226 (0.155)***	–1.326 (0.150)***	–1.268 (0.135)***	–1.399 (0.148)***
$\ln Invest_t$	0.132 (0.016)***	0.147 (0.017)***	0.147 (0.015)***	0.143 (0.015)***	0.129 (0.015)***	0.145 (0.015)***
$\ln Assets_{t-1}$	0.102 (0.014)***	0.099 (0.015)***	0.092 (0.014) ***	0.097 (0.014)***	0.104 (0.013)***	0.110 (0.014)***
$\ln Employ_t$	0.460 (0.026)***	0.495 (0.024)***	0.437 (0.024)***	0.455 (0.024)***	0.449 (0.021)***	0.474 (0.023)***
$\ln Income\_pc_{t-1}$	0.202 (0.027) ***	0.210 (0.027) ***	0.181 (0.026) ***	0.199 (0.025)***	0.204 (0.022) ***	0.210 (0.024)***
$\ln BR_t$	0.175 (0.029)***	-	0.129 (0.030)***	0.104 (0.031)***	-	-
$\ln BR\_own_{t-1}$	0.297 (0.038)***	0.293 (0.032)***	0.254 (0.036)***	0.259 (0.036)***	0.368 (0.029)***	0.324 (0.030)***
$\ln BE\_econ_{t-1}$	-	0.026 (0.013)**	-	-	-	-
$\ln BE\_soc_{t-1}$	–0.107 (0.034)***	-	-	-	-	-
$\ln Brent_t$	0.167 (0.018)***	0.127 (0.016)***	0.149 (0.018)***	0.150 (0.018)***	0.152 (0.017)***	0.163 (0.018)***
$\ln USD_t$	0.463 (0.025)***	0.454 (0.024)***	0.460 (0.024)***	0.460 (0.024)***	0.452 (0.023) ***	0.474 (0.024)***
$\ln Rate_t$	-	–0.051 (0.019)***	-	-	-	-
$\Delta \ln Rate_t$	–0.078 (0.018)***	-	–0.077 (0.018)***	–0.078 (0.018)***	–0.072 (0.017)***	–0.084 (0.018)***
$\Delta \ln BR_t$	-	-	-	-	0.323 (0.039)***	-
$\Delta \ln BE_t$	-	-	-	0.151 (0.045)***	-	0.204 (0.043)***
$\Delta \ln BE\_soc_t$	-	0.152 (0.050)***	0.097 (0.050)**	-	-	-
Log-likelihood	447.176	433.023	444.604	447.595	462.765	443.686
Akaike criterion	–829.853	–844.045	–867.209	–873.191	–905.530	–867.371
Schwarz criterion	–855.440	–801.545	–824.709	–830.691	–866.894	–828.735
Hannan-Quinn	–872.353	–827.132	–850.296	–856.278	–890.155	–851.996
S.E. of regression	0.076	0.080	0.076	0.077	0.074	0.078
χ2 test / Chi-square(15)	46.381	45.373	45.580	48.738	56.170	52.671
p-value [1)]	4.625e-005	6.686e-005	6.200e-005	1.933e-005	1.134e-006	4.373e-006
χ2 test / Chi-square(2)	0.536	0.129	0.185	0.733	2.766	1.203
p-value [2)]	0.765	0.938	0.912	0.693	0.251	0.548

Note: value *** *p-value* < 0.01; ** *p-value* < 0.05.

[1)] Likelihood ratio test for group heteroscedasticity using cross-sectional analysis. Null hypothesis: units have common error variance.

[2)] Test for normality of residuals. Null hypothesis: the residuals are normally distributed.

The best model is selected based on the maximum of the log likelihood function, the minimum of the Akaike, Schwartz, and Hannan – Quinn information criteria. Model 5 satisfies these criteria. However, it is inferior to all other models by the criterion of normality of residuals. According to this criterion, the best model is Model 2.

Meanwhile, the chosen method of model estimation did not allow completely overcoming heteroscedasticity in the residuals. To eliminate it, we additionally constructed the ARDL model (autoregression with distributed lag), which differs from ADL models by including lag values of the endogenous variable. *Table 4* presents it.

The constructed ARDL model meets all quality criteria, moreover, it lacks heteroskedasticity and autocorrelation in the residuals. The signs at variables and their relative influence generally correspond to ADL models. Meanwhile, all the coefficients at exogenous variables are lower in absolute value because their influence was distributed to the lag variables $\ln GDP_{t-1}$ and $\ln GDP_{t-2}$. And hence, they cannot be interpreted as measures of factor elasticities in the production function. Meanwhile, this model fulfills a control function in our study: the compatibility of its substantive results with ADL models allows proceeding further to the interpretation of the results obtained on the basis of the traditional production function.

In general, the constructed models correspond to the main provisions of economic theory. First of all, GRP of the regions of Nizhny Novgorod cluster depends on the available production resources (labor – $\ln Employ_t$, capital – available fixed assets at the beginning of the period – $\ln Assets_{t-1}$) and their change in the current period (level of investment in fixed capital – $\ln Invest_t$).

Table 4. ARDL model of GRP of the region: maximum likelihood estimations taking into account group heteroscedasticity; dependent variable $\ln GDP$, 16 cross sections, 352 observations

	Coefficient	Standard error	*p–value*	Value
$const$	–0.371	0.092	< 0.0001	***
$\ln GDP_{t-1}$	0.610	0.050	< 0.0001	***
$\ln GDP_{t-2}$	0.084	0.038	0.0277	**
$\ln Invest_t$	0.081	0.010	< 0.0001	***
$\ln Employ_t$	0.142	0.013	< 0.0001	***
$\ln BR\_own_{t-1}$	0.106	0.027	< 0.0001	***
$\ln Brent_t$	0.110	0.012	< 0.0001	***
$\ln USD_t$	0.237	0.021	< 0.0001	***
$\Delta \ln Income\_pc_t$	0.213	0.057	0.0002	***
$\Delta \ln Rate_t$	–0.046	0.015	0.0024	***
$\Delta \ln BR_t$	0.261	0.033	< 0.0001	***
Log-likelihood	548.223			
Akaike criterion	–1074.445			
S.E. of regression	0.050			
χ2 test / Chi-square(15) [1]	21.130		0.133	
χ2 test / Chi-square(2) [2]	2.493		0.287	

Note. Value *** *p-value* < 0,01; ** *p-value* < 0,05.

[1)] Likelihood ratio test for group heteroscedasticity using cross-sectional analysis. Null hypothesis: units have common error variance.

[2)] Test for normality of residuals. Null hypothesis: the residuals are normally distributed.

Since all variables in the models are represented in logarithmic form, the coefficient estimates in ADL-models are interpreted as elasticities of GRP with respect to the corresponding exogenous variables, i.e. they show by what percentage GRP will change if this variable changes by 1%, all other things being equal. For example, a 1% change in investment in fixed capital in the current period presumably results in a 0.129–0.147% increase in GRP, ceteris paribus. And a 1% increase in employment leads to a 0.437–0.495% increase in GRP. This result is consistent with the findings of a number of other studies (Kutyshkin, 2021; Baranov et al., 2023), which also found a greater sensitivity of GRP of Russian regions to labor than to capital. At the same time, other studies have demonstrated that the coefficients of output elasticity with respect to labor and capital are different depending on the region under consideration and the period of study (Vavilova, Zerari, 2024; Skufyina, Baranov, 2017). Our result indicates the labor intensity of production in the regions of the same cluster as the Nizhny Novgorod Region (which includes regions with developed manufacturing industry) and the high significance of the problem of staff shortage under the current technological structure of the economy.

The results of modeling proved that the availability of financial resources plays an important role in increasing production in the region. The source of financial resources can be both own, budgetary, and borrowed funds. The volume, as well as the structure of revenues and expenditures of regional budgets play an important role in the regional development. In particular, the constructed models demonstrated the positive influence on the region's GRP of the consolidated budget revenues of the RF constituent entities in the current period ($\ln BR_t$) and own (tax and non-tax) revenues of the consolidated budget of the RF constituent entities in the past period ($\ln BR\_own_{t-1}$). The models also showed the average positive impact on the GRP of budget expenditures on the national economy in the past period ($\ln BE\_econ_{t-1}$) and negative impact of budget expenditures on the social sphere in the past period ($\ln BE\_soc_{t-1}$). At the same time, the increase in social expenditure in the current period compared to the past period ($\Delta \ln BE\_soc_t$) proved to have a positive impact on the current GRP. This can be explained by the fact that social payments are an important component of the income of poorer people, who have a higher propensity to consume. In addition, social expenditures form the revenue of relevant industries and spheres of activity, contribute to the improvement of the human capital quality. The obtained result slightly corrected the estimate of the effects of social expenditures, which was previously exclusively positive (Ivchenko, 2019). This may be due both to the fact that in our case the amount of social expenditures was considered as the total amount of various spendings, and to the peculiarities of the sample of regions and modeling approaches.

As it would be expected, the models showed a positive impact of past period household income ($\ln Income\_pc_{t-1}$) on current period GRP, which is also consistent with the findings of other authors (Ivchenko, 2019; Arpitha et al., 2025). This means that, on average, in the period under consideration, regional production in the Nizhny Novgorod Region cluster depended on consumer demand, i.e., historically, regional economies were rather on the Keynesian than neoclassical segment of the supply curve.

In the constructed models, the average annual rate of the Bank of Russia ($\ln Rate_t$) and especially its change ($\Delta \ln Rate_t$) showed a significant negative impact on the GRP of the region. Thus, the conclusion previously obtained for the Nizhny Novgorod Region (Malkina, Vinogradova, 2024) is applicable to the whole cluster. The Bank of Russia raises the interest rate to fight inflation, but the side effect of this is a slowdown in economic growth. Under tight monetary policy, nominal GRP decreases both in terms of inflationary and real components, which was reflected in the obtained coefficients.

Finally, all models showed a direct dependence of the region's GRP on two weakly controlled macroeconomic parameters – the price of Brent oil and the exchange rate of the U.S. dollar to the Russian ruble. These parameters also turned out to be predictors in the models of Russian GDP presented in the article (Zhemkov, 2021).

Revenues from the oil sector spread throughout the Russian economy, feed the budget system, and create multiplier effects, so the impact of oil price on production in different regions (not only extractive, but also manufacturing) is positive. At the same time, the positive impact of oil price on GRP indicates a significant and permanent dependence of the Russian economy on the state of world oil markets, which, given the instability of these markets and sanctions restrictions on access to them by Russian producers, creates serious risks for regional development.

The U.S. dollar exchange rate to the ruble can be interpreted as a proxy for the price component of GRP. The exchange rate affects the prices of imported goods, the share of which in domestic consumption, according to various estimates, ranges from 24% to 40%. Via the pass-through effect, the exchange rate affects the prices of all goods. In addition, the depreciation of the national currency increases the price competitiveness of domestic production, promotes import substitution within the country and sales of domestic goods on foreign markets, as well as increasing the revenues of the budget system.

Thus, for the regions belonging to the same cluster with the Nizhny Novgorod Region, i.e. twin regions, the dependence of GRP on the factors concerning demand, supply, fiscal and monetary policy tools, as well as a number of poorly controlled macroeconomic factors has been proved, the direction and degree of influence of these factors have been established.

Conclusion

In this paper, we have modeled GRP of the Nizhny Novgorod Region using the data of twin regions. The literature analysis has shown different approaches to modeling the main socio-economic indicators of the region: the construction of time series models such as ARIMA and ARIMAX, models with fixed and random effects based on panel data, the construction of production functions of various types, aggregated models. The choice of one or another model depends on the structure of the data. Important problems in modeling are also the choice of explanatory factors (based on theoretical concepts and available data) and overcoming the problem of shortness of time series.

The latter problem can be solved in different ways. In the present study, an approach to increase the number of observations by including data from twin regions in the model is proposed and implemented. Regions of the same cluster as the Nizhny Novgorod Region were selected according to three criteria: GRP per capita, similar sectoral structure of the economy, similar development trends. As a result, a panel sample of 16 industrialized regions with time series for 2000–2022 was formed.

To model GRP of the cluster regions of the Nizhny Novgorod Region, the Cobb – Douglas production function with a distributed lag (ADL) was constructed, which was estimated by the method of iterative weighted ordinary least squares (OLS) with selection of weights based on maximization of the likelihood function. As a result, non-contradictory and partially complementary six models with high explanatory power were obtained. The models are significant by Fisher's criterion, the estimates of all coefficients are significant by Student's criterion, and the residuals of the models are distributed according to the normal law. To eliminate heteroscedasticity

and autocorrelation of the residuals, they were supplemented by the construction of ARDL model, which led to the results that were consistent with ADL models.

The constructed models confirmed the greater dependence of GRP of the regions of the cluster under consideration on the labor factor than on the capital factor in the form of accumulated funds and current investments. This means that labor deficit imposes significant limitations on economic growth, the way to overcome it is the development of technological structures that contribute to increasing the capital intensity of national income and capital-labor ratio.

The positive impact on GRP of the state of the budget sphere of the region and the amount of support of the regional economy from the consolidated budget of the subject of federation is proved. At the same time, the ambiguous role of social expenditures has been established: on the one hand, their relatively large value is observed in regions with lower GRP, on the other hand, the increase in these expenditures can have a positive effect on the regional product through the formation of demand for the products of different sectors of the economy. Also, an important driver of economic growth in the region on the demand side is the increase in personal income, behind which, of course, there are other factors. A more precise determination of the relationship between population income and GRP requires the construction of more complex models with forward and backward linkages, probably based on a system of simultaneous equations.

In addition to fiscal policy tools, the models showed the negative impact of the key interest rate of the Bank of Russia and its increase on the GRP of the regions under consideration. Finally, they confirmed the persistent dependence of the economies of the regions under study on oil prices and the ruble-dollar exchange rate.

Thus, GRP of the regions of the same cluster as the Nizhny Novgorod Region is explained by resource, demand constraints, institutional and macroeconomic environment. The obtained results indicate the relative importance of these factors, the effectiveness of different measures of governance, reveal the weaknesses and growth reserves of regional economies. They can be useful in elaboration of a balanced regional development policy in Russian regions specializing in the manufacturing industry and having a sufficiently diversified sectoral structure, such as the Nizhny Novgorod Region.

Further research development is possible through the better specification of models, their construction using high-frequency data of other indicators, creation of structured models (modeling of GRP by types of economic activity or demand components), separate modeling of inflationary and real growth components, use of the principal component analysis to aggregate the influence of a larger number of variables. The refinement of models and approaches in the future will make it possible to develop more balanced approaches to short-term forecasting of GRP and other indicators of socio-economic development of regions.

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Assessing the Potential of Agglomeration Processes in the Regions of the Russian Federation

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Abstract. To substantiate the levers and mechanisms of influence on agglomeration processes in the territorial space, a significant and relevant area of economic science is theoretical and methodological developments related to identifying and assessing the potential of agglomeration processes in Russia's regions, which is determined by the aim of the work. We have designed a system of indicators for agglomeration processes, which includes the following blocks: concentration of production and economic activity; concentration of population; concentration of science and technology potential and innovations; concentration of housing infrastructure; people's welfare. The proposed methodological toolkit involves analyzing the specialization of Russia's regions by calculating location quotient for certain types of economic activity and assessing the interaction of the territory's agglomeration process potential and concentration of certain types of economic activity in it by constructing the matrix "agglomeration process potential in the region – location quotient for certain types of economic activity". Our methodological

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approach was tested on 85 constituent entities of the Russian Federation. The research period included the years 2000, 2008, 2016–2022. The information base comprised data from the Federal State Statistics Service. According to the results of the calculations, we see a high degree of differentiation of agglomeration processes potential in the Central and Northwestern federal districts. Intensive agglomeration processes are observed in the Kaliningrad, Leningrad, Rostov, Nizhny Novgorod, Sverdlovsk, Tyumen, Novosibirsk regions, Krasnodar and Krasnoyarsk territories, the city of Sevastopol and the Republic of Tatarstan. There is a low potential for agglomeration development in the North Caucasus and the Far East, and in some years there were no agglomeration processes in the Chechen Republic and the Republic of Ingushetia. The findings of our research can be used by regional authorities in designing strategic planning documents, by a wide range of researchers in the field of spatial economics, and by teachers and students in the framework of personnel training in economic specialties.

Key words: region, agglomeration, potential, agglomeration process, location quotient, spatial economy, socio-economic inequality.

Introduction

Today, the issues of agglomeration processes development in the regions of the Russian Federation are gaining special popularity for a number of reasons. First, the Strategy for Spatial Development of the Russian Federation for the period until 2030 with a forecast until 2036[1] identifies urban agglomerations as key centers of economic growth, scientific, technological and innovative development of the Russian Federation constituent entities within the framework of the formation of a supply economy in the country, focused on the development of the domestic market. Second, the presence of large urban agglomerations contributes to the accelerated economic growth of the region, against the background of desertification of municipal districts of the subject and shrinking economic space, while strengthening interregional and intraregional differentiation. Third, based on a wrong understanding of the interconnection of territories, without taking into account the links and interactions within regions, it is possible to get a distorted picture of the object under consideration, which will lead to incorrect results.

All this dictates the need to substantiate the levers and mechanisms of impact on agglomeration processes in the territorial space, in this regard, a significant and relevant area of economic science is the theoretical and methodological development of identification and assessment of the potential of agglomeration processes in the regions of the Russian Federation.

The study will assess the potential of agglomeration processes in the constituent entities of the Russian Federation. The work is organized as follows: in the first section we will consider the theoretical foundations of the stated problems in the works of domestic and foreign scientists; in the second, it is the methodology and information base of the study; in the third – a general idea of the development of agglomeration processes in the regions of the Russian Federation and the analysis of the results obtained. In conclusion, we will present the main results and recommendations.

The scientific novelty of the study lies in the possibility to correctly measure the differentiation of the potential of agglomeration processes in the regions of the Russian Federation, to position each constituent entity of the RF in relation to other regions.

Theoretical and methodological basis of the study was provided by scientific publications of Russian and foreign scientists in the field of theory, methodology, assessment and analysis of agglomeration processes, as well as in the field of spatial economy.

[1] It is approved by Governmental Order 4146-r, dated December 28, 2024.

Evolution of aspects of research on agglomeration processes

The scientific category of "agglomeration" in the national literature was widely used in the second half of the 20th century. Agglomeration (from the Latin *agglomerare* – to join, accumulate) is "a compact arrangement, grouping of urban settlements united into a single whole by intensive production, labor, cultural, domestic and recreational ties"[2]. The term "agglomeration" was introduced into the scientific economic turnover by Adna Ferrin Weber (USA). She defined the main reason for the concentration of population in the city as economic (structural) forces, to which she attributed technological progress, the emergence and development of trade, the territorial division of labor, etc. (Weber, 1903). E.Y. Boze correctly notes that "today agglomeration is characterized not so much by the integrity of production and settlement systems as by the integrity of labor, real estate, land markets, as well as the level of functional connectivity of its individual elements" (Boze, 2007).

S.N. Rastvortseva understands agglomeration process as "the concentration of economic activity in the region (in the city) in dynamics" (Rastvortseva, 2013). A team of authors led by N.N. Kiseleva gives a broader definition of agglomeration process, in their opinion, it is "spatial and temporal dynamics of concentration of economic, innovation and business activity as a degree of concentration of production" (Kiseleva et al., 2016). B.M. Grinchel' and A.A. Antonova consider the regional agglomeration process as "an integral part (component) of the innovation-oriented process of transformation of the socio-economic space of the Russian Federation" (Grinchel', Antonova, 2012), the scientists mean primarily "measuring the dynamics of the regional agglomeration process" (Grinchel', Antonova, 2012). S.A. Kozhevnikov and N.V. Voroshilov conclude that "agglomeration processes from the core spread mainly only to the territory nearest to it, which is manifested in the presence of a high level of long-distance commuting along this line only, in the convergence and certain synchronization of their development in terms of key socio-economic indicators" (Kozhevnikov, Voroshilov, 2024).

The study of agglomeration processes has received much attention from the representatives of the new economic geography. According to the results of a number of empirical studies, it was argued that the agglomeration process continues until a certain point – the beginning of the dispersion process, when centrifugal forces begin prevailing over centripetal forces.

The fundamental works of the new economic geography are the works of P. Krugman. According to the scientist, "low transportation costs and economies of scale stimulate agglomeration processes" (Krugman, 1991), "low transportation costs lead to agglomeration processes: concentration of industries in the region where initial conditions are better, with average transportation costs agglomeration processes occur when initial conditions differ significantly between regions" (Krugman, Venables, 1996).

Spanish scholar D. Puga argues that "in the presence of labor mobility, high trade costs lead to convergence, low trade costs stimulate agglomeration processes" (Puga, 1999). M. Fujita and H. Ogawa conclude that "agglomeration processes in a region are characterized by economic relations between producers that weaken as the distance between them increases" (Fujita, Ogawa, 1982). F. Marten and D.I.P. Ottaviano concluded from empirical studies that "if initially a larger number of firms produce differentiated goods in one region, the agglomeration process occurs in that region because the cost of innovation is lower. Then all innovation is concentrated in that region" (Martin, Ottaviano, 2001). "Modern research explains the emergence and development of agglomeration processes as a consequence of interregional interaction at large spatial scales" (Brakman, van Marrewijk, 2009).

[2] Big Economic Dictionary (2002). 5th edition, supplement and revision. Moscow: In-t novoi ekonomiki. 1280 p.

Considering the evolution of methodological approaches to the assessment of agglomeration processes and spatial inequality in foreign and Russian studies, it is advisable to identify separate blocks, the totality of which creates a unified methodological framework.

1. Methodological approaches to the identification and assessment of agglomerations.

To assess the development of agglomerations by the level of formation and development of its outer zone, scientists of the Institute of Geography of RAS and the Central Research Institute of Urban Development presented a system of indicators: agglomerativity coefficient (K_a), agglomerativity index (I_a), agglomeration development coefficient (K_{time}). Yu.L. Pivovarov presented a methodological approach to defining agglomeration boundaries (Pivovarov, 2002).

2. Methodological approaches to spatial concentration assessment

The scientific literature uses a number of indices to assess spatial concentration: Gini index (Gini, 1914); Theil index (Kolomak, 2013; Malkina, 2016); Atkinson index (Atkinson, 1970); Herfindahl – Hirschman concentration index (Suvorova, Kotlyarova, 2023; Lin et al., 2011; Han, Song, 2021), P. Krugman specialization index (Krugman, 1991).

3. Methodological approaches to the identification and assessment of periphery are in the process of formation and establishment, let us define the significant, in our opinion, indices of peripheralization of territories: Keeble's peripherality index (Copus, 2001), Eder's peripheralization index (Eder, 2019).

A common approach to assessing the emergence of agglomeration processes in the region is the method of W.S. Strange, which consists in analyzing the dynamics of population density in cities. If the density of specific cities increases at a faster rate, it indicates the emergence of agglomeration process (Strange, 2009). S.N. Rastvortseva modified this method by adding the assessment of migration growth and presented an algorithm for analyzing the development of agglomeration process in the regional economy (Rastvortseva, 2013).

Thus, we can conclude that to date in the foreign and Russian scientific literature there is no universally recognized methodological approach for identification, assessment, management and forecasting of agglomeration processes in the spatial economy, which confirms the significance and relevance of this study.

Methodology and information base of the research

1. The first step in assessing the potential of agglomeration processes is the definition of indicators. We should emphasize that the justification of indicators is intertwined with the opinions of researchers who define agglomerations and agglomeration processes.

The criteria of agglomeration processes of the region are:

– concentration of production and economic activity – in the process of defining the essence of agglomeration processes, this criterion is highlighted as their main indicator;

– population concentration is an important criterion of agglomeration processes taking place in the territorial space, as the economically active population migrates to cities and regions attractive for living, working and studying, contributing to the development of agglomeration processes;

– concentration of scientific and technological potential and innovations – this criterion in modern conditions of globalization development is important for assessing the potential of agglomeration processes, because along with the concentration of industry in regions with active agglomeration processes there is a concentration of technologies and innovations;

– concentration of housing infrastructure – housing infrastructure ensures the quality of life; in agglomerated regions, namely in the agglomeration core, the quality of life is higher, which determines the choice of this indicator;

– population welfare – it characterizes financial opportunities of the region's residents; an important indicator of the region's active agglomeration processes is a higher level of population welfare.

Each of the presented indicators describes agglomeration processes in the region from a certain perspective, which in general establishes the multifactoriality and complexity of this concept.

2. At the second stage of assessment, for each selected indicator, we will form a system of indicators with information availability, reliability and relevance, which will make it possible to comprehensively assess the potential of agglomeration processes in Russian regions. Within the framework of our methodology, it is advisable to use, on the one hand, a sufficient number (18 in our own set) of indicators combined into five functional blocks corresponding to the indicators of the agglomeration process, and, on the other hand, the resulting index that allows quantitatively assessing the potential of the agglomeration process in a particular region in dynamics. When forming the system of indicators of agglomeration processes in Russian regions, we took into account the intrinsic interconnectedness, which, when calculating the final index, ensures the cumulative accumulation of qualitative attributes and the reliability of the results obtained. We emphasize that each block includes the number of indicators that is really necessary and sufficient to ensure the reliability of the final assessment for each indicator of the agglomeration process. In our opinion, the presented system of indicators characterizes the whole range of significant aspects of agglomeration processes in Russian regions (*Table*).

The indicator "Concentration of production and economic activity" presents factors that most objectively reflect the level of concentration of production and economic sphere in the region, which in turn determines the intensity of agglomeration processes.

The use of factors in the indicator "Concentration of population" is based on the hypothesis: regions with a higher potential for agglomeration processes have higher population density, natural and migratory population growth, hence, a greater

Indicators for assessing agglomeration processes potential in Russian regions

No.	Indicator	Factor
1	Concentration of production and economic activity	1.1 Number of organizations, units 1.2 Retail trade turnover (without small businesses), in 2017 prices, thousand rubles 1.3 Number of labor force, total, persons 1.4 Density of economically active population, persons/km^2
2	Concentration of population	2.1 Population density; persons/km^2 2.2 Coefficient of natural increase, ppm 2.3 Migration, growth per year, ppm 2.4 Specific weight of urban population, % 2.5 Number of active subscribers of fixed mobile broadband access to the Internet per 100 persons, persons
3	Concentration of scientific and technological potential and innovation	3.1 Number of organizations performing scientific research and development, units 3.2 Share of economically active population engaged in R&D, % 3.3 Internal current expenditures on innovative research and development, million rubles 3.4 Volume of innovative goods, works and services, million rubles
4	Concentration of housing infrastructure	4.1 Total area of residential premises per inhabitant on average, total, m^2 4.2 Commissioning of residential buildings per 1,000 people, m^2
5	People's welfare	5.1 Median average per capita monetary income of the population, rubles 5.2 Individuals' funds (deposits) in ruble accounts with Sberbank of Russia per capita, rubles 5.3 Number of own passenger cars per 1,000 people, units
Source: Regions of Russia. Socio-economic indicators. Available at: https://rosstat.gov.ru/folder/210/document/47652 (accessed: January 8, 2025).		

number of active Internet users and a greater share of urban population.

The factors of the indicator "Concentration of scientific and technical potential and innovations" allow objectively assessing the innovative development level of the region, the subjects with intensive agglomeration processes have a higher level of innovative development.

An important indicator of agglomeration processes is "Concentration of housing infrastructure". This block in our own methodology reveals the provision of the population with housing and construction rates, which directly depend on agglomeration processes in the region.

For the indicator "People's welfare", it is proposed to use indicators that characterize the financial capabilities of the region's residents. An important characteristic of agglomerated regions is the level of money income. The statistical parameter "the number of own passenger cars per 1,000 people" demonstrates not only the level of people's welfare, but also shows the concentration of personal vehicles, which are necessary for making daily trips to work, school, etc. to the "core" of the agglomeration.

The computational apparatus of the study includes several steps.

Standardization of indicators will be based on the variation spread to a single numerical measure (0–1) using the following formula:

$$P_i = \frac{X_{ij} - X\text{ср}_{min}}{X\text{ср}_{max} - X\text{ср}_{min}}, \quad (1)$$

where:

Pij – standardized i indicator of region j;

Xij – actual i indicator of region j;

Xav_{min} – averaged over the five worst regions, the minimum value of indicator i of the factor in the sample of regions;

Xav_{max} – maximum value of indicator i of the indicator in the sample of regions averaged over the five best regions.

$$I_j = (\sum P_{ij})/n, \quad (2)$$

where:

I_j – normalized assessment of the agglomeration process potential of region j for each indicator,

n – total number of indicator factors.

$$AP_j = \frac{I_{j1} + I_{j2} + I_{j3} + I_{j4} + I_{j5}}{5}, \quad (3)$$

where:

AP_j – normalized index of agglomeration potential in region *j*;

I_{j1}–I_{j5} – normalized estimates of the agglomeration process potential of region *j* for each of the five indicators.

Let us explain that the averaging of the five worst/best regions of the indicator values was carried out to reduce the gap in values, but the ranking of the subjects in the sample is not violated.

The final index (AP_j) obtained by calculation allows correctly measuring the interregional differentiation of the potential of agglomeration processes in Russia's regions and position each constituent entity of the RF in relation to other regions.

At the third stage, we will analyze the specialization of the Russian regions (agriculture, hunting, fishing and fish farming; forestry and logging; mining; manufacturing; research and development) by calculating the location quotient:

$$LQ = \frac{\frac{E_{ji}}{E_j}}{\frac{E_i}{E}}, \quad (4)$$

where:

LQ –location quotient;

E_{ji} – number of employed in sector of economy *i* in region *j*;

E_j – total employment in region j;

E_i – number of employed persons in economic sector *i*;

E – total number of employed in the country;

i – sector of the economy;

j – region.

The location quotient shows how many times the concentration of a particular type of economic activity exceeds the national average, i.e. it characterizes the region in relation to the specifics of industrial production.

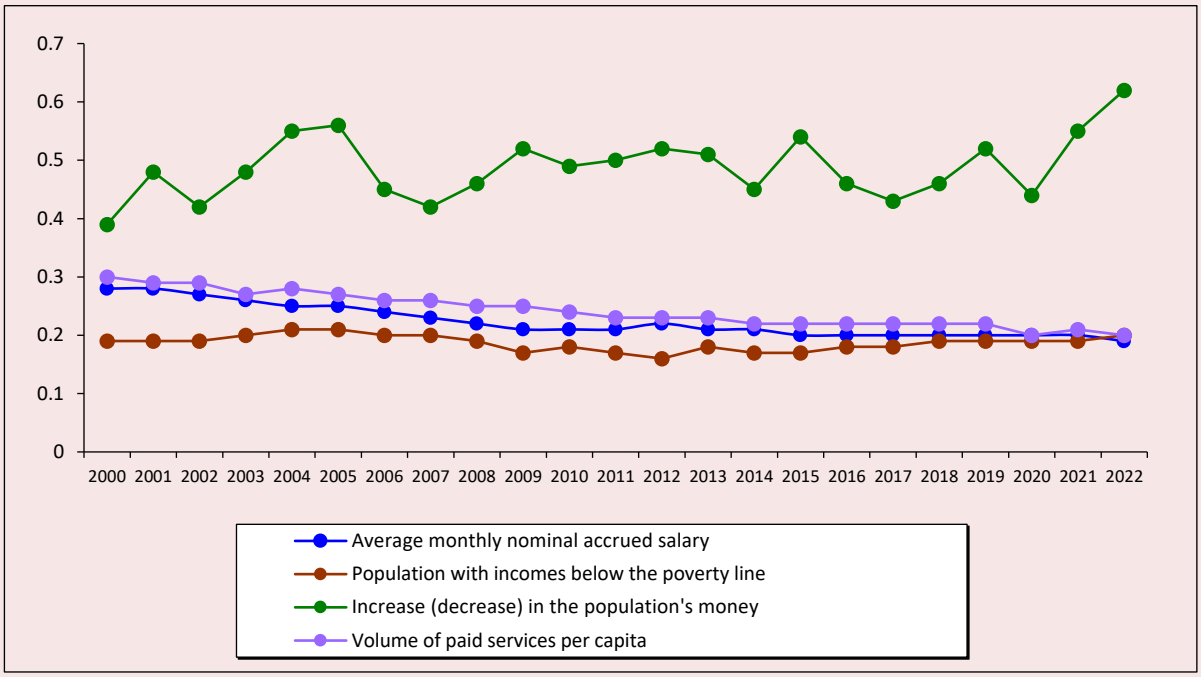
At the fourth stage of the assessment, we use the results obtained by calculation to construct a matrix "level of agglomeration process potential in the region – location quotient of certain types of economic activities". It is assumed that the matrix takes into account the interaction between the agglomeration process potential of the territory and the level of concentration of certain types of economic activities in it. The study was conducted for 85 Russia's regions. The data for the Arkhangelsk and Tyumen regions were taken separately, excluding autonomous areas. Autonomous okrugs were taken into account as separate subjects of the Federation. The study period was 2000, 2008, 2016–2022. The information base was the data of the Federal State Statistics Service.

Results obtained and discussions

An important feature of cities and regions of the Russian Federation is their high level of differentiation in a number of important socio-economic and natural-geographical indicators, which creates conditions for the emergence and development of agglomeration processes in some territories and the outflow of resources (human capital, innovation, investment, etc.) from peripheral regions. To give a general picture of the differentiation of Russian regions, let us calculate the Gini index by individual socio-economic parameters (*Fig. 1, 2*). The choice of the Gini coefficient is determined by the simplicity of calculation, the absence of the need to identify the subjects of assessment.

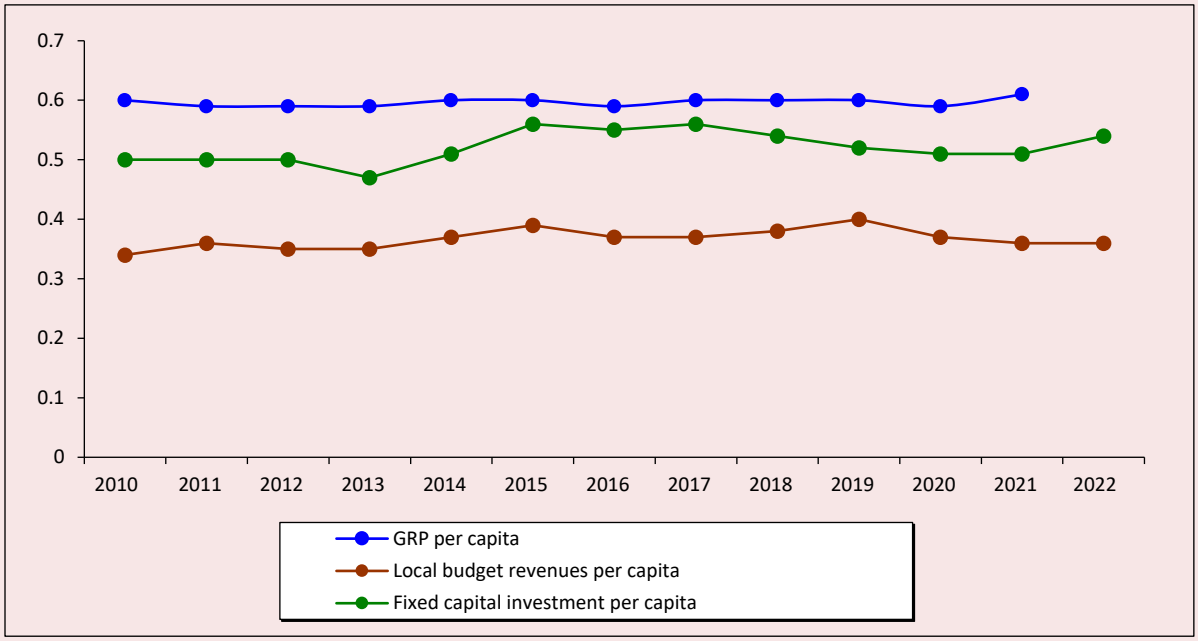
The Gini index for the indicator "increase (decrease) of money with the population", which amounted to 0.39 (minimum value) in 2000, reached the maximum value in 2022 – 0.62; the current trend allows concluding about the growth of inequality by this criterion. In 2000, 22.5% of

Figure 1. Social inequality dynamics of Russian regions in 2000–2022, Gini index



According to: Federal State Statistics Service data. Available at: https://rosstat.gov.ru/folder/210/document/13204 (accessed: August 15, 2024).

Figure 2. Economic inequality dynamics in Russian regions in 2010–2022, Gini index



According to: Federal State Statistics Service data. Available at: https://rosstat.gov.ru/folder/210/document/13204 (accessed: August 15, 2024).

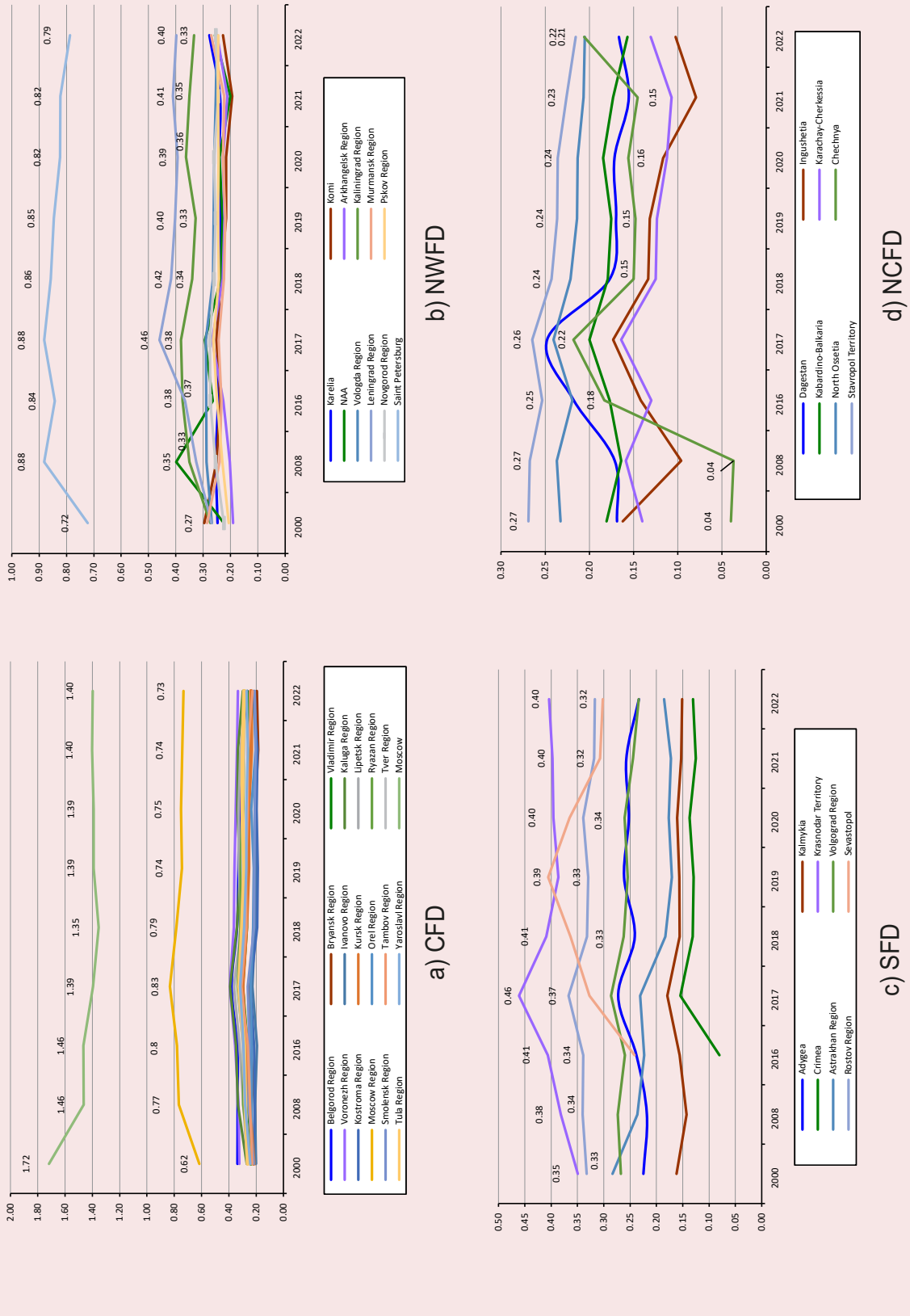
the population's money savings were concentrated in the five leading regions, in 2002 – 26.6%, in 2022 – 48.8%. According to the criteria "average monthly nominal accrued wages", "population with incomes below the poverty line", "the volume of paid services per capita", there was a tendency to reduce differentiation, but no significant changes were observed.

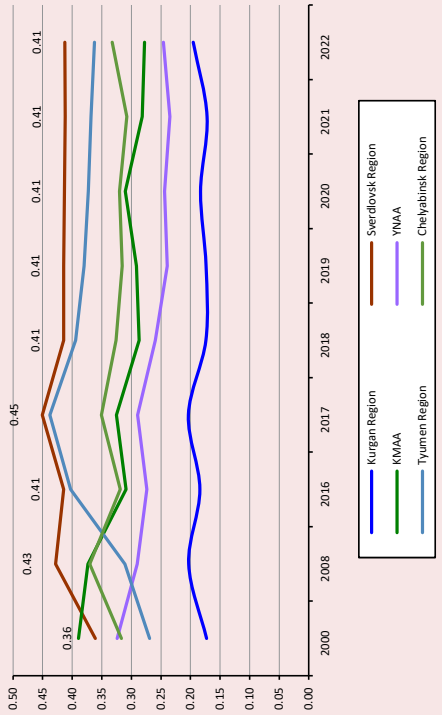
The data presented in *Figure 2* show a consistently high level of inequality for the indicator "GRP per capita", we emphasize that there is no significant dynamics during the analyzed period. An ambiguous dynamics of the Gini coefficient was obtained for the indicator "investment in fixed capital per capita": there are both periods of growth and decline in inequality. The calculations showed a low level of inequality of Russian regions by the criterion "local budget revenues per capita".

Figure 3 shows the dynamics of the agglomeration potential index in Russian regions by federal districts.

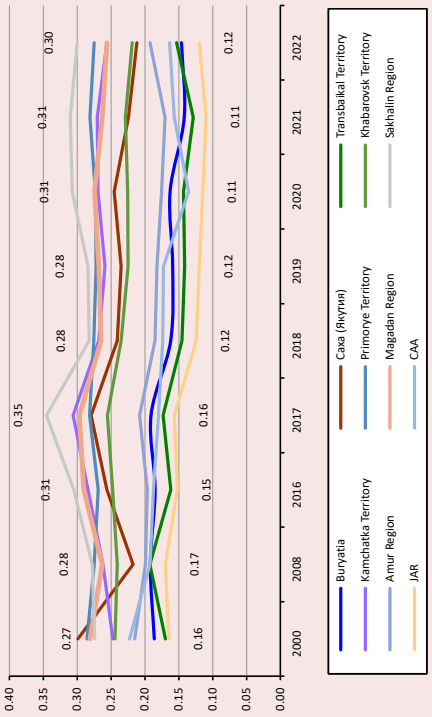
According to the data presented in Figure 3, we can conclude that there is a high differentiation in the Central and Northwestern Federal Districts, with Moscow, Saint Petersburg and the Moscow Region being the leaders over the analyzed period. In 2008, negative dynamics of the agglomeration process potential is observed in Moscow, but at the same time in the Moscow Region, there is a growth trend (*Fig. 3a*), i.e. high cost of living (prices for real estate, rent of apartments and offices, technical premises) has created a situation when the inflow of human potential to the Moscow Region has increased. The population buys real estate in the Moscow Region, while making daily trips to Moscow for work, study, as well as using cultural, medical and sports spheres of the capital region. In the Northwestern Federal District (Fig. 3b), the maximum value of the agglomeration processes potential index was obtained for Saint Petersburg with ambiguous dynamics. Significant positive dynamics of the analyzed indicator was recorded

Figure 3. Dynamics of the agglomeration process potential index in Russian regions in 2000–2022

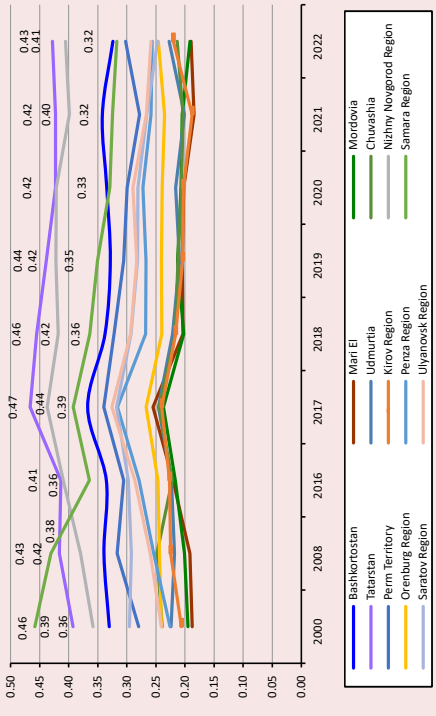




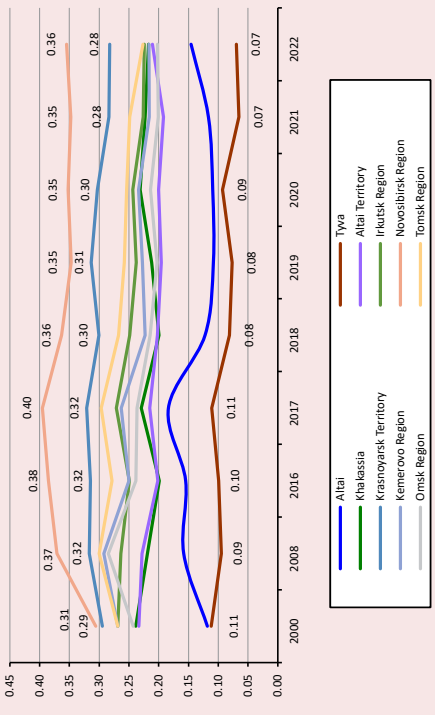
f) UFD



h) FEFD



e) VFD



g) SibFD

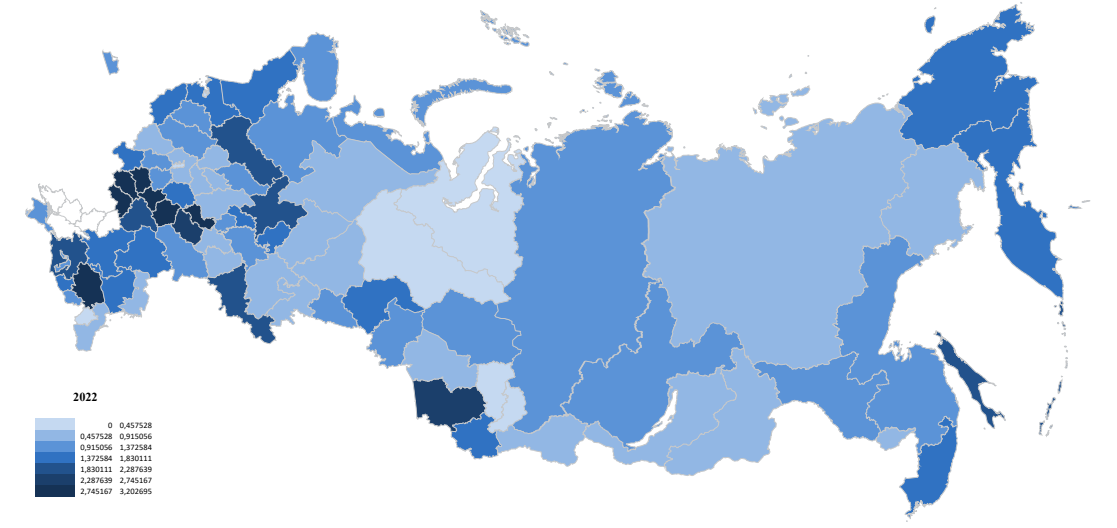
According to: Federal State Statistics Service data. Available at: https://rosstat.gov.ru/folder/210/document/13204 (accessed: August 15, 2024).

in the Leningrad and Kaliningrad regions, which indicates the intensity of agglomeration processes and the formation of agglomerations in these subjects of the Russian Federation. In the Southern Federal District (Fig. 3c), the Krasnodar Territory, the Rostov Region and Sevastopol can be referred to the subjects with intensive agglomeration processes (high values and positive dynamics of the agglomeration processes potential index). Negative dynamics of the analyzed index was recorded in the Astrakhan Region. Assessing the agglomeration processes in the North Caucasus Federal District (Fig. 3d), we conclude that, in general, all subjects are characterized by low agglomeration development potential, and in some years the Chechen Republic and the Republic of Ingushetia have no agglomeration processes. Among the subjects of the Volga Federal District (Fig. 3e), it is reasonable to single out the Republic of Tatarstan and the Nizhny Novgorod Region as leaders in the analyzed index. Of interest is the Samara Region, where the negative dynamics of agglomeration processes potential is observed. In the Urals Federal District (Fig. 3f), a significant positive dynamics, indicating the intensity of agglomeration processes, is observed in the Sverdlovsk and Tyumen regions. In the Siberian Federal District (Fig. 3g), the leaders in terms of agglomeration processes development are the Novosibirsk Region and the Krasnoyarsk Territory. The absence of agglomeration processes was recorded in the Republic of Tyva. The results of calculations obtained for the Far East (Fig. 3h) indicate a low potential of agglomeration processes and their absence in some regions.

Figures 4–8 present the results of the analysis of specialization of the Russian regions. We emphasize that the development of agriculture, forestry and extractive industries is determined by factors concerning the first nature: fertile soils, availability of minerals, climatic conditions.

According to the data presented in Figure 4, we can conclude that in the sector "agriculture" the maximum level of specialization is observed in the Tambov Region (LQ – 3.2), the Stavropol Territory (LQ – 3.02), the Republic of Mordovia (LQ – 2.8), the Orel (LQ – 2.8), Belgorod (LQ – 3), Kursk (LQ – 2.8), Lipetsk (LQ – 2.7), Penza (LQ – 2.3) regions, and the Altai Territory (LQ – 2.3).

Figure 4. Location quotient by type of activity "agriculture, hunting, fishing and fish farming" in the regions of the Russian Federation in 2022

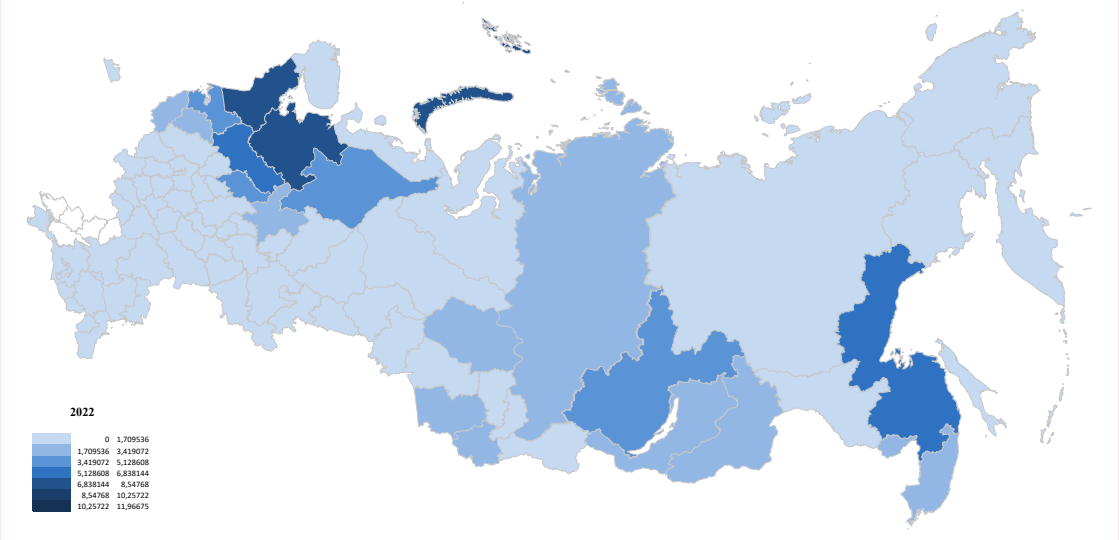


According to: EMISS data. Available at: https://rosstat.gov.ru/emiss (accessed: September 15, 2024).

The leading regions of the Russian Federation specializing in the "forestry and logging" sector include the subjects of the European North and Siberia: the Arkhangelsk Region (LQ – 7.2), the Republic of Karelia (LQ – 6.9), the Vologda Region (LQ – 5.9), the Khabarovsk Territory (LQ – 5.4), the Irkutsk Region (LQ – 4.9), the Leningrad Region (LQ – 4.7), the Komi Republic (LQ – 4.4) (*Fig. 5*).

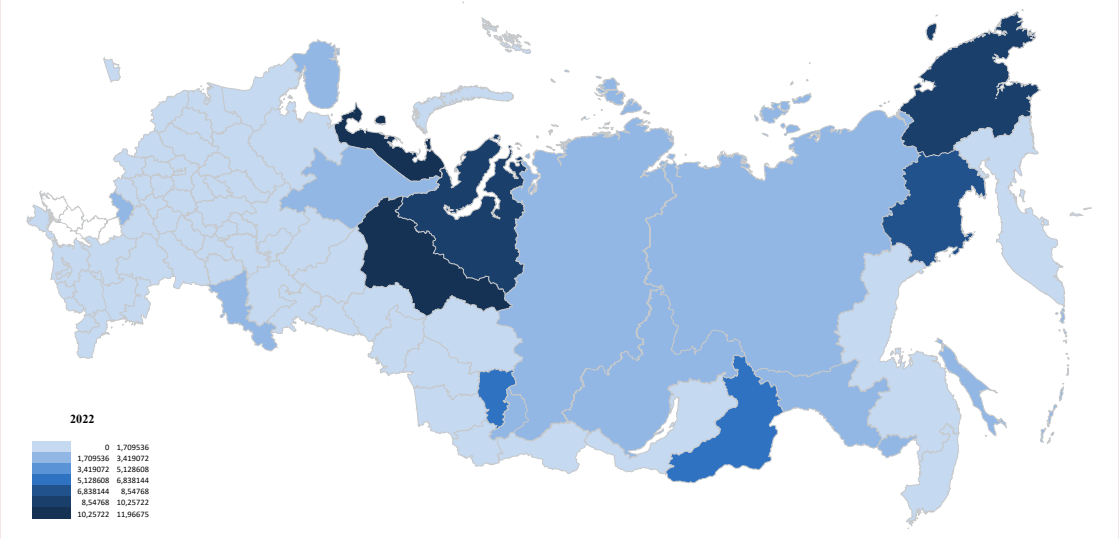
According to the results of the calculations, the leading regions specializing in the extractive industry sector include Khanty-Mansi (LQ – 11.9), Nenets (LQ – 10.4), Yamal-Nenets (LQ – 9.50), Chukotka (LQ – 8.80) Autonomous Areas, the Magadan Region (LQ – 8.4). It is important to emphasize the high level of differentiation of the location quptient for the "extractive industry" sector

Figure 5. Location quotient by type of activity "forestry and logging" in the regions of the Russian Federation in 2022



According to: EMISS data. Available at: https://rosstat.gov.ru/emiss (accessed: September 15, 2024).

Figure 6. Location quotient by type of activity "mining of minerals" in the regions of the Russian Federation in 2022



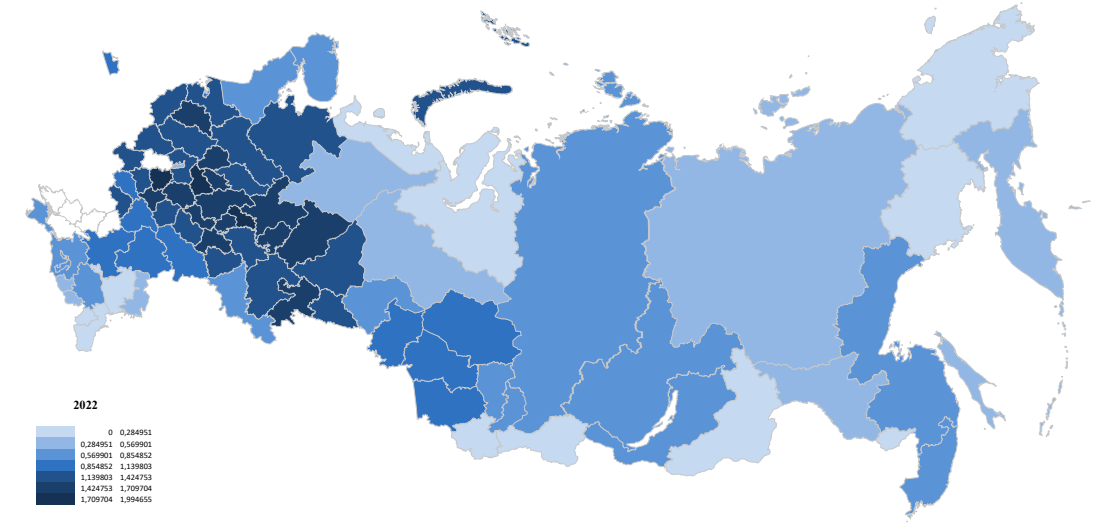
According to: EMISS data. Available at: https://rosstat.gov.ru/emiss (accessed: September 15, 2024).

in the regions of the Russian Federation, since the development of this industry is determined by the availability of minerals (*Fig. 6*).

According to the data presented in *Figure 7*, we conclude that the regions specializing in the "manufacturing industry" sector form a "belt" from the north-west to the south-east up to the Urals, with the exception of the subjects of the North Caucasus and the south. In this sector, a high level of differentiation is not observed due to the fact that the specialization of the "manufacturing industry" sector is not dictated by natural factors.

The specialization of regions in the "research and development" sector is also not dictated by factors of the first nature, but is widely differentiated in the RF constituent entities (*Fig. 8*). The maximum values

Figure 7. Location quotient by type of activity "manufacturing industry" in the regions of the Russian Federation in 2022



According to: EMISS data. Available at: https://rosstat.gov.ru/emiss (accessed: September 15, 2024).

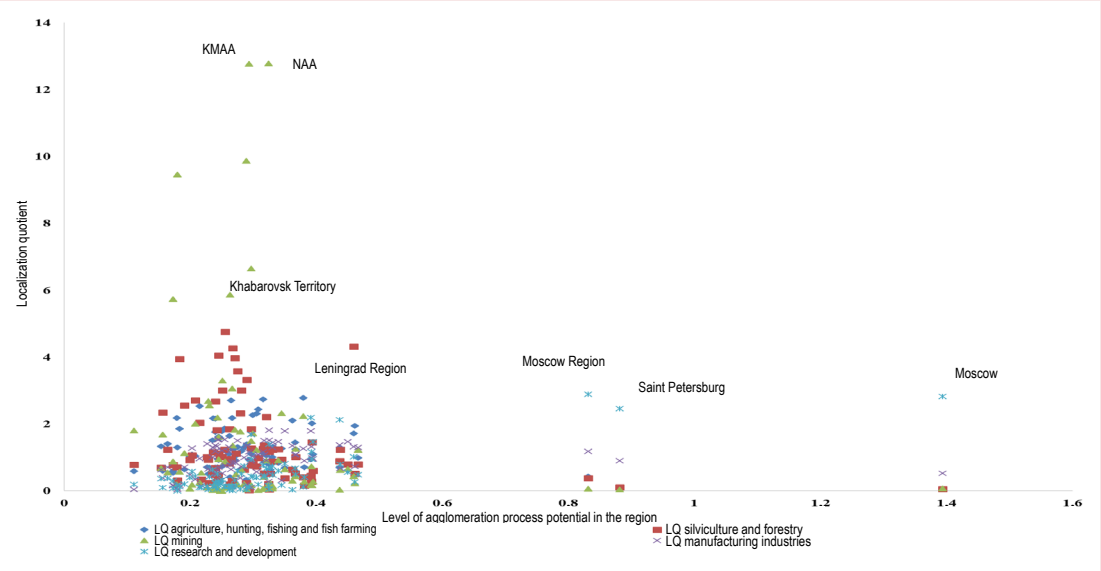
Figure 8. Location quotient by type of activity "research and development" in the regions of the Russian Federation in 2022

According to: EMISS data. Available at: https://rosstat.gov.ru/emiss (accessed: September 15, 2024).

of the location quotient by the type of activity "research and development" were obtained for the Omsk Region (LQ – 2.7), Moscow (LQ – 2.6), the Moscow Region (LQ – 2.4), the Nizhny Novgorod Region (LQ – 2.15), Saint Petersburg (LQ – 2.1).

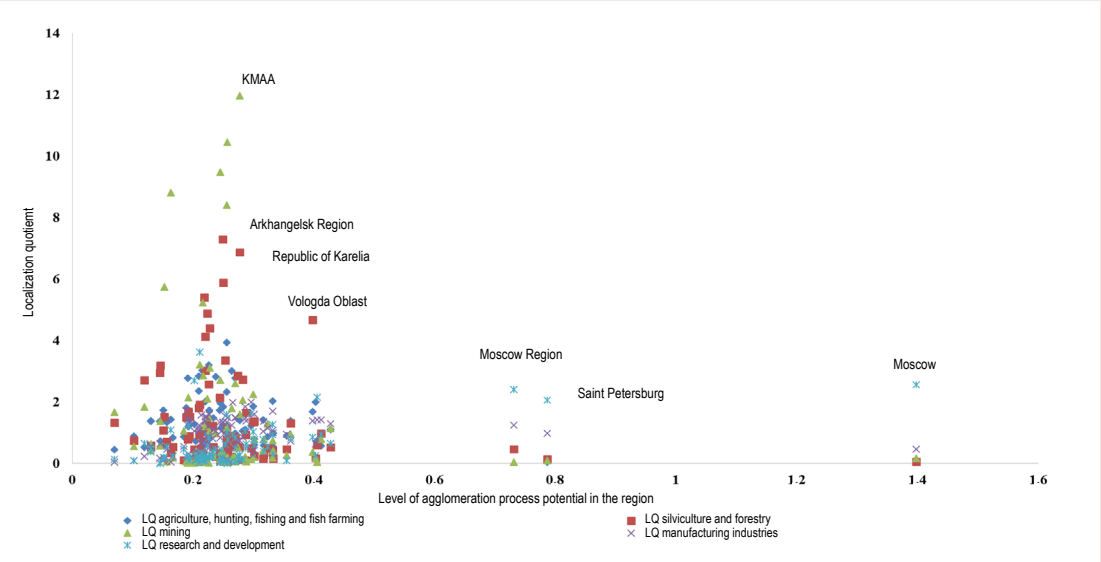
Figures 9–10 show the matrices "level of agglomeration process potential in the region – location quotient of certain types of economic activities" in the regions of the Russian Federation in 2017, 2022.

Figure 9. Matrix "level of agglomeration process potential in the region – location quotient of certain types of economic activities" in the regions of the Russian Federation in 2017



According to: EMISS data. Available at: https://rosstat.gov.ru/emiss (accessed: September 15, 2024).

Figure 10. Matrix "level of agglomeration process potential in the region – location quotient of certain types of economic activities" in the regions of the Russian Federation in 2022



According to: EMISS data. Available at: https://rosstat.gov.ru/emiss (accessed: September 15, 2024).

In the Russian Federation as a whole, the highest level of concentration is determined for the type of economic activity "mining of minerals", followed by "forestry and logging", while the agglomeration process potential index in these subjects is in the range of 0.2–0.3. In the regions – leaders in terms of agglomeration process potential (Moscow, Saint Petersburg, Moscow Region), the maximum values of the location quotient were obtained for the type of economic activity "scientific research and development", the second place was "manufacturing production", i.e. types of economic activities that are not caused by factors concerning the "first nature". According to the data presented in Figures 9–10, we can conclude about the growth of the location quotient in the RF regions in 2022 for the types of activities "forestry and logging", "scientific research and development".

Conclusion

The study presents a methodological toolkit for assessing the potential of agglomeration processes in Russia's regions. Approbation of our methodological toolkit made it possible to analyze the dynamics of the agglomeration process potential of an individual territory, to assess the interaction between the agglomeration process potential of a territory and the level of concentration of certain types of activities in it.

In the regions of the Russian Federation, a high degree of differentiation of agglomeration processes potential in the Central and Northwestern federal districts has been revealed. The rise in the cost of living (prices for real estate, rent of apartments and offices, technical premises) in Moscow provoked the inflow of human potential to the Moscow Region. The population buys real estate in the Moscow Region, while making daily trips to Moscow for work, study, as well as using cultural, medical and sports spheres of the capital region. Intensive agglomeration processes were recorded in the Kaliningrad, Leningrad, Rostov, Nizhny Novgorod, Sverdlovsk, Tyumen, Novosibirsk regions, the Krasnodar and Krasnoyarsk territories, Sevastopol, and the Republic of Tatarstan.

The subjects of the North Caucasus and the Far East have a low potential for agglomeration development; in some years the Chechen Republic and the Republic of Ingushetia have no agglomeration processes.

In the regions – leaders by the level of agglomeration process potential (Moscow, Saint Petersburg, Moscow Region), the maximum values of the location quotient were obtained for the type of economic activity "scientific research and development", the second place – "manufacturing production".

Our proposed methodological tools can be used as a basis for regular monitoring of the regional economy efficiency assessment to obtain information about the nature and dynamics of the potential of agglomeration processes, the possibility of obtaining the effect of the interaction between the agglomeration process of the territory and the level of concentration of certain types of economic activity on it.

The results of the study can be used by regional authorities in the development of strategic planning documents, by a wide range of researchers in the field of spatial economy, as well as by teachers and students as part of training in economic specialties.

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Scenario Forecasting of the Probability of Chemical Industry Enterprises Bankruptcy in the Sverdlovsk Region

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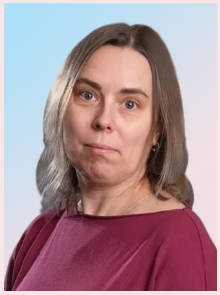

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Abstract. The relevance of the study is due to the increasing risks of bankruptcy of chemical industry enterprises in the context of global socio-economic instability. The aim of the work is to design forecast scenarios for the dynamics of the probability of chemical industry enterprises bankruptcy, taking into account the influence of internal and external factors. The paper uses a methodological approach to forecasting the probability of enterprises bankruptcy, which combines discriminant analysis according to the modified Altman method, multiple least squares regression analysis, assessing the impact of internal and external factors on the probability of enterprises bankruptcy, as well as autoregressive modeling with a moving average (ARIMA/ARMA) to build forecast scenarios (inertial, extremely pessimistic and optimistic) for the probability of bankruptcy. The study uses data from the primary reporting of chemical industry enterprises in the Sverdlovsk Region for the period from 1999 to 2023 and statistical data from Rosstat. The study has found that large and small chemical enterprises are more susceptible to bankruptcy risks than midsize ones due to high creditworthiness, insufficient amount of stock and own working capital. We identify main factors influencing the probability of bankruptcy for each group of chemical industry enterprises: for large enterprises, it is the provision of own working capital, profitability of non-current assets, number of economically active population in the Sverdlovsk Region, amount of costs for innovative activities of organizations in the region; for midsize enterprises, it is the provision of total capital and profitability of current assets; for small enterprises, it is the provision of own working capital and inventory turnover. The projected scenario forecasts allow us to establish a low probability of bankruptcy for midsize chemical enterprises, an increased probability for large enterprises and a significant probability for small enterprises. Our approach to scenario modeling and forecasting the probability of bankruptcy, taking into account the influence of various factors, tested on the example of chemical enterprises, can be used to develop strategic plans and measures of state support for industry enterprises aimed at reducing the risks of financial insolvency and increasing their financial stability.

Key words: probability of enterprises bankruptcy, modified Altman model, scenario modeling and forecasting, chemical industry.

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Introduction

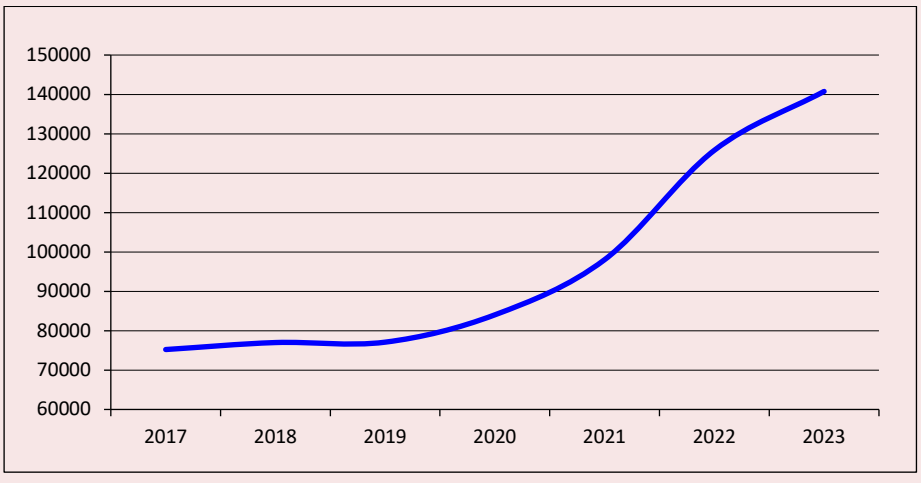
In the context of economic uncertainty and increasing sanctions pressure on the Russian economy, the issues of providing business entities with production stock and liquid working assets for timely meeting of current and short-term liabilities are becoming more acute, and the level of creditworthiness of enterprises is rising. All this reduces their financial stability and increases the bankruptcy risk. The studies presented in the scientific literature assess the risks of individual enterprises stability and bankruptcy, which makes it difficult to determine the financial condition of each industry as a whole. This research is devoted exactly to the development of methods for assessing the risks of economic sectors bankruptcy.

The chemical industry, focused on the production of large-capacity and low-value-added goods, is one of the most significant sectors of the Russian economy, particularly in the Sverdlovsk Region. The main growth areas of the chemical complex in the region are the production of paint materials and heat-resistant coloring agents, large-capacity chemicals, methanol, small-capacity chemicals (sorbents, additives to polymeric materials), high-tenacity textile, polyamide fibers, yarns and nets[1].

In 2023, the chemical industry accounted for 4.4% of the total volume of shipped products, goods and services of manufacturing industries in the Sverdlovsk Region[2]. The trend in the volume of shipped products, goods and services of the chemical industry in the Sverdlovsk Region for 2017–2023 shown in *Figure 1* indicates that this industry is actively developing and has not been affected by any sanctions restrictions.

The Sverdlovsk Region, according to the rating at the Sverdlovsk Region Investment Portal, is one of the top 10 regions of Russia in terms of exporting chemical products abroad. Currently, the chemical industry in the region is facing issues of depreciation of the facilities, lack of investment resources due to limited bank lending and the difficulty of attracting foreign direct investment, issues of stock rotation due to the complication of logistics chains of imported raw materials, their increased costs, insufficient provision of chemical enterprises with human resources. These challenges increase the risks of chemical industry enterprises bankruptcy. That is why the assessment and projection of trends in financial stability and insolvency of chemical industry enterprises in the Sverdlovsk Region, as well as the research of trends in internal and external factors affecting them, are necessary tasks for timely prevention of risks of enterprises bankruptcy in a key industry of the region.

Figure 1. Trend in shipped products, goods and services of the chemical industry in the Sverdlovsk Region for 2017–2023, million rubles



Compiled based on: Federal State Statistics Service data.

[1] Chemical industry in the Sverdlovsk Region. Available at: https://invest-in-ural.ru/investment/khimicheskaya-promyshlennost

[2] Regions of Russia. Socio-economic indicators. 2024: Statistical book. Rosstat. Moscow, 2024.

Theoretical overview

To assess the probability of bankruptcy of enterprises in economic sectors, methodological approaches such as multiple discriminant analysis based on the methods of W. Beaver (Beaver, 1966), E. Altman (Altman, 1968), R. Taffler and H. Tisshaw (Taffler, Tisshaw, 1977), J. Conan and M. Holder (Conan, Holder, 1979), J. Fulmer (Fulmer et al., 1984), J. Legault (Legault, 1987) and others; econometric analysis by J.A. Ohlson (Ohlson, 1980), C. Zavgren (Zavgren, 1983), M. Zmijewski (Zmijewski, 1984), D. Chesser (Chesser, 1994), H. Ghafari (Ghafari et al., 2024) and others; machine learning models of H. Gholampoor and M. Asadi (Gholampoor, Asadi, 2024), A. Shevelev and G. Buzanov (Shevelev, Buzanov, 2022).

The risk of bankruptcy of individual economic sectors was assessed by B. Pilch (Pilch, 2021), who used five Polish bankruptcy forecasting models: the models of Hadasik, Mączyńska and Zawadzki, Pogodzińska and Sojak, Wierzba, Hamrol and Czajka and Piechocki, but they did not allow properly predicting the trend in bankruptcy of enterprises in individual economic sectors.

K.A. Djonaputra and R.S. Nadira carried out an analysis of the risk of bankruptcy of manufacturing companies in Indonesia using three different bankruptcy forecasting models: the Conan and Holder model, the J-UK model and the Taffler model. The assessment of the financial performance of these companies, the prediction of their solvency and bankruptcy risk, as well as the assessment of the stability of their growth rates were carried out using the Altman Z-score model (Djonaputra, Nadira, 2024).

H.T.P. Le and co-authors revealed in their study how financial constraints and total assets affect the risk of corporate bankruptcy of listed firms in Vietnam using the dynamic system Generalized Method of Moments and the calculation of the Altman Z-score (Le et al., 2024).

The prediction of bankruptcy of companies and the analysis of the forecasting capabilities of factor analysis were performed by N. Bărbut and M. Madaleno using discriminant analysis and the Altman, Conan and Holder, Taffler, Springate and Zmijewski models to assess the risk of bankruptcy. To evaluate the impact of bankruptcy risks on the company performance, a dynamic panel-data model with the Generalized Method of Moments (GMM) was applied. Tobit models (Bărbut, Madaleno, 2020) were used to assess the impact of company performance indicators on the changes in their bankruptcy risks.

Logit models for assessing the enterprises bankruptcy risk were used by V.E. Rygin[3]. A feature of these models, according to the author, is the ability to account for the nonlinear dependence of the bankruptcy risk level on factors that best reflect the functioning of large and small enterprises in the metallurgical industry, which provides a higher accuracy in assessing the enterprises bankruptcy risk compared with existing models. Moreover, V.E. Rygin proposed tools for predicting the risk of metallurgical industry enterprises bankruptcy, considering its trend and behavior for a particular enterprise and allowing predicting the changes in the risk for a period up to one year[4].

A scenario approach to diagnosing the probability of bankruptcy and an algorithm for controlling the risk of mining and metallurgical

[3] Rygin V.E. (2014). *Razrabotka metodicheskogo instrumentariya otsenki i upravleniya riskom bankrotstva promyshlennykh predpriyatii (na primere predpriyatii metallurgicheskoi otrasli): avtoref. ... kand. ekon. nauk: 08.00.05 Ekonomika i upravlenie narodnym khozyaistvom (ekonomika, organizatsiya i upravlenie predpriyatiyami, otraslyami, kompleksami – promyshlennost')* [Development of Methodological Tools for Assessing and Managing the Bankruptcy Risk in Industrial Enterprises (Using the Example of Metallurgical Industry Enterprises): Thesis Abstract: Candidate of Sciences (Economics): 08.00.05 Economics and Management of the National Economy (Economics, Organization and Management of Enterprises, Sectors, Complexes – Industry)]. Moscow.

[4] Ibidem.

enterprises bankruptcy were proposed by N.A. Kazakova, A.F. Leshchinskaya, A.E. Sivkova (Kazakova et al., 2018). The correlation and regression analysis of 12 factor indicators used in discriminant bankruptcy forecasting models made it possible to select five indicators that lack a significant correlation: assets profitability coefficient, ratio of working capital to total assets, assets turnover coefficient, ratio of current liabilities to total assets, and cash ratio. The scenario approach was also used by S.N. Borlea, M.V. Achim (Borlea, Achim, 2014) for assessing the risk of firms bankruptcy in the Romanian metallurgical industry. The authors designed a pessimistic scenario on bankruptcy probability in the Romanian metallurgical industry based on the Altman model, and a more optimistic perspective based on the Conan and Holder model. The development of forecast scenarios for companies using economic assessment in order to prevent their possible bankruptcy was presented by L.B. Sungatullina, Yu.I. Chupova (Sungatullina, Chupova, 2020).

The financial stability and bankruptcy probability in the chemical industry can also be assessed by the methods listed above.

A study by E.V. Orlova (Orlova, 2019) examined the theoretical and practical aspects of constructing the Z-model using discriminant analysis for a single chemical enterprise. The solvency of chemical industry enterprises in the Orenburg Region was determined by Yu.O. Shavrina (Shavrina, 2023) using the coefficient method, Dontsova – Nikiforova solvency assessment scoring models and the Savitskaya model. The identified trends allowed establishing patterns of solvency and financial stability in the studied sector of the regional economy, as well as to distinguish controversial interpretation of the values obtained with the applied methods. An algorithm for constructing an economic and mathematical model (logit model) for diagnosing the risk of an agrochemical industry enterprise bankruptcy was proposed by V.Yu. Zhdanov and L.B. Vinnichek (Zhdanov, Vinnichek, 2022).

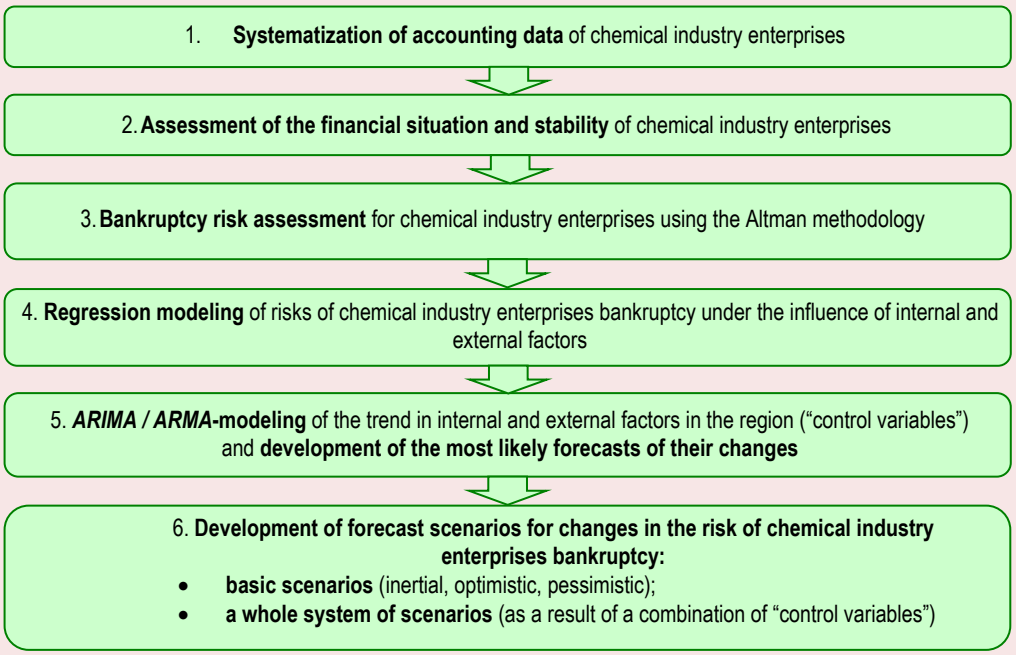
A number of authors have used the rating analysis method to assess the financial stability of chemical industry enterprises. ACRA Rating Agency has developed a methodology for internationally assigning credit ratings to non-financial companies, revealing the features of rating analysis of the operational and financial profiles of chemical industry enterprises[5]. The analysis and generalization of practical experience in assessing the risks of Russian chemical industry companies by rating agencies are presented in the work by O.V. Berezhnaya, N.V. Solovyeva (Berezhnaya, Solovyeva, 2020). The financial risks in chemical enterprises are characterized by a high variation coefficient, which indicates the heterogeneity of the company financial condition.

In the research by A.G. Saksin, a systematic approach to the strategic development of the chemical complex was created, two alternative scenarios for the chemical complex development were designed – inertial (passive) and innovative (active), criteria and indicators for resolving a systemic issue were proposed. Namely, these are the volume of own produced shipped goods, the share of chemical output in the total volume of shipped goods in the manufacturing industry, and the output of a number of key goods per capita (Saksin, 2010).

Scenario forecasting methods presented in Russian and foreign works do not allow assessing the bankruptcy risks in economic sectors as a whole, but focus on individual enterprises or their groups, and the models used in constructing scenarios do not consider "control variables", a limited set of assessed factors is used.

[5] ACRA: Principles of assessment of sector-specific factors of rating analysis of non-financial companies: Chemical industry (2023). Moscow.

Figure 2. Adapted algorithm for scenario modeling and forecasting the risks of chemical enterprises bankruptcy in the region



Compiled based on: (Naumov et al., 2024c).

Methodological approach

A theoretical and methodological review of scientific works has shown that there is a gap in scenario forecasting of the risk of chemical industry enterprises bankruptcy. This research is based on the theoretical and methodological approach developed by I.V. Naumov, N.L. Nikulina, A.A. Bychkova (Naumov et al., 2024a; Naumov et al., 2024c) to scenario modeling and forecasting the risk of enterprises bankruptcy in various economic sectors *(Fig. 2)*.

This approach allows filling the identified gap and includes assessing the financial stability of the studied economic sectors, their bankruptcy risk, building regression models of the dependence of changes in the bankruptcy risk on a whole system of internal and external factors, conducting autoregressive modeling of the trend in internal and external factors using a moving average (ARIMA/ARMA). The novelty of the authors' approach is the use of primary and annual accounting documents of enterprises operating in the regional system according to their industry, as well as the systematic use of regression and autoregressive modeling. The methodological approach developed by the authors allows assessing enterprises financial solvency more accurately, taking into account their size, sector specifications, and the differentiation of their bankruptcy risk levels. Its significant advantage is that thresholds are not chosen subjectively when assessing the financial solvency of companies and sectors. Instead, individual thresholds for each sector in the region are calculated based on the trend that has been observed over a long period of time. The Z-score is calculated and evaluated not for individual enterprises, but for their totality, considering their size, which will provide an in-depth study on the risks of regional sectors

Table 1. Trends in indicators of the financial position and stability of chemical industry enterprises in the Sverdlovsk Region

Indicator	Size	Year									
		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Cash ratio (standard: > 0.2)	Large	0.21	0.20	0.17	0.15	0.41	0.59	0.35	0.27	0.27	0.16
	Midsize	0.61	0.64	0.80	0.23	0.64	0.58	0.74	0.51	0.25	0.26
	Small	0.12	0.11	0.14	0.13	0.11	0.14	0.16	0.16	0.19	0.18
Quick ratio (standard: > 1)	Large	0.60	0.65	0.72	0.51	0.91	1.43	0.98	0.95	0.99	0.78
	Midsize	1.07	1.30	1.77	1.34	1.58	1.37	1.81	1.48	2.33	1.90
	Small	0.59	0.68	0.63	0.73	0.66	0.67	0.70	0.74	0.82	0.87
Current ratio (standard: > 1–2)	Large	0.97	1.02	1.17	0.92	1.37	1.97	1.34	1.49	1.56	1.55
	Midsize	1.36	1.66	2.23	1.55	2.12	2.07	2.44	2.25	3.13	2.58
	Small	0.95	1.03	1.05	1.23	1.16	1.12	1.20	1.24	1.42	1.50
Liquidity in fund raising (standard: > 0.5)	Large	0.36	0.36	0.44	0.40	0.46	0.53	0.36	0.53	0.53	0.75
	Midsize	0.29	0.36	0.46	0.20	0.54	0.70	0.63	0.77	0.78	0.68
	Small	0.34	0.34	0.41	0.48	0.48	0.42	0.48	0.48	0.55	0.61
Working capital availability (standard: > 0.1)	Large	-0.54	-0.55	-0.37	-0.42	-0.10	-0.14	-0.15	-0.05	-0.04	0.01
	Midsize	0.15	0.33	0.44	0.35	0.39	0.40	0.46	0.44	0.56	0.52
	Small	-0.34	-0.14	-0.15	0.01	-0.09	-0.03	0.03	0.00	0.14	0.14
Stock availability	Large	-3906	-4341	-3656	-3051	-5240	-5503	-6158	-5897	-7024	-9366
	Midsize	-83	247	452	264	449	220	735	393	1496	1357
	Small	-1433	-1420	-1456	-1031	-1769	-1797	-1918	-2237	-1935	-2271
Financial independence (standard: > 0.5)	Large	0.22	0.25	0.28	0.36	0.27	0.25	0.26	0.24	0.25	0.32
	Midsize	0.51	0.57	0.67	0.56	0.61	0.64	0.64	0.61	0.67	0.64
	Small	0.39	0.38	0.40	0.46	0.41	0.40	0.41	0.40	0.36	0.37
Leverage (standard: < 0.7)	Large	3.47	3.06	2.60	1.81	2.76	2.93	2.81	3.08	2.96	2.14
	Midsize	0.95	0.75	0.50	0.79	0.64	0.57	0.55	0.64	0.49	0.56
	Small	1.58	1.66	1.48	1.16	1.42	1.47	1.42	1.49	1.78	1.68
Current assets turnover	Large	2.30	2.55	2.53	2.79	1.88	1.64	1.39	1.23	1.73	2.07
	Midsize	1.66	2.29	2.48	2.30	2.13	2.29	2.41	2.29	2.19	1.59
	Small	1.80	1.47	1.91	1.97	1.84	1.71	1.88	1.97	1.78	1.92
Stock turnover	Large	4.59	5.19	4.82	3.81	6.43	3.96	3.86	2.91	4.01	3.84
	Midsize	6.99	9.55	7.33	6.12	12.22	5.38	5.89	5.81	5.42	4.44
	Small	3.88	3.67	3.45	3.48	3.72	3.36	3.74	3.64	3.69	3.47
Payables turnover	Large	6.25	7.00	5.29	4.08	7.25	5.00	4.07	3.24	4.68	5.56
	Midsize	4.49	5.17	4.90	3.80	6.82	5.71	7.00	6.18	7.04	5.67
	Small	2.12	2.11	2.19	2.52	2.81	2.60	3.07	3.31	3.46	3.82
Receivables turnover	Large	5.87	6.32	5.59	5.38	7.90	4.41	3.22	2.65	4.21	4.99
	Midsize	6.21	7.39	5.56	3.29	5.96	5.44	6.30	5.58	4.27	2.56
	Small	3.78	3.30	3.49	4.16	4.38	4.01	4.46	4.53	4.45	4.39
Normal trading profitability, %	Large	8.6	11.7	12.6	9.0	15.1	11.6	18.0	15.8	18.2	16.0
	Midsize	7.1	17.4	13.1	12.9	10.0	9.3	15.9	11.5	49.4	20.8
	Small	4.4	7.8	8.5	7.7	6.3	8.1	8.7	8.1	9.1	11.2
Sales profitability, %	Large	7.9	10.5	11.2	8.3	13.2	10.4	15.3	13.6	15.4	13.8
	Midsize	6.6	14.8	11.6	11.5	9.1	8.5	13.7	10.1	33.1	17.2
	Small	4.2	7.4	7.8	6.9	6.0	7.3	7.9	7.5	8.4	10.1
Non-current assets profitability, %	Large	-5.1	1.5	18.4	9.0	22.4	13.7	12.1	19.8	30.1	34.4
	Midsize	18.8	46.1	36.6	45.7	25.0	19.6	57.1	38.9	184.9	62.0
	Small	0.3	15.4	9.5	10.3	6.3	19.8	13.4	14.4	29.1	42.6
Current assets profitability, %	Large	-5.0	1.6	16.4	10.9	11.3	7.3	6.8	7.6	11.6	15.3
	Midsize	13.9	26.6	24.6	21.6	14.0	12.6	29.3	17.5	62.7	20.8
	Small	0.4	12.8	8.9	8.6	5.4	14.5	8.8	9.6	10.2	16.1
Compiled based on: "SPARK" database. Available at: spark-interfax.ru											

bankruptcy (Naumov et al., 2024b), help to more accurately and objectively assess the threats of financial solvency loss for enterprises of various sectors in different regions.

Results

According to 2023 data, there are only 6 large chemical industry enterprises in the Sverdlovsk Region (with more than 2 billion rubles revenue per year): "VMP" LLC, "NIKA-PETROTECH" LLC, "Polyplast-UralSib" LLC, "UCP" PJSC, "UCP-HA" LLC, "Chrompik" JSC, which primarily produce paints, varnishes and similar coatings, printing ink and mastics, other chemical products not elsewhere classified, plastics and synthetic rubber in primary forms, and other basic inorganic chemicals. Large chemical enterprises *(Tab. 1)* have insufficient quick liquidity during almost the entire research period (1999–2023), as well as limited availability of working capital (since 2006, this indicator has been negative). The whole period is characterized by the insufficient amount of stock of large enterprises in the industry, which is a serious problem: from 2003 to 2023, the values of this indicator are negative. The enterprises leverage is in from 2 to 4-fold excess of the standard value throughout the research period, which indicates a high level of creditworthiness (the coefficient of financial independence in 2023 was 0.32 with a standard of more than 0.5). The considered issues increase the risk of large chemical enterprises bankruptcy in the Sverdlovsk Region.

Chemical enterprises with average revenues (0.198–2.0 billion rubles per year) have a stable financial position. Almost all indicators assessing their financial stability are within the limits of standard values. These enterprises are characterized by upward business activity trend: a high turnover level of current and non-current assets, stock, receivables and payables, as well as a high level of efficiency of available resources use (Tab. 1).

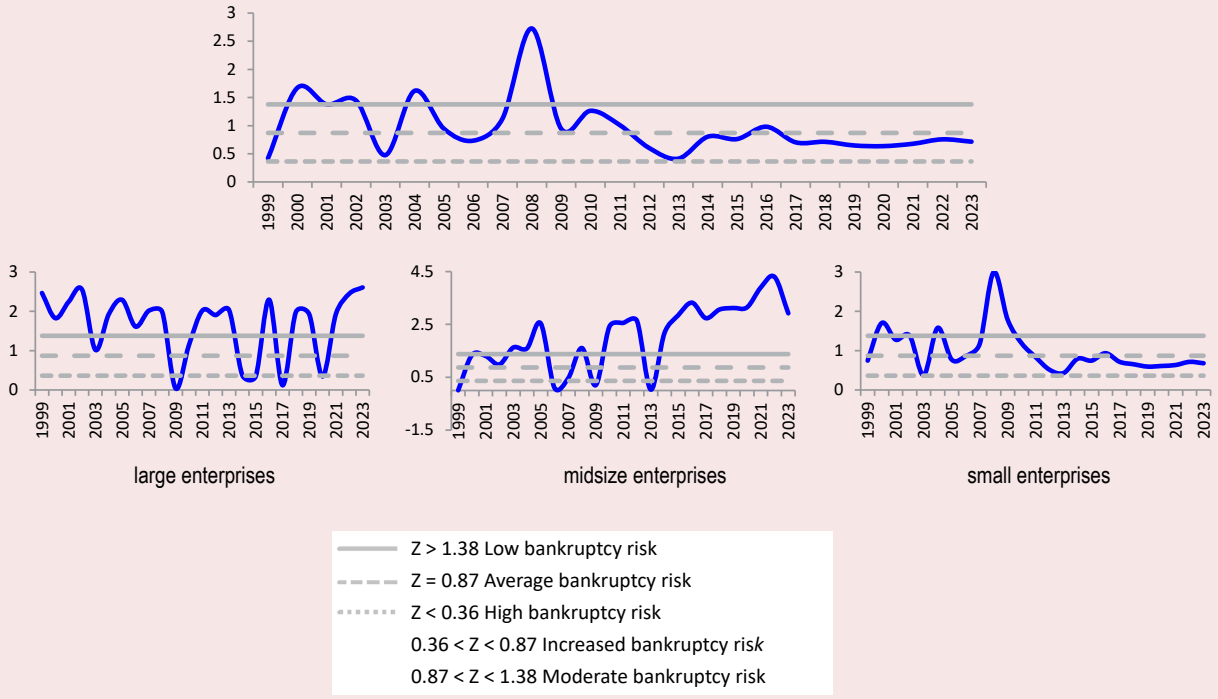
Small chemical industry enterprises with sales revenue of less than 0.198 billion rubles per year are in a parlous financial condition. They have low cash and quick ratios of liquidity. A low quick ratio indicates lack of working capital of small enterprises to repay the accrued liabilities. The liquidity in fund raising and working capital availability of small chemical enterprises were below the standard level for almost the entire research period and reached it only in 2022 and 2023. Insufficient amount of stock is observed from 2011 to 2023. Except for the period 2007–2011, the level of financial independence was below the standard, and the leverage was in about 2-fold excess of the standard throughout the rest of the research period, which is troublesome.

An assessment of the financial situation and stability of chemical enterprises showed that only midsize chemical enterprises had normal financial stability during the research period. Large and small enterprises were financially unstable, mainly due to high creditworthiness, lack of stock and own working capital. The trend in the risk of bankruptcy of the chemical industry in the Sverdlovsk Region as a whole and by type of enterprises shown in *Figure 3* reflects this situation.

Large chemical enterprises in some years (2009, 2015, 2017, 2020) were in the zone of high bankruptcy risk (the Z-score decreased below the threshold of 0.36). Midsize chemical enterprises, having experienced financial difficulties in 2013, demonstrate high financial stability from 2014 to 2023, and the Altman Z-score is much higher than the threshold characterizing a low bankruptcy risk ($Z > 1.38$). Small chemical enterprises were in the most parlous financial situation in the Sverdlovsk Region. Since 2012, they have been in a zone of the increased bankruptcy risk, which is also confirmed by the financial analysis presented in Table 1.

Least squares regression analysis was used to determine the factors affecting the financial situation and stability of chemical enterprises by their size in terms of sales volume, and to design forecast scenarios of changes in the bankruptcy

Figure 3. Trend in the bankruptcy risk in large, midsize and small chemical industry enterprises in the Sverdlovsk Region



Source: own compilation.

risk. Altman Z-scores for each group of enterprises for the period from 2000 to 2023 were considered as a dependent variable. The following external factors were taken into account: the inflation rate in the Sverdlovsk Region, the interest rate for business loans in Russian rubles as of January 1, exchange rates (US dollars), the unemployment rate in the region, the number of economically active population, fixed capital expenditures, the degree of depreciation of fixed capital stock, innovation expenditures of regional enterprises, the number of advanced production technologies developed and employed, export and import turnover of technologies and technical services. The internal factors were financial indicators of enterprise development (liquidity and turnover of assets, working capital, stock and operating capital availability, financial independence, production activities profitability, use of current and non-current assets). An assessment of the data distribution and a preliminary calculation of descriptive statistics showed that the distribution is non-linear, and a power function was used to build the model. Since the estimated factors are in different units of measurement, the logarithms have been taken of the absolute values.

Regression modeling, the results of which are reflected in Table 2, showed that the risk of bankruptcy of large chemical industry enterprises is influenced by the following factors: own working capital availability, non-current assets profitability, the number of economically active population in the Sverdlovsk Region, innovation expenditures of enterprises in the Sverdlovsk Region. As it can be seen, these factors are both internal and external. In this study, the influence of more than thirty

Table 2. The results of regression modeling of the dependence of the risk (Altman Z-score) of chemical production enterprises bankruptcy in the Sverdlovsk Region on external and internal factors

The main variables in the model and tests to check the quality of the model	Large	Midsize	Small
	Regression coefficient		
Const	-49.107 (18.9)**	-1.572 (0.79)*	0.146 (0.22)
Oca – own working capital availability, relative unit	0.06 (0.03)*		0.775 (0.21)***
Ncap – non-current assets profitability, %	0.055 (0.01)***		
Ln(Eap) – logarithm of the economically active population in the Sverdlovsk Region, thousand people	5.703 (2.3)**		
Ln(Ie) – logarithm of the innovation expenditures of enterprises in the Sverdlovsk Region, million rubles	0.704 (0.4)*		
Ln(Tca) – logarithm of total capital availability		0.503 (0.13)***	
Cap – current assets profitability, %		0.029 (0.02)*	
St – stock turnover			0.175 (0.04)***
Parameters for evaluating the quality and reliability of the built models			
R^2	0.62	0.57	0.59
F-test	7.72***	13.89***	15.19***
Residual sum of squares	5.76	14.11	3.15
Standard error	0.55	0.82	0.39
Akaike information criterion	43.84	61.37	25.40
Schwartz criterion	49.73	64.90	28.94
Durbin – Watson Test	2.62	1.83	2.67
White heteroskedasticity-consistent estimator (null hypothesis – no heteroskedasticity)	*LM* = 13.37 *p*-value = 0.49	*LM* = 4.26 *p*-value = 0.51	*LM* = 19.91 *p*-value = 0.06
Normal error distribution test (null hypothesis – normal error distribution)	Chi-Square (2) = 3.01 *p*-value = 0.22	Chi-Square (2) = 5.4 *p*-value = 0.07	Chi-Square (2) = 6.44 *p*-value = 0.04
Chow test for the presence of a structural break in 2011 (null hypothesis – no structural breaks)	*F*(5, 14) = 1.06 *p*-value = 0.42	*F*(3, 18) = 0.62 *p*-value = 0.61	*F*(3, 18) = 0.64 *p*-value = 0.61
LM autocorrelation test (null hypothesis – no autocorrelation)	*LMF* = 2.83 *p*-value = 0.11	*LMF* = 0.15 *p*-value = 0.71	*LMF* = 3.14 *p*-value = 0.09
Nonlinearity test: presence of first-order *ARCH* processes (null hypothesis – no *ARCH* processes)	*LM* = 2.74 *p*-value = 0.1	*LM* = 0.21 *p*-value = 0.65	*LM* = 3.34 *p*-value = 0.07

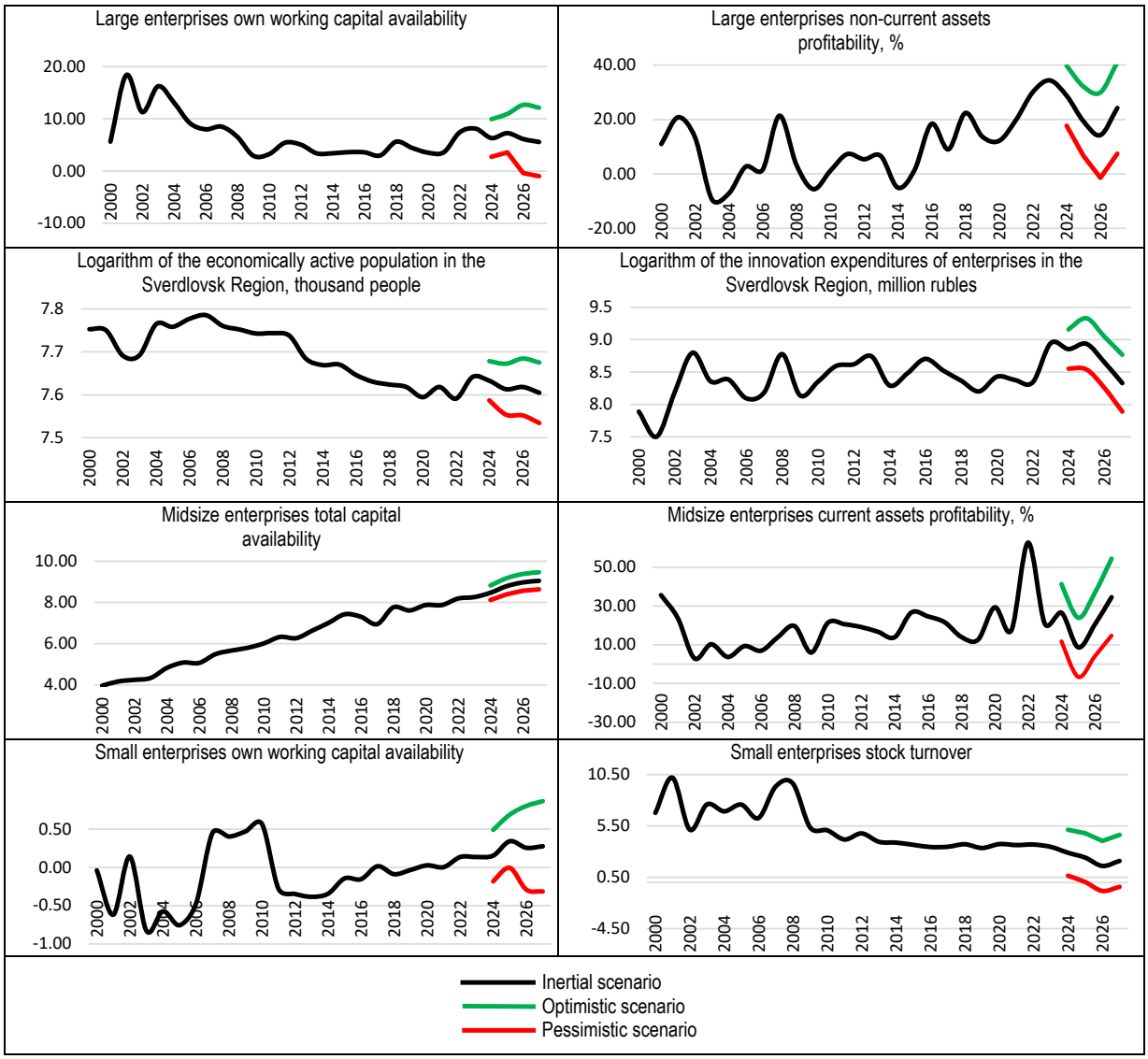
* $p < 0.1$.
** $p < 0.05$.
*** $p < 0.01$. The standard errors of the regression parameters are shown in parentheses.
Source: own compilation.

factors was assessed, most of them were excluded from the model due to multicollinearity, and some did not pass the statistical significance assessment. The presented models include only statistically significant factors.

The availability of total capital and profitability of current assets are important factors in increasing the financial stability of midsize chemical enterprises. The financial solvency of small chemical enterprises is influenced by such key factors as the availability of their own working capital and stock turnover. The risk of midsize and small enterprises bankruptcy in the chemical industry is mainly influenced by internal factors.

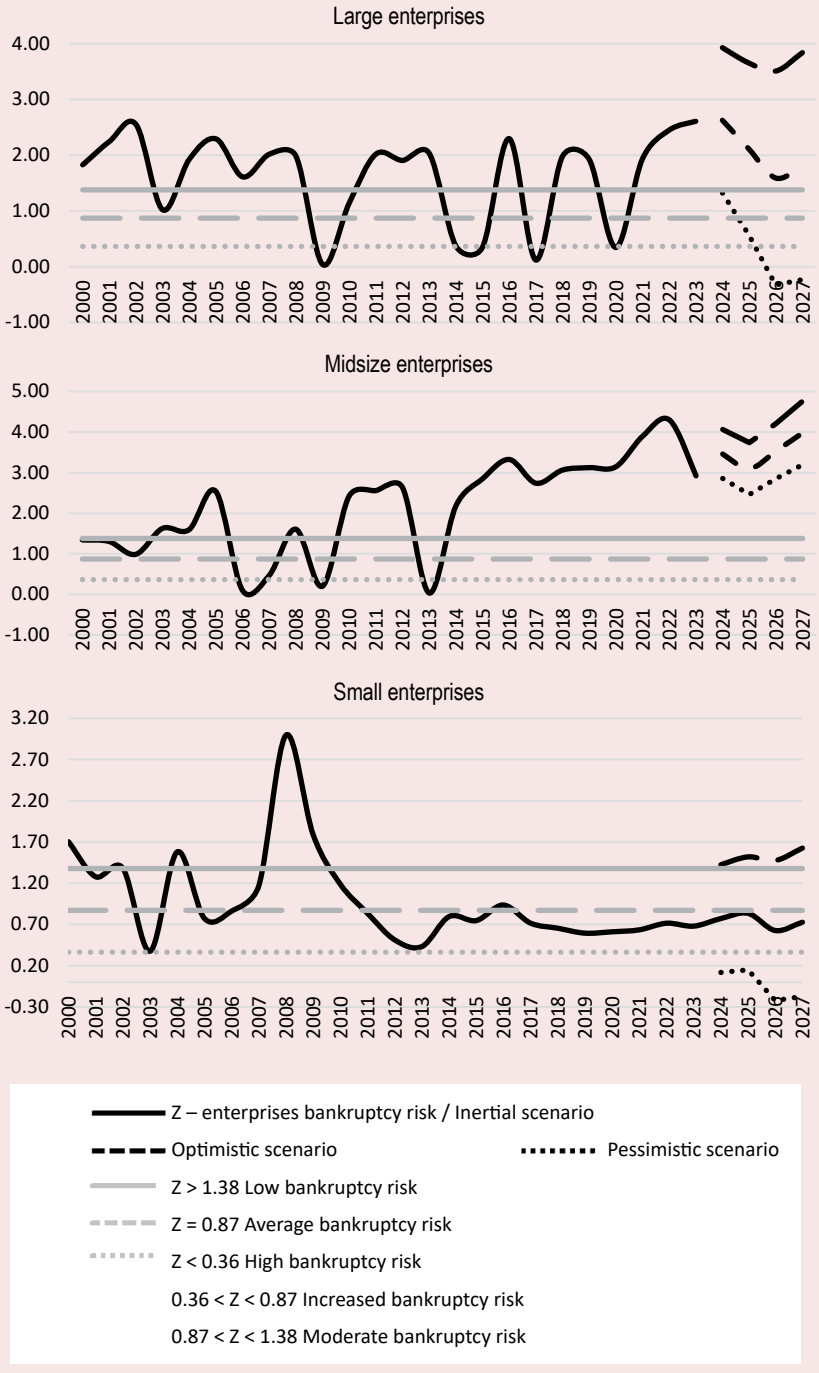
Autoregressive modeling with a moving average (ARIMA) allowed us to determine the forecast scenarios of key factors influencing the risk of chemical enterprises bankruptcy *(Fig. 4)*.

Figure 4. Inertial, extremely pessimistic and optimistic forecast scenarios of key factors of the risk of chemical enterprises bankruptcy



Source: own compilation.

Figure 5. Forecast scenarios of the risk of chemical enterprises bankruptcy in the Sverdlovsk Region until 2027



Source: own compilation.

The most likely inertial scenario assumes that the current trends of predicted factors will continue in the future, while optimistic and pessimistic scenarios represent their extreme possible values. The inertial scenario built for large chemical enterprises indicates an increase in the risk of their bankruptcy until 2026 *(Fig. 5)*.

In the case of a decrease in the own working capital of large enterprises, in the profitability of their non-current assets, in the number of economically active population in the Sverdlovsk Region, as well as in the innovation expenditures of enterprises in the region, a significant increase in the risk of enterprises bankruptcy (up to Z = 1.59) is expected, and in 2027 a slight decrease in the bankruptcy risk is expected. In the case of downward future trends for the factors mentioned above, the implementation of the extremely pessimistic scenario of the development of large chemical enterprises in the region is possible (Z-score may fall to -0.33, which indicates insufficient liquidity of enterprises assets). Such a scenario is possible with a decrease in the own working capital of large enterprises to -0.98, in the profitability of non-current assets to 7.4%, in the economically active population in the Sverdlovsk Region to 1870 thousand people and in the innovation expenditures of enterprises in the region to 2697 million rubles. Given the deteriorating financial situation of large chemical enterprises, a decrease in their liquidity, financial independence, and lack of production stock, the optimistic scenario is unlikely.

Midsize chemical enterprises are in the financial stability zone and have the lowest bankruptcy risk. Maintaining the observed trends in total capital availability and current assets profitability will lead to a still greater reduction in the bankruptcy risk. Even in the case of downward trends in the factors influencing the bankruptcy risk and the implementation of the extremely pessimistic scenario in the financial development of midsize enterprises, it is assumed that their Altman Z-score trend will remain in the zone of low bankruptcy risks.

For small chemical enterprises, if the inertial scenario is implemented, an increased bankruptcy risk will remain. However, it should be noted that prerequisites are also being developed for the implementation of a more pessimistic scenario, in particular, a possible decrease in the own working capital of enterprises to -0.31 and in the production stock turnover to 0.42-fold per year. According to the extremely pessimistic scenario, small chemical enterprises will not be able to normalize their financial situation, and the bankruptcy risk will be very high (Z = -0.17 in 2027). The negative Z-score value, achieved when implementing the pessimistic scenario, indicates possible lack of the most liquid funds to meet short-term liabilities, which may occur in conditions of declining demand for goods produced by small chemical enterprises.

Conclusion

In the research, ARIMA/ARMA methods for modeling and time analysis were used to predict the risk and search for the main drivers of chemical enterprises bankruptcy. The authors calculated a possible range of Z-score values for designing extremely optimistic and pessimistic forecast scenarios of the risk of chemical enterprises bankruptcy, taking into account trends in key bankruptcy risk factors. Least squares regression analysis was used to determine the factors affecting the financial situation and stability of chemical enterprises by size in terms of sales volume, and to design forecast scenarios of changes in their bankruptcy risks.

Forecast scenarios of the enterprise bankruptcy risk built by the authors have shown that large and small chemical enterprises are at high risk of bankruptcy, while midsize enterprises have a sufficient safety margin in terms of finances.

Our presented approach will make it possible to further develop industrial policy and take measures to reduce the risk of bankruptcy of enterprises in various industries.

We did not use the information of a list of enterprises in order to ensure the privacy of primary statistical data received from organizations, in accordance with Federal Law 282-FZ, dated November 29, 2007 "On official statistical accounting and system of state statistics in the Russian Federation" and in accordance with the latest Resolutions of the Government of the Russian Federation 1624, 1625, dated September 16, 2022, "On the procedure for restricting and resuming access to information contained in the state information accounting (financial) resource, and on the invalidation of certain decisions of the Government of the Russian Federation".

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Development of Tax Support for Agriculture in the Context of Enhancing the Effectiveness of Various Tax Regimes

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Abstract. The paper proposes our own methodological approach based on the data of financial statements of agricultural organizations and allowing us to assess the impact of taxation regimes on the results of their activities. The subject of the study is the system of statistical indicators of agricultural organizations characterizing the level of economic production. The aim of the work is to substantiate the architecture of the tax incentive system for the industry, as well as to design further directions for the development of tax support for agriculture. Research methods include typical grouping, machine learning models (decision tree, random forest and gradient boosting). As a result, the methodological approach was tested and significant differences in the performance indicators of agricultural organizations depending on the choice of taxation systems were substantiated, and net profit forecasting models were built for each of them. The constructed models allow us to identify the nature of the influence of tax factors on the

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performance of agricultural entities. Recommendations for improving the system of tax incentives for the industry are presented. The developed methodological approach helps to assess the differences in taxation systems using the grouping method and machine learning methods, as well as to build high-quality forecasting models. The scientific novelty of the study consists in developing a set of proposals for improving tax incentives for the industry, taking into account (1) the optimal architecture of the tax support system at the macro level and (2) systemic problems of applying industry tax incentives at the micro level. Proof of the optimality of the architecture of the tax incentive system for agriculture was revealed using our methodology for assessing the impact of the tax regime on the performance indicators of agricultural producers, based on the use of machine learning methods.

Key words: tax regime, tax forecasting, agriculture, tax factor, machine learning methods, decision tree, random forest, gradient boosting.

Introduction

Experts from the Food and Agriculture Organization of the United Nations (FAO) and the Organization for Economic Cooperation and Development (OECD) believe that the global agri-food sector will face fundamental challenges in the near future[1]. Among them, there are problems with food provision, climate change, as well as economic problems related to food supplies. The FAO agricultural forecast assumes that the growth rate of the global agro-industrial complex will be at the level of 1.1%. The prospects for the Russian agricultural sector development look more optimistic. Thus, the Strategy for the Development of the Agro-Industrial Complex until 2030 plans an average annual growth rate of production in the agro-industrial complex from 2023 at a level of at least 3%[2].

Agriculture is the central element of the Russian agro-industrial complex. The activities of agricultural organizations are influenced by many factors, among which tax factors play a significant role (Tikhonova, 2015). It is no coincidence that modern financial science considers tax cuts as one of the ways to increase the profits of economic entities. In particular, a study by Chinese scientists has shown that the agricultural taxation reform of the 2000s in the country has produced positive results, including through increased capital investment, increased agricultural productivity, and the promotion of structural transformation (Li et al., 2024). Russian research also proves the effectiveness of state tax incentive measures for agricultural producers (Kosov et al., 2023). Taxation regime is the most common indicator reflecting the influence of all tax factors and taking into account all the characteristics mentioned above. The development of the agro-industrial complex depends on the choice of taxation system and its impact on the financial results of agricultural producers (Lyalina et al., 2021).

Currently, agricultural producers (organizations) can apply the following tax regimes: general taxation regime or special taxation regimes in the form of single agricultural tax (SAT), simplified taxation system (STS; *Tab. 1*). When choosing special taxation regimes, producers must meet the established criteria. Thus, in order to switch to SAT, the share of income from the sale of agricultural products, including products of their

[1] OECD-FAO Agricultural Outlook 2023–2032. OECD Publishing, Paris. DOI: https://doi.org/10.1787/08801ab7-en

[2] On approval of the strategy for the development of agro-industrial and fishery complexes of the Russian Federation for the period up to 2030: RF Government Resolution 2567-r, dated September 8, 2022.

Table 1. Application of taxation systems for agricultural organizations

System	Rate	Conditions
General taxation system (GTS)	Corporate income tax 0%	Under the terms of Article 346.2 of the Tax Code of the Russian Federation
	Corporate income tax 20%	For organizations that do not fall under the definition of agricultural producers in accordance with Article 346.2 of the Tax Code of the Russian Federation, as well as for profits from non-agricultural activities
	Corporate property tax no more than 2.2%	Excluding land plots and other natural resources (water bodies and other natural resources)
	Value added tax (VAT) 10%	When selling a number of agricultural products and food products according to the list established by the Government of the Russian Federation (Resolution 908, dated December 31, 2004)
	Value added tax (VAT) 20%	For other types of products (works, services)
Single agricultural tax (SAT)	0–6% of income after expenses	Agricultural commodity producers meeting the criteria established by Article 346.2 of Chapter 26.1 of the Tax Code of the Russian Federation. Replaces: profit tax, corporate property tax, VAT (exempted voluntarily if revenue does not exceed 60 million rubles per year).
	VAT at income up to 60 million rubles not levied (or calculation) VAT at income above 60 million rubles 10 or 20%	When selling a number of agricultural products and food products according to the list established by the Government of the Russian Federation (Resolution 908, dated December 31, 2004)
	Corporate property tax not more than 2.2%	With the exception of land plots and other objects of natural resources (water bodies and other natural resources), as well as real estate directly used in agricultural production
Simplified taxation system (STS)	On income 1–6% On income after expenses, 5–15%	Replaces: profit tax, corporate property tax (except for tax, value added tax (except for tax on importation of goods into the territory of the Russian Federation and other territories under its jurisdiction)
	VAT at income up to 60 million rubles not levied (or calculation) VAT at income above 60 million rubles 10 or 20%	When selling a number of agricultural products and food products according to the list established by the Government of the Russian Federation (Resolution 908, dated December 31, 2004)
Under any regime	Transportation tax rate per: 1 hp (kW); 1 ton of capacity; 1 kg of traction force; 1 unit of vehicle	Tractors, self-propelled combines of all brands, special vehicles (milk trucks, cattle trucks, special vehicles for poultry transportation, vehicles for transportation and application of mineral fertilizers, veterinary assistance, technical service) registered to agricultural producers and used in agricultural work for the production of agricultural products are not subject to taxation
	Land tax not more than 0.3% for agricultural land	It is allowed to establish differentiated tax rates depending on the categories of land and (or) the permitted use of the land plot
Compiled according to: Tax Code of the Russian Federation (Part Two): Federal Law 117-FZ, dated August 5, 2000 (amended December 29, 2014). SPS "Consultant Plus": Legislation: Prof. version. Available at: http://base.consultant.ru (accessed August 25, 2023).		

primary processing, produced from agricultural raw materials of own production, from the provision of services to agricultural producers, must be at least 70% of the total income from sales. To switch to the simplified taxation system, based on the results of the first nine months of the year in which the organization submits a notification of the transition to the simplified taxation system, revenues for the analyzed period should not exceed 337.5 million rubles starting from 2025.

At the micro level, each agricultural producer chooses the most optimal taxation system for themselves, which would minimize the tax burden as much as possible and positively affect the results of financial activities. Nevertheless, the "blurring" differences in the general taxation system and the single agricultural tax, and the ongoing controversy about the effectiveness of various tax regimes (discussed below) make it necessary to answer to the question of the architecture of building a system of tax incentives for the industry at the macro level. The fact is that foreign practice, as a rule, is represented by two options for building such a system: (1) a differentiated approach in which the taxation system includes special sectoral taxes and fees; (2) a unified system in which sectoral taxation features (a) are either integrated into standard corporate income taxes and indirect taxes (b) or they are not represented at all, and state support is provided in the form of subsidies. The first option is found, for example, in the countries of the European Union, the second – in China. Thus, the aim of the study is to substantiate the architecture of the agricultural tax incentive system at the macro level in the Russian Federation, as well as to further refine specific support measures that take this architecture into account, based on the practice of their application at the micro level. The goal defined the following research objectives:

1) to develop a methodological approach based on the use of data mining tools and machine learning methods, which makes it possible to assess the impact of taxation regimes on the performance of agricultural organizations;

2) based on the approbation of our own methodology, to substantiate the choice of applying a differentiated or unified approach to tax support for the industry at the macro level in the Russian Federation;

3) to identify the system-wide problems of taxation in the industry, which have the most significant impact on the choice of a special taxation regime at the micro level;

4) to propose ways to improve the system of tax incentives for agriculture.

The hypothesis of the study is that the adjustment of the agricultural tax incentive system should be carried out in the context of its optimal architecture, which takes into account the effectiveness of tax incentives at the macro level, as well as take into account the system-wide problems of applying such benefits at the micro level (by specific enterprises).

The scientific novelty of the research consists in the development of a set of proposals for improving tax incentives for the industry, taking into account (1) the optimal architecture of the tax support system at the macro level and (2) the system-wide problems of applying sectoral tax incentives at the micro level. The proof of the optimality of the architecture of the agricultural tax incentive system was revealed using our own methodology for assessing the impact of taxation regime on the performance of agricultural producers, based on the use of machine learning methods.

Literature review

The paper complements three blocks of research areas.

The first block is theoretical and includes papers that discuss the architecture of the agricultural tax incentive system. They are divided into three groups. The first group of researchers adheres to a differentiated approach to tax incentives, suggesting the availability of several support options, including, as a rule, a number of special tax regimes and individual benefits when applying the general taxation system. Proponents of this approach point out that differentiated support makes it possible to successfully address key problems of the agrarian economy that differ in content (Zaruk, 2015), and carry out effective taxation with regard to producers in regions with different natural and economic

potential (Gashenko et al., 2019). According to N.I. Malis, the general approach to taxation of agricultural organizations is greatly complicated by its specifics, which determine "the expediency of introducing not only individual benefits within the framework of the general taxation system, but also the introduction of a special tax regime – the taxation system for agricultural producers" (Malis, 2016).

The second group of scientists advocates a unified approach to tax support based either on the use of only one special tax regime (subgroup "A"), or on the complete absence of sectoral regimes when applying benefits within the framework of the general system (subgroup "B"). Analyzing the work of the scientists from subgroup "A" is carried out at various levels (region, country, group of countries). Thus, when considering the impact of tax incentives on the regional agro-industrial complex of Sevastopol, the provision of tax benefits under the SAT is noted as a necessary or forces measure of state support (Grebeshkova et al., 2021). Z.O. Imanbayeva came to a similar conclusion about the important role of fiscal stimulation of the industry in Kazakhstan (Imanbayeva, 2023). At the same time, when assessing the impact of SAT on the financial performance of agricultural producers, some researchers draw the opposite conclusions, noting the inexpediency of minimizing taxes in the industry, since the desire of business leaders to reduce the amount of accrued taxes leads to a decrease in financial performance (Kataev, Sasina, 2011). Given that the work analyzed above was implemented in 2011, its results should be tested in fundamentally different current economic conditions. It is no coincidence that in a later work, researchers also come to the conclusion that, despite the presence of positive effects, SAT needs to be radically improved and should be designed in such a way as to ensure tax revenues to the budget and at the same time stimulate the development of the industry (Barashyan, 2021). Representatives of subgroup "B" emphasize that special regimes in foreign practice are used mainly to simplify tax relations so as to take into account the specifics of farming activities, rather than to improve the financial security of agricultural business entities (Prokopchuk, 2016). It is noted that an agricultural tax can potentially hinder structural transformations (Grabowski, Shen, 2013), as well as distort the incentives for the development of other industries. In particular, the authorities will have to develop industrial production and stimulate the expansion of the tax base of production after the abolition of the agricultural tax (Tang, 2025). As China's experience shows, the abolition of the agricultural tax has not had a significant impact on household incomes from agriculture or their costs of agriculture (Grabowski, Shen, 2013).

Thus, in the context of our research, special attention should be paid to the architecture of building a system of tax support for agriculture at the macro level. Today, a differentiated approach is used in Russia (the substantiation is presented in Table 1); however, an assessment of the nature of the impact of various tax regimes on the performance of producers will justify the further development of a differentiated approach or the transition to a single architecture.

The second block is a practical one, devoted to assessing the effects of tax benefits at the micro level and choosing the highest priority regime. Scientific research within its framework is carried out, as a rule, on the data of certain companies, a limited sample of agricultural producers, or applied to an abstract taxpayer. According to this block, there is no consensus in science and practice regarding a more profitable system for agricultural production. So, L.M. Petrova (Petrova, 2019), M.V. Polinskaya (Polinskaya et al., 2023) believe that it is most advantageous to apply a single agricultural tax, but in a number of studies, preference is given to the general taxation system (Zyryanova, Zagursky, 2019; Shnigir, Melman, 2021). In turn, T.M. Efremova

and co-authors have revealed that among the special tax regimes, the simplified taxation system has the greatest effectiveness (Efremova, 2015). It is important to note that in practice, each agricultural producer chooses a taxation regime based on the conditions and restrictions of its use and the parameters of its own economic activity. At the same time, it is the restrictions on the use of tax benefits at the micro level that most often act as a decisive factor in choosing the taxation regime, and therefore need to be evaluated and refined at the micro level.

Finally, within the framework of the third block, in order to develop a methodology for assessing the impact of taxes on the performance of agricultural organizations, it is advisable to investigate the quantitative methods used in such an assessment. In scientific papers, the impact of taxes on the industry is assessed either quantitatively or qualitatively. A qualitative assessment is an analysis of the practice of applying certain legislative norms (Solyarik, Eliseeva, 2018). However, quantification is of the greatest interest. The study of the effect and effectiveness of tax incentives in agriculture in a significant number of Russian studies is based on a simple assessment of the indicators of commodity producers applying various tax regimes (Efremova et al., 2015; Borodina et al., 2022). This approach is called typical grouping in statistical science. However, it has a number of disadvantages. First, the fact that the grouped objects belong to the general population leads to the appearance of some common features that mask the differences between the types. Second, the lack of a clear designation of individual types and the multiplicity of features of the object description complicates the qualitative grouping. Third, the typical grouping does not allow identifying the main and most significant features.

Another method often used in the work of agricultural economists is correlation and regression analysis (CRA), when a profit indicator is used in the construction of regression models (Korotkikh, 2022; Komarova et al., 2024; Zhang et al., 2023). In general, profit forecasting makes it possible to assess business risk factors that appear in difficult market conditions, and acts as an important tool for the government, business and society as a whole (Guindani et al., 2024). However, the use of CRA leads to the need to comply with a large number of prerequisites of the least squares method, which are difficult to take into account in the conditions of a diverse sample of agricultural producers (violation of the premise of normal distribution), the dependence of many indicators of companies in the industry on their size (violation of the premise of autocorrelation, etc.).

Also, the statistical method of investigating the impact of taxes on agriculture, based on the analysis of panel data, is the "difference in differences" (DID or DD). Its essence consists in comparing the average change over time of the outcome variable for the test group with the average change for the control group (Xu et al., 2024). The main disadvantage of this method is the need to ensure the condition of a parallel trend, which consists in assuming the same development of control and test samples, which is practically unattainable in a real economy. Otherwise, there is a bias in estimates. Dynamic models for assessing the tax sensitivity of individual industries are also widely used in science (Balatsky, 2023). However, in the context of the ongoing economic and political transformations caused by the coronavirus infection and sanctions against the Russian Federation, the effectiveness of building dynamic models is significantly reduced. "Time series have significant structural shifts, factors become unreliable, and as a result, it becomes impossible to assess tax sensitivity" (Gerasimova, 2024).

Research methods and data

The abovementioned shortcomings in the methods of studying the influence of tax factors on the performance of agricultural organizations have led to the need to find new methods. Modern

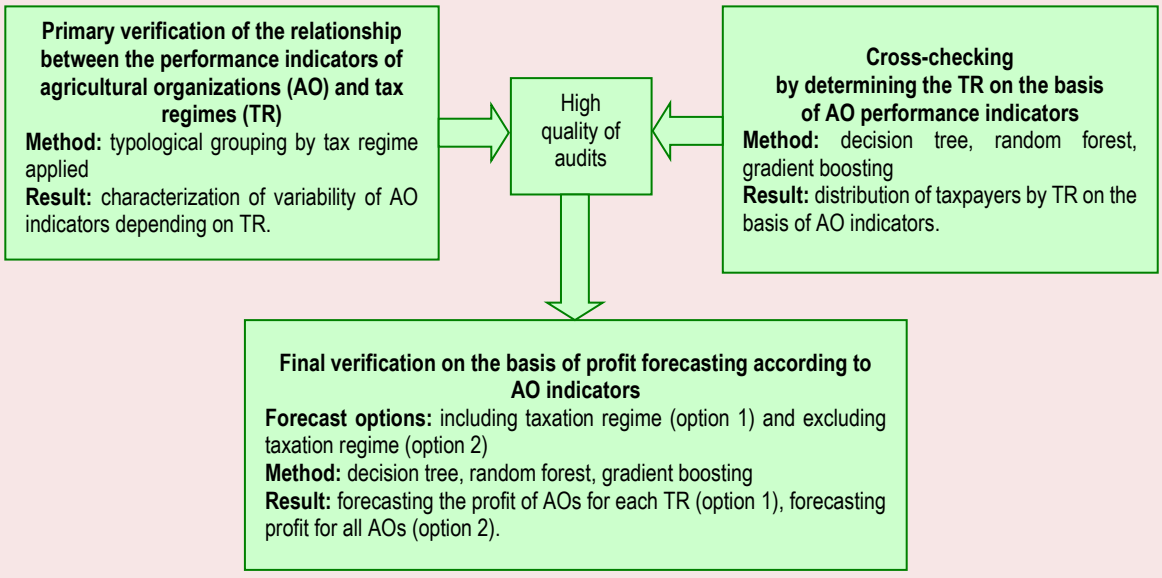
forecasting tools, such as machine learning and neural network analysis methods, make it possible to eliminate the problems of using simpler quantitative assessment methods, improve the quality of forecasts, and reduce the time spent on data processing and model building. To substantiate the approach to the architecture of tax incentives for the industry at the macro level, it is necessary to assess the performance of a large number of diverse agricultural entities. In this regard, it is advisable to use a cross-sectional approach comparing the results obtained in various ways (Tikhonova, 2023). Schematically, our methodological approach is shown in *Figure*.

As part of the initial assessment, accounting data (159 indicators) for 27,948 enterprises for 2022 from SPARK system were used to assess the impact of the tax regime on the performance of agricultural organizations. As a result of cleaning and primary processing of the database, the size of the studied population for typological grouping decreased to 27,490 organizations by 99 indicators. The taxation regime is used as a grouping feature.

Cross-validation also requires processing of the initial data: in particular, diagnostics of indicators for the presence of emissions was carried out. As a result, 3,428 organizations and 57 indicators were removed from the aggregate (42 indicators remained for machine learning analysis).

Several methods have been used to classify organizations by tax regime: decision tree, random forest, and gradient boosting. The choice of methods is justified by the fact that they do not depend on the scale of the feature and do not require prior standardization of data. The decision tree method is a branching structure where a classification feature is divided into groups depending on the value of a factor. The method works quite effectively with nonlinear and non-trivial relationships (Nasteski, 2017). The random forest algorithm is based on a set of decision trees based on independent samples to obtain more accurate results. The final forecast is made by averaging the forecasts of all the trees in the forest, so this method is resistant to outliers and noise in the data, and is also less susceptible to overfitting

Methodological approach to substantiating the architecture of the tax incentive system at the macro level



Source: own compilation.

than a single decision tree. "Gradient boosting" combines several weak decision tree models to produce stronger models. The algorithm selects a decision tree model for the initial data, and then completes additional models to correct the errors made in the previous step. At each step, the new model is adjusted to the negative gradient of the loss function relative to the predictions of the model built in the previous step. The final model is constructed as a weighted sum of all constructed models (Nasteski, 2017).

When obtaining high-quality models during initial and cross-validation, the third stage is implemented – the final verification. At this stage of the methodological approach, depending on the classification results, forecasting models can be built for all agricultural organizations as a whole, without taking into account the taxation regime, or separately for each regime. At the same time, decision tree, random forest, and gradient boosting models are also used for forecasting, but as regression tasks. The forecast value may vary depending on the indicators that have been preserved as a result of data preprocessing. In general, the methodology is universal and suitable for almost any sample of organizations, since the models do not depend on the number of factors, as well as on the dimension of the features.

The following indicators were used at all stages of the methodology for substantiating the approach to building the architecture of the tax incentive system at the macro level *(Tab. 2)*.

Table 2. Substantiation of the indicators used in the methodology

Group	Name	Feature	Tax aspect of influence
Work experience	Average age, years	From the moment of registration	Characterizes the attractiveness of the tax regime for newly established companies
Size indicators	Authorized capital	Line 1310 of the balance sheet (BS)	Allows assessштп the attractiveness and demand for tax regimes by entities of different sizes, taking into account their investment potential (long-term financial investments), activity in the innovation process (intangible assets) and expenditures on human capital (labor remuneration)
	Intangible assets	Line 1130 BS	
	Fixed assets	Line 1150 BS	
	Long-term financial investments	Line 1170 BS	
	Total assets	Line 1600 BS	
	Labor remuneration	Line 4122 of the Cash Flow Statement	
Financial risk indicators	Due diligence index (DDI)	Multidimensional average. Characterizes the level of "reliability" for counterparties. A value above 40 may indicate signs of a "technical company"	Characterizes the level of tax risk in interaction with agricultural organizations. The lower the DDI, the higher is the companies' potential for effective sales of products
	Financial risk index (FRI)	Multidimensional average. Indicates the presence of signs of unsatisfactory financial condition. Optimal value: not higher than 30	Positive impact of taxes on the financial performance of companies will be manifested in a decrease in the FRI
	Share of working capital in the company's assets	(Current assets – Current liabilities) / Total assets	Characterizes the source of working capital utilization. Positive impact of taxes should increase the share through the provision of tax incentives
Financial situation indicators	Autonomy ratio	Equity / Assets total. Must exceed 0.5	Positive impact of taxes on the financial performance of companies will be manifested in the achievement of normative values by these ratios
	Equity maneuverability ratio	Own working capital / Equity capital. The norm is from 0.2 to 0.5	
	Own current assets provision ratio	(Equity – Non-current assets) / Current assets. The norm is from 0.1 and more. Optimal value is more than 0.5	
Profit withdrawal indicators	Share of profits withdrawn in the form of tax	Ratio of net profit to profit before taxation	Characterizes the effective tax rate on the financial performance of agricultural organizations

Source: own compilation.

This methodological approach is implemented using Python programming language with Anaconda distribution in Jupyter Lab environment. The following packages are used to download and analyze data: numpy, pandas, seaborn, matplotlib, and sklearn. It is worth noting that due to long-term cyclical fluctuations in the agricultural sector (Gaisin, 2019), the implementation of the methodology should be repeated with a frequency that corresponds to the average cycle length. This fact increases the practical value of the approach.

At the micro level, a qualitative analysis of the rules and regulations of taxation in the industry was carried out in order to identify systemic deficiencies in the tax incentives of the industry that affect the choice of the tax regime by specific producers.

Research results

Substantiation of the architecture of the agricultural tax incentive system at the macro level

1. The results of the initial verification – typological grouping. The set of organizations in question is represented by special tax regimes (GTS, SAT, STS and ASTS), as well as a group of 187 organizations that pay both STS and SAT at the same time (that is, during the analyzed period, they either switched from STS to SAT, or vice versa; *Tab. 3*). All groups, except for STS, are sufficient for interpretation of the results.

The results of the grouping indicate that it is not possible to identify the most attractive regime for new agricultural organizations (the differences between this indicator by group are insignificant). At the same time, the "oldest" organizations use SAT. There is a clear relationship between the size of organizations and the applicable taxation regime. The largest agricultural organizations are based on the general taxation system, while special tax regimes are used by smaller companies. Special attention should be paid to the fact that the indicators of long-term financial investments are 2.8 times higher in the case of GTS than in the case of SAT, and 88 times higher than in the case of STS. The differences in available intangible assets are even more significant. This characterizes the higher potential for innovation and investment activity of large agricultural producers and the need to expand investment benefits when using SAT.

Table 3. Comparative characteristics of indicators of agricultural organizations applying different taxation regimes

Indicators on average per 1 organization	Taxation regime					Sum (average)
	General regime	SAT	STS	STS+ SAT	ASTS	
Number of organizations	9690	7748	9863	187	2	27490
Average age, years	12.9	16.9	13.2	14.4	12.3	14.2
DDI	17.0	10.0	27.7	25.0	13.5	18.9
FRI	50.6	40.4	51.5	53.4	22.0	48.0
Authorized capital, thousand rubles	45099	19429	1351	1667	105	21869
Intangible assets, thousand rubles	113912	2723	24	29	0	40929
Fixed assets, thousand rubles	313499	171051	7028	17196	0	161355
Long-term financial investments, thousand rubles.	53468	18819	607	851	0	24374
Total assets, thousand rubles	900595	374515	24542	43387	2359	432109
Ratio of net profit to profit before taxation	0.96	0.97	0.84	0.92	0.87	0.96
Labor remuneration, thousand rubles	42067	22692	471	1515	0	21403
Share of working capital in the company's assets, %	-1.2	-0.7	-9.5	-0.4	1.0	-4.0
Autonomy ratio, %	-6.4	-0.6	-26.8	-0.4	0.5	-12.1
Equity maneuverability ratio, %	-8.8	-3.1	-3.5	-1.2	1.0	-5.2
Own current assets provision ratio, %	-23.1	-6.7	-40.8	-7.4	0.5	-24.7
Compiled according to: SPARK data.						

Agricultural organizations have a low level of commercial risk, that is, they carry out real activities, are not "technical companies", and therefore can act as reliable counterparties in commercial transactions, which reduces business tax risks. At the same time, SAT payers are characterized by the lowest index of due diligence, a similar situation may result from the production nature of the activities of agricultural organizations. The industry as a whole is characterized by a high level of financial risk, which is reduced with the use of SAT, which positively affects the financial condition of companies (from 50.6 to 40.4 points). Despite the fact that the financial condition indicators are significantly lower than the regulatory values and characterize the low financial stability of the agricultural sector, when using the industry-specific SAT and benefits for GTA, the coefficients studied are higher than when using STS. It is important to note that the highest risk of insolvency was identified in those organizations that switched from STS to SAT, and vice versa (5.3% higher than the average), which may be, among other things, the reason for the change in the tax regime. Tax regimes have a positive effect on own sources of financing for current assets (the share of working capital, despite its negative value, is higher in the case of GTS and SAT than in the case of the non-industry regime of STS). Of particular importance in the context of the effect of tax regimes is the ratio of net profit to profit before taxation, which characterizes the share of tax deductions on financial results. The highest tax deduction is typical for STS (16%) and ASTS (13%), while only 4% of the profit is gained under GTS, and 3% under SAT. Due to the fact that the dependencies were most clearly manifested when using three regimes (GTS, SAT and STS), for further analysis it is advisable to consider only the organizations that use these regimes.

2. The results of the cross-validation – classification of agricultural organizations. In order to assess the differences in the activities of organizations depending on taxation regimes, we use machine learning algorithms that allow us to classify agricultural organizations based on indicators and determine the tax regime they apply. Moreover, machine learning methods are devoid of the disadvantages that were identified in the literature review and are inherent in other methods and approaches. The tax regime will be considered as an effective (predictive) feature. The obtained models are characterized by accuracy indicators and the F1 metric. Accuracy characterizes the number of correctly classified organizations in the total number. The F1 metric is a balanced metric that takes into account both the accuracy of the model as a whole and the classification quality of individual classes. The models were built on a training sample, and quality control was carried out on a test (model with training). To build the models, an algorithm for selecting optimal parameters was initially implemented using GridSearchCV function. The results of the algorithms are presented in *Table 4*.

According to the results, the distribution of agricultural organizations by estimated tax regime gives the highest accuracy when using gradient boosting: this model correctly classifies 73.6% of all

Table 4. Assessing the quality of classification models

Classification model	Accuracy, %	F1 metrics, %
Decision tree model	69.2	69.1
Random forest model	65.8	64.8
Gradient boosting model	73.6	73.4
Source: own compilation.		

agricultural organizations by tax regime. At the same time, the share of organizations named correctly by the classifier (precision) is 77% for GTS, 72% for SAT, and 73% for STS. The F1 metric of this model also turned out to be the highest of the reviewed ones (73.4%). The accuracy of other models is quite high; this is why to assess the contribution of individual factors, the feature_importances metric was evaluated *(Tab. 5)*. Using the feature_importances function, estimates of the degree of influence of individual factors on classification results for three models (DT, RF, GB) were obtained. The metric data were also summarized by group.

We can conclude that the size indicators have the greatest impact on the classification results (0.48–0.49). The impact of financial risk indicators (0.21–0.22) and financial condition (0.14–0.17) is also significant, i.e. the choice of taxation regime depends on the financial stability of organizations. The work experience indicator has the least impact on the classification, which is justified by the previously obtained conclusion that there is no priority in choosing a regime for a newly opening business.

Thus, we can note that the cross-examination showed the existence of a relationship between the taxation regime and the performance of agricultural organizations. The presence of such a dependence made it advisable to build a forecasting model for each taxation regime separately at the third final stage.

3. The results of the final assessment – forecasting the profit of agricultural organizations. The expediency of applying the third stage of verification is due to the fact that with a really significant impact of the tax regime on the activities

Table 5. Feature_importances metric for selected groups of indicators

Name	Decision tree		Random forest		Gradient boosting	
	I	S	I	S	I	S
Work experience						
Average age, years	0.05	0.05	0.06	0.06	0.05	0.05
Size indicators						
Authorized capital	0.15	0.48	0.11	0.48	0.10	0.49
Intangible assets	0.11		0.11		0.09	
Fixed assets	0.03		0.04		0.05	
Long-term financial investments	0.08		0.09		0.12	
Assets, total	0.09		0.10		0.10	
Labor remuneration	0.02		0.03		0.03	
Financial risk indicators						
Due diligence index (DDI)	0.09	0.22	0.09	0.22	0.08	0.21
Financial risk index (FRI)	0.07		0.07		0.08	
Share of working capital in the company's assets	0.06		0.06		0.05	
Financial situation indicators						
Autonomy ratio	0.03	0.17	0.01	0.14	0.03	0.17
Equity maneuverability ratio	0.08		0.07		0.08	
Own current assets provision ratio	0.06		0.06		0.06	
Profit withdrawal indicators						
Share of profits withdrawn in the form of tax	0.08	0.08	0.10	0.10	0.08	0.08

Note: I – individual metrics, S – summation of metrics by group.
Source: own compilation.

of producers within each typical group (according to the tax regime applied), stable dependencies will appear between indicators that can be verified during the construction of the forecast model. The net profit indicator was chosen as a forecast value for agricultural organizations. The average age of the organization is identified as the factors of the model; DDI; FRI; balance sheet indicators of organizations; labor costs; coefficients of autonomy, maneuverability of own funds, provision of own working capital. The rationale for their use is presented in Table 2 above. The models were evaluated by the coefficient of determination and the average error. For comparative characteristics, a forecasting model was built for all agricultural organizations that does not take into account taxation regimes *(Tab. 6)*.

The gradient boosting model showed the highest quality for agricultural organizations that use SAT. Thus, the coefficient of determination was 93.9%, i.e. only 6.1% of the variation in net profit is explained by factors that were not taken into account in the model. To assess the stability of the constructed model, a quality assessment was carried out on independent samples (cross-validation): the coefficient of determination in the samples varies from 91.3 to 94.1%. The gradient boosting model also showed the best forecasting results for organizations that use GTS. The coefficient of determination indicates that 89.2% of the variation in net profit can be explained by the influence of the factors included in the model. The cross-validation showed that the coefficient of determination varies from 89.1 to 91.2%. Thus, the quality of the constructed models based on GTS and SAT can be considered high, and the model is suitable for forecasting.

The quality of forecasting models for organizations using STS is significantly lower than for other groups. The coefficient of determination is 72.7%. At the same time, a fairly high average error was detected relative to the average (81.5–131%). According to the results of the cross-validation, the coefficient of determination varies from 65.6

Table 6. Assessing the quality of regression models by taxation regime

Regression model	Coefficient of determination, % (R^2)	Mean average error (MAE)	Ratio of mean error to population average, %
GTS			
Decision tree model	84.7	2606719.2	31.2
Random forest model	84.2	2853516.9	34.1
Gradient boosting model	89.2	1879786.4	22.5
SAT			
Decision tree model	68.8	4040237.4	47.3
Random forest model	86.2	2750397.8	32.2
Gradient boosting model	93.9	1436465.5	16.8
STS			
Decision tree model	37.4	2702984.7	131.0
Random forest model	62.9	2064956.3	100.1
Gradient boosting model	72.7	1682536.9	81.5
Total for all tax regimes			
Decision tree model	54.7	4394838.9	71.2
Random forest model	82.9	2566435.8	41.6
Gradient boosting model	88.8	1741364.8	28.2
Compiled according to: SPARK data.			

to 74.3%, which is a significant variation. The quality of the model for STS and in general, without taking into account special modes, is significantly lower than for GTS and SAT. This may be due to the fact that, as a rule, agricultural organizations that are engaged in other types of activities make the choice in favor of STS; therefore, this group is more characterized by the heterogeneity of its constituent entities. Thus, the lower quality of the profit forecasting model without taking into account the tax regime factor indicates the importance of the latter in the formation of performance indicators of agricultural organizations.

Let us formulate a general conclusion based on the results of the study at the macro level. We show the effectiveness of GTS and SAT applied by agricultural producers, which is characterized by a high positive degree of influence of tax regimes on the performance of agricultural enterprises. The simplified taxation system, despite the fact that it is widely used in the industry, has shown a low impact on the financial results of the industry. This circumstance justifies the inexpediency of further refining the simplified taxation system at the micro level in order to apply it to agricultural producers. Thus, in modern Russian realities, it seems appropriate to have a differentiated architecture of the agricultural tax incentive system, including industry-specific benefits for agricultural subsidies and a special tax regime for agricultural subsidies.

Designing proposals for improving the system of tax incentives for agriculture to increase its effectiveness at the micro level

Further adjustment of tax measures should be a consequence of the result of the analysis conducted at the macro level.

The study showed that organizations using SAT have a lower innovation and investment potential than companies based on GTS. This is largely due to the fact that the list of expenses that can be taken into account when applying a special tax regime is closed. This has a negative impact on the investment attractiveness of the industry. Thus, the first direction should include expansion of the closed list of expenses for SAT, which in the current economic conditions are necessary for agricultural producers. Three groups of expenses can be as follows:

1) for current activities: for participation in fairs and exhibitions of animals, for the delivery of finished products to the buyer, services under the tolling agreement, the cost of own-made products that are used as feed or seeds;

2) investment: expenses for the repair and maintenance of fixed assets for non-production purposes (not taken into account on the basis of the letter of the Ministry of Finance 03-11-06/2/32263, dated August 9, 2013), improvement costs (not taken into account on the basis of the letter of the Ministry of Finance 03-11-04/1/3, dated January 25, 2006, but there is a controversial judicial practice), household waste disposal costs;

3) innovative: payment for the use of the right to selection achievements (not taken into account on the basis of the letter of the Ministry of Finance 03-11-04/1/21, dated September 7, 2007).

It has been shown that SAT has a more significant impact on improving the financial condition indicators (coefficients of autonomy, maneuverability of own funds, provision of own working capital) of agricultural organizations than SAT, in particular due to the fact that SAT takes into account the seasonality and duration of agricultural production (the tax is calculated and paid once every six months). At the same time, there is no such mechanism when using GTS. In this regard, it is proposed to establish a special procedure for accounting for financial results under GTS by types of agricultural production with a long cycle. Today, tax legislation provides for the possibility of special accounting for corporate income tax expenses and the procedure for paying VAT on the production of goods defined by the list of the Government

of the Russian Federation[3]. In particular, when taxable profits are generated under contracts with a long production cycle (over 6 months), profits are distributed either evenly or proportionally to expenses during the term of such contracts. In other words, the payment of tax obligations is carried out gradually. In the case of VAT calculation for such transactions, VAT on advances is not paid, and the tax base is determined on the last day of each tax period in which the sale was actually carried out (letter of the Ministry of Finance of the Russian Federation 03-07-14/23424, dated March 31, 2021). However, not a single type of agricultural product is included in the list under consideration, while it takes several years to raise cattle for meat or certain types of fur-bearing animals. In this regard, it is advisable to supplement the specified list with certain types of agricultural products with long (more than 1 year) production periods.

A study at the macro level has proved the low efficiency of STS when it is applied by agricultural producers; therefore, it is necessary to finalize the rules for the transition to the payment of SAT from other tax regimes. Currently, companies that use SAT cannot account for the costs of manufacturing finished products that were produced under the previous tax regime but not sold. They are not included in the closed list under Paragraph 2 of Article 346.5 of the Tax Code of the Russian Federation. Taking into account that these expenses are actually incurred and aimed at generating income, it seems advisable to allow their accounting at the time of sale of such products.

Table 3 shows that SAT is mainly used by midsize and small agricultural enterprises. While most of them do not pay VAT, and in the current conditions, this exemption is becoming the most important factor in choosing a special tax regime. Today, organizations with a certain amount of revenue and applying SAT are exempt from paying VAT. This amount of revenue is 60 million rubles. Per year, it has not changed since 2022; however, given the high rate of inflation, in 5–7 years most of SAT payers will be recognized as VAT payers, which, under other conditions comparable to those under GTS, may offset the positive effect of applying a special tax regime. In this regard, it is advisable to establish an indexation of the maximum amount of revenue, exceeding which a SAT payer automatically becomes a VAT payer. It is also important to note that since 2025, the simplified taxation system has been significantly transformed, the subjects of which became VAT payers upon reaching the revenue threshold (exceeding 60 million rubles per year). At the same time, organizations that use STS have the right to choose the option of calculating VAT: at standard tax rates (10 or 20%) with tax deductions or at preferential tax rates (5 or 7%) without tax deductions. In order to equalize the conditions of special tax regimes, it is advisable to establish the possibility of applying preferential VAT rates for SAT payers, which will partially offset the lack of indexation of the revenue threshold.

Discussion

The results obtained that show the effectiveness of fiscal support generally correlate with a significant number of studies in the field of agricultural taxation; and the discrepancies with the works analyzed above (Kataev, Sasina, 2011) are largely due to a significant time gap in the research periods. Over the past 5–7 years, both the single agricultural tax and other taxation regimes have undergone fundamental changes.

A methodological approach that formed the evidence base on the need for further improvement of agricultural taxation can be subject of discussion.

[3] List of goods (works, services), the duration of the production cycle of which is more than 6 months. Ministry of Finance. Available at: https://www.garant.ru/products/ipo/prime/doc/70017236/

Forecasting methods based on artificial intelligence are widely used both for analyzing agricultural indicators (Khudyakova et al., 2021; Demichev, 2022; Zinchenko et al., 2022) and for predicting financial performance of organizations (Lomakin et al., 2020a; Lomakin et al., 2020b). The limitation of our study is that organizations were included in the analyzed sample based on the OKVED code; however, belonging to the corresponding code does not mean that the company has only an agricultural activity profile, which may affect the results.

The constructed net profit forecasting models can be adapted to the construction of tax burden forecasting models if this information is available in the purified sample. Forecasting the tax burden of organizations helps to identify factors affecting performance indicators, as well as to monitor them by comparing them with industry averages in order to identify discrepancies and conduct tax audits (Mandroshchenko, 2023). The possible ways of tax planning in organizations also depend on the level of tax burden (Nazarova, Kozharinov, 2019). Knowing the estimated tax burden makes it possible to more accurately assess the financial condition of an enterprise, calculate cost-effectiveness, predict profitability, and make substantiated investment decisions (Kelley, 2024).

Conclusion

Within the framework of the paper, a methodology has been developed to assess the impact of the agricultural producers' tax regime, which includes three research stages (preliminary, cross-cutting and final), based on the use of machine learning models and making it possible to substantiate the architecture of the industry's tax incentive system. The approbation of this methodology has shown that the financial results of agricultural organizations largely depend on the applicable taxation regime. At the same time, the main influence was exerted by GTS and SAT, which formed the basis of the proposed architecture.

The presence of significant effects of tax factors at the macro level has justified the expediency of further improving fiscal support measures for the agricultural sector at the micro level, among which the following are proposed:

– expanding the closed list of expenses when applying SAT (with detailed proposals);

– establishing a special procedure for accounting for financial results and calculating VAT for long-term production of agricultural products;

– changing the accounting procedure for the production of agricultural products during the transition to SAT;

– changing the mechanism for calculating VAT when applying the preferential tax regime of SAT.

In general, the implementation of these proposals to improve tax incentives for agricultural organizations is of great importance for the development of the industry, as well as for addressing global issues related to food security and sustainable development. Practical significance of the study lies in the possibility of applying the proposed methodological approach to assessing the impact of taxes on the activities of agricultural organizations following the completion of each agricultural cycle, as well as in using practice-oriented proposals to improve the taxation rules of the industry.

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Human Capital and Its Development Institutions in the Context of Technological Transformation: Experience of Russia and EAEU Countries

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Abstract. Human capital has been established as one of the central concepts in the system of national development projects in Russia for 2019–2024. The updated national projects have maintained the high relevance of the human capital factor in achieving the goals of economic development in Russia for 2025–2030, but have focused on realizing the potential of each person, developing their talents, and achieving technological leadership. Despite the presence of many publications by Russian and foreign scientists on this topic, which mainly reflect the genesis of the term, its measurement and multilateral assessment, such aspects as changing the content of dominant factors in the context of technologization, digitalization of the knowledge economy in modern society, as well as issues of human capital development through the prism of institutional theory (according to a group of development institutions) are not sufficiently elaborated on. The aim of the study is to identify dominant elements in the context of the technologization of the economy in the matrix of factors affecting human capital, to identify and systematize the most sought-after economic development institutions, as well as to study best practices based on comparative rapid analysis using the example of Russia, Belarus, and Kazakhstan. Based on the analysis of modern conceptual approaches to understanding the essence of human capital in the context of the revealed paradigm shift from innovative economic development to technological development, it is concluded that while maintaining the importance of health capital, the knowledge and intellectual component of educational capital comes to the fore, with a predominance of the share of individual talent development (with creative thinking) and its increment by using development institutions at the macro and micro levels. A comparative express-analysis of the development institutions of the Russian Federation, the Republic of Belarus, and the Republic of Kazakhstan has shown that the first type of development institutions meet the needs of the countries' technological development. Among the best practices of the second type of development institutions, such as centers for importing creative behavioral models, personnel training systems with their localization in industry clusters, including competence centers, and corporate employee retraining programs tailored to the demands of the digital economy have been identified. The application of the identified best practices will accelerate the movement of countries toward achieving technological leadership.

Key words: growth economics, technologization of the economy, human capital, human capital formation factors, matrix of human capital formation and development, development institutions, competence centers.

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Introduction

The development of human capital is an unconditional priority of public policy in most countries of the world. National human capital (HC) is the capital that makes up the main share of the national wealth of both the country and its regions (Podberyozkin, Rodionov, 2021). In the modern world, when innovation plays an increasingly important role, and countries compete in the primacy of technology and strive to create conditions for the formation of highly qualified teams ready to offer new solutions aimed at economic growth, human capital simultaneously plays a key role in the generation of innovation, determining the market competitive advantage

of the country, and also implies a highstandard of living and quality of life. The actualization of human capital research issues is associated with the need for its adaptation to new conditions and requirements of the modern economy, as well as with the search for ways to effectively use human potential in the conditions of digital transformation.

The "human capital" direction (with such national projects as "Health Care", "Education", "Demography", "Culture") with implementation dates January 1, 2019 – December 31,2024 was fixed as the main one in the Presidential Decree "On national goals and strategic objectives of development of the Russian Federation until 2024[1]". The national projects approved by the Presidential Decree "On the national development goals of the Russian Federation for the period until 2030 and in the perspective until 2036[2]" retained the high importance of the human capital factor in achieving the development goals outlined in these documents, but increased its importance in the context of identifying new goals, among which technological leadership, the realization of the potential of each person, the development of their talents are dominant. In addition, we emphasize that the modern understanding and choice for the study of human capital and institutions of its development is important from the standpoint of economic and national security[3], especially in the context of ensuring technological sovereignty.

Development institutions play an important role in the process of designingt of elements of the national economic system, including human capital. On the one hand, the national governments of the world apply various tools for the growth of human capital, pay much attention to the institutional arrangement of the environment, but, on the other hand, scientists note the insufficient connection between government efforts and their results, which necessitates a more detailed consideration of this aspect.

The institutional approach has significantly expanded the scope of analysis of the phenomenon of human capital, focusing on the norms, rules and regulations that govern the behavior of people in the real world in a particular country and in a particular period of time (Bobrova et al., 2018). Using the example of the Russian Federation, scientists have proved the strong influence of the institutional environment on human capital (Gimpelson, 2016), including the impact of institutional reforms on the growth of indicators comprising human capital (Avdeeva, 2024). The first step in solving this problem is definitely a reliable assessment of the level of human capital development, but today there are many methodological approaches and calculations (Pavlova, 2010; Petukhov, 2017; Chernenko, 2024; Shulgin, Zinkina, 2021), including those approved at the level of the World Bank[4] and the United Nations Economic Commission for Europe[5], but there are not enough development mechanisms, especially through the prism of institutional theory.

It is impossible to consider all the human capital elements at once, so the aim of this paper is to identify the dominant elements in the matrix of factors

[1] On national goals and strategic objectives of development of the Russian Federation for the period until 2024: Presidential Decree 204, dated 07.05.2018 (ed. of 21.07.2020). Available at: http://www.kremlin.ru/acts/bank/43027 (accessed: 04.03.2025).

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[5] Guide on measuring human capital. UN. ECE. New York; Geneva: UN, 2016. Available at: https://digitallibrary.un.org/record/3931023?v=pdf (accessed: June 23, 2024).

concerning formation and development of human capital in the conditions of technologicalization of the economy and to study the development institutions that influence them. The comparative analysis of human capital development institutions in such friendly countries, which are members of the same integration bloc and also belong to the group of countries with a high level of human capital development, as Russia, Belarus, and Kazakhstan, will make it possible to identify the best practices, and their subsequent replication will lead to accelerated achievement of national development goals.

Theoretical bases for studying human capital in the conditions of technologization of the national economy

Actualization of the essence of technologization of the economy

The modern period of development of the world countries is characterized by the change of technological mode (Glaz'ev, 2022). The economy, in which the main driving force of production was physical labor, is now turning into an intellectual-intensive one, when the country's wealth is created with the dominance of mental labor, and the role and importance of personnel is multiplied (Makarov, Ye Liu, 2023). Most countries have already made such a transition, and Russia needs to make it, moving from the fourth technological mode to the fifth and sixth. This can be done only on the basis of an active technologization policy, the content of which is defined as follows (Dzhukha, Mishchenko, 2019):

– the priority of technological policy in the development of the national economy;

– advanced development of the science and scientific research sector among the types of economic activities;

– inextricable link between the development of proprietary critical technologies and their commercialization;

– creation of own technologies (based on the involvement of all kinds of resources, primarily intellectual), rather than copying (buying) already existing ones;

– increased R&D expenditures (for developed countries this is more than 2.5% of GDP;

– the core of the new mode is formed by the latest intellectual industries, including genetic engineering, bioeconomics, artificial intelligence, space exploration, etc., the development of which requires special qualifications of people.

In a broad sense, the term "technologization" means the process of development and implementation of new technologies, with innovations not only in the production sphere, but also in the social sphere. Scientists understand technologization as "an objective process that ... penetrates simultaneously all levels of the economy from global markets to ... micro-level of the enterprise" (Dzhukha, Mishchenko, 2019, p. 39); as a process of 'technological changes that have the character of an irreversible process of qualitative transformations' (Pavlova, 2010). According to other scientists, the essence of technologicalization of the economy is more fully revealed through the concept of "ecosystem of technological development of the economy" (ETD). On the one hand, its essence is quite clearly defined by the Russian legislation as "a set of interrelated subjects of economic and scientific-educational activity, which interact on the basis of network principles, develop jointly or on a competitive basis ... innovative products and services significantly affecting the development of the economy ... forming new markets". innovative products and services, significantly affecting the development of the economy ..., forming new markets" [6]. But, on the other hand, N.A. Maslyuk and N.V. Medvedeva look more deeply into the essence of technologization and focus directly on the change of the paradigm of innovative development to the concept of technological development, on the transformation of the innovation ecosystem (a system of isolated existence of science and production spheres) to ETD –

[6] The Concept of Technological Development for the period up to 2030: Government Order 1315-r, dated May 20, 2023 (p.10). Available at: https://rospatent.gov.ru/content/uploadfiles/technological-2023.pdf (accessed: 02.02.2025).

"an integrated system of network interaction of science, technology and innovation" (Maslyuk, Medvedeva, 2023, p. 101).

The key objects of the emerging economic and technological system, among others, are new institutional and economic units of technological development, including small technology companies, technology transfer agents, technology holdings, etc. Who will manage these structures? Who will generate innovations, and not copy technologies, but create their own new technologies? This will be done by people with a high level of intelligence, knowledge, and professional skills. All this is concentrated in the concept of "human capital".

Modern concepts of human capital and dominant factors promoting its development

Studies of the economic role of man are known to be the basis of classical political economy, some authors among the founders name A. Smith and D. Ricardo. Smith and D. Ricardo, another part – Irwin Fisher (Makarov, Ye. Liu, 2023), scientists of the third group (Bobrova et al., 2018) associate the formation of the theory of human capital with the names of Theodore Shultz and Harry Becker, who received the Nobel Prize for their developments in this field in the first half of the 20th century (Shultz, 1961). At this time, the concept of human capital was widely developed "as a response of economic science to the new challenges facing post-industrial society, in which the role of human intellectual capabilities has grown enormously" (Bobrova et al., 2018). Among the works of Russian scientists, let us pay attention to the works of Academician Stanislav G. Strumilin (1877–1974) in connection with the development of the concept of economic value of a person, in the framework of which the productive abilities of an individual were considered as a result of investing in some capital capable of generating income, including the significance of investment in education (Strumilin, 1982).

In modern conditions, "non-Western" theories of economic development are gaining momentum, and the approach of Asian countries, which have recently made a rapid leap forward in the economic and technological development of the national economy, is particularly interesting. Among them, we would like to highlight the approach of Chinese scientists, whose concept of human capital has gained particular popularity in the context of studying the transformation of labor resources and their quality in the PRC economy. Its essence consists in the fact that human capital is considered as "a set of intellectual and physical qualities, knowledge, professional experience of the rural population, which determines the level of its economic welfare and social well-being" (Petrov et al., 2023, p. 152), while the listed qualities are subdivided into individual and collective, basic and developed. The feature of the approach is that human capital is considered not so much as a factor in increasing the competitiveness of employees in the labor market, but as a basis for building a "middle-income society", the so-called concept of human capital with Chinese specifics, i.e. the economic interpretation is supplemented by a socio-institutional one related to the goals of social development of the state.

At the current stage of economic development, the concept of human capital as an economic category continues expanding along with the development of the global information community and knowledge economy. Today, concepts that take into account the following characteristics of modern conditions are primarily important: the scientific and technological vector of the country's development, "global economic fragmentation (GEF), leading to the division of global economic activity into separate blocks or regions" (Chernenko et al., 2024); the socio-economic knowledge component, as well as a new philosophical understanding of the role of man in the modern world.

A separate area of research is the study of digitalization impact on human capital, they have identified certain features. For example, the German scientist M. Schneider (Schneider, 20217)

proposes an "interrelated concept of human and organizational capital", justifying it by the fact that investments only in information technology without investments in human capital do not lead to an increase in labor productivity at the workplace. At the same time, human capital, which he interprets as an intangible asset, is able to form a firm's competitive advantage only in conjunction with organizational capital, which means "a holistic work organization with teamwork, decentralized decision-making, and ample opportunities for career growth" (Schneider, 2017). Scientists from Slovakia E. Ivanová, V. Žárská, and J. Masárová (Ivanova et al., 2021) argue that the speed of innovation development in the conditions of digital transformation of the economy depends on the conditions for the development of the necessary skills of human resources, including the institutional environment, in the formation of which the state plays a significant role.

Due to the great variety of concepts, it is impossible to cite them all; nevertheless, *Table 1* reflects the main approaches. Moreover, we deliberately included in the table the views of little-known authors, including scholars from Africa, as well as the opinion of researchers from friendly countries, for which further comparative analysis is carried out (Belarus, Kazakhstan), to move away from the usual interpretations.

Thus, we see that human capital should be considered as a complex system with a set of components, the main of which in the conditions of technologization of the economy is a set of knowledge that forms the added value of the created high-tech products.

Certainly, the concepts given in Table 1 are not exhaustive, nevertheless, they allow defining the modern essence of HC, which is reflected through such key words as intelligence, stock of knowledge and health, quality of life and others.

We identified the structural HC elements and the dominants in its matrix (*Tab. 2*) based on the compilation approach to identify the factors determining the HC development.

Table 1. Main modern approaches to the formulation of the essence of the CE

Author	Essence of the approach and definition of the HC
A.I. Podberezkin (Podberezkin, Rodionov, 2021) – Russia	"Intensive productive factor of development of economy, society and family, including educated part of labor resources, knowledge, tools of intellectual and managerial labor, environment of living and labor activity, ensuring effective functioning of the HC as a productive factor of development" (in the broad sense of the word); "intelligence, health, knowledge, quality and productive work and quality of life" (narrowly defined)
A.A. Khokonov (cit. ex: Dorokhova et al., 2022, p. 6)	"A complex synthetic factor that aggregates a set of socio-economic, psychological and other parameters of human resources"
Obiekwe Onvebuchi (Onvebuchi, 2018) – Africa	"Both the added value created in the economy through direct participation in the production process, or growth rate through it innovative capacity"
Piazza-Georgi (cit. ex: Onvebuchi, 2018)	Stock of personal skills that an economic agent has at his disposal, as well as physical capital
G.V. Mitrofanova, T.V. Skorzhevskaya (Mitrofanova, Skorzhevskaya, 2021, p. 228)	"The body of knowledge, skills and abilities of the individual and of society as a whole, ... The stock of knowledge, skills and abilities possessed by each individual that can be utilized by him or her for production or consumption purposes"
M.Z. Izotov* – Kazakhstan	"The stock of abilities, knowledge, skills, as well as moral motives and attitudes embodied in a person"; on the one hand, a set of production abilities of a modern worker, on the other hand, investments of the state, enterprise and the person himself in the formation and continuous improvement of these abilities.
V.M. Makarov, Ye Lyu (Makarov, Ye Lyu, 2023)	The sum of knowledge, skills, capabilities, including health, concentrated in the personnel of an enterprise.

* Chief Researcher of the Institute of Philosophy, Political Science and Religious Studies of Committee of Science of the Ministry of Science and Higher Education of the Republic of Kazakhstan Dr. Sc. Ph., Prof. Mukhtar Z. Izotov in an interview to the Review and Analytical Journal "Exclusive"
"Kazakhstan Social Model and Human Capital" dated November 25, 2013. Available at: https://exclusive.kz/expertiza/politika/11429/ (accessed: 01.02.2025).
Source: own compilation.

Table 2. HC elements and dominant factors influencing it: main approaches

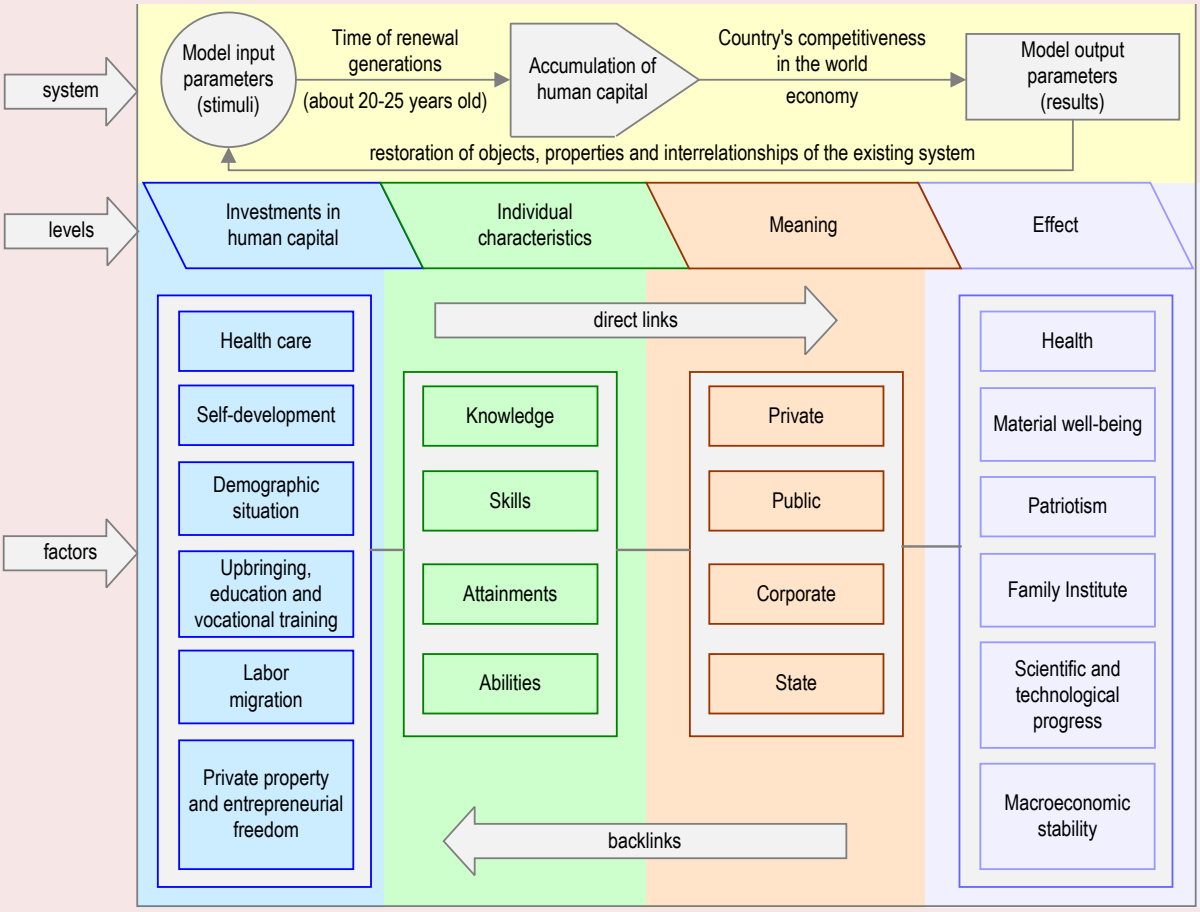
Authors	Structural elements that constitute the essence of the PE as an integral indicator	Factors affecting these elements
N.V. Dorokhova, E.S. Dashkova, T.M. Dodokhyan (Dorokhova et al., 2022, p. 5); O.I. Motorina (Motorina, 2017) – Belarus; D.A. Avdeeva, A. Weiss, D. Weil, M. Bils and P. Klenow (Avdeeva, 2024; Weiss, 1995; Weil, 2007; Bils, Klenow, 2000) M.Z. Izotov*	Education capital (a set of professional and qualification characteristics Intellectual capital is a set of accumulated knowledge, skills, etc.	State of the education system and accessibility of educational services; a permanent system of professional development
	Intellectual capital is a set of accumulated knowledge, skills, etc.	Use of lifelong learning system, qualitative characteristics of socio-economic environment
	Cultural and moral capital is moral and ethical values, stereotypes of human behavior in the professional environment established in the process of socialization of an individual	Corporate culture of an organization, which defines norms and standards of interaction in the team
	Health capital, the totality of a person's psycho-physiological potential, which is laid down at the genetic level, formed at a certain age and used throughout life	State of the health care system and accessibility of health care services
A.I. Podberezkin (Podberezkin, Rodionov, 2021)	The educated part of the labor force, knowledge; tools of intellectual and managerial labor; habitat and labor activity environment ensuring effective and rational functioning of the Personnel Committee	Demographic policy; policy of modernization of health care, education, pension and social assistance development, culture; creation of a comfortable and safe social environment, efficient housing markets; institutional services and improvement of the entrepreneurial climate
O. Onvebuchi (Onvebuchi, 2018)	Human capital development is the process of investing in and developing the skills, knowledge and abilities of employees in order to increase their productivity; the goal of human capital development is to transform employees into a more tangible asset and align them with the strategic needs of the organization	New learning paradigm; "nurturing" talent; Factors affecting the effectiveness of human capital may include education and training programs, availability of resources and support networks, working conditions, remuneration, job security, and access to career and development opportunities
S.A. Nazlukhanyan (Nazlukhanyan, 2016)	The primary element in the structure of HC, its primary basis, is health; secondary elements, acting as a superstructure and corresponding to the social nature of man, are education, information, socio-cultural component, determining intellectual abilities to work; Self-organization as a *cohesive element, where* intelligence is the foundation	In addition to quality education and health care, these are the conditions of information circulation and access to the database (as a source of knowledge)
G.V. Mitrofanova, T. V. Skorzhevskaya (Mitrofanova, Skorzhevskaya, 2021)	The social component of human capital; biological component	Factors concerning formation and development of the social component: formal, informal and independent learning (knowledge, education, qualification, morality, labor migration, ethics, culture); factors of formation and development of the biological component: physical level, investments in all elements of the health care system
V.M. Makarov, Ye Lyu, (Makarov, Ye Lyu, 2023, p. 103; Schneider, 2017)	"Intangible capital embodied in the employees of the enterprise"	Investment system (including investments and investment methods) in intangible assets and employee incentive system (labor and recreation)

* Chief Researcher of the Institute of Philosophy, Political Science and Religious Studies of Committee of Science of the Ministry of Science and Higher Education of the Republic of Kazakhstan Dr. Sc. Ph., Prof. Mukhtar Z. Izotov in an interview to the Review and Analytical Journal "Exclusive"
"Kazakhstan Social Model and Human Capital", dated November 25, 2013. Available at: https://exclusive.kz/expertiza/politika/11429/ (accessed: 01.02.2025).
Source: own compilation.

Generalization of the points of view presented in Table 2 allows concluding that the main structural element of the human capital matrix in the conditions of technologization is intellectual and moral capital enhanced by creativity (talent). Accordingly, the dominant factors of their development are the investment of resources (organizational, managerial, investment) in education (at all levels), the system of knowledge generation, and the social component. Health capital as a physical component retains its importance, since mental labor requires high energy expenditures.

The result of considering the points of view of scientists from Russia, Belarus, Kazakhstan, and Africa is quite informative. However, it will be incomplete without the experience-rich European practice. In this regard, let us analyze the approach of the UN Economic Commission for Europe[7]. Based on the Guidelines of the UN Economic Commission for Europe, we have built a logical framework consisting of 4 blocks (*Fig. 1*). Its feature

Figure 1. Human capital: formation, accumulation and contribution to the economy



Source: own compilation based on the United Nations Economic Commission for Europe Human Capital Measurement Manual.

[7] *Guide on Measuring Human Capital*. UN. ECE. New York; Geneva: UN, 2016. Available at: https://digitallibrary.un.org/record/3931023?v=pdf (accessed: June 23, 2024).

is to highlight the characteristics of the HC and its development factors at all stages of its existence, namely formation, accumulation and realization, including:

– human capital formation starts from the moment a child is born and the medical support of their mother, and then continues with investments in its upbringing, education, training, and self-development;

– individual qualities of personality, such as people's knowledge, skills, abilities and abilities, play a determining role;

– the result of human capital accumulation is expressed not only in material factors (public health, material well-being), but also in value orientations (including responsible citizenship, patriotism).

Taking into account the multicomponent nature of human capital and the need for its structuring, let us use such a way of formalization by S.A. Kristinevich (Kristinevich, 2013) as a "matrix of formation and development of human capital", and at all stages of the life cycle of an individual. The dominant factors affecting the human capital level, or in S.A. Kristinevich's terminology "human-forming industries" (Kristinevich, 2011), in the conditions of technologicalization of the national economy are the education system with new standards, which forms the intellectual and knowledge component of human capital and develops a person as a talent, creative personality; the system of value formation (responsible citizenship, patriotism, lifestyle); the system of ensuring health of proper quality, as it affects the productivity of the human capital; and the system of the human capital development. In addition, studies of workers' social capital, which is understood as sustainable social interactions in a network of informal communications, have become increasingly popular in recent years.

As we have noted above, one of the mechanisms for the progress of these components of human capital is human capital development institutions. But let us emphasize that the institutional environment, first, is formed under the influence of public policy, and second, it represents "a set of norms and rules not only economic, but also social, ..., cultural order" (Dzhukha, Mishchenko, 2019).

Diversity of human capital development institutions and their modern content

Institutional theory, in its broad purpose, "involves determining the impact of institutions on the object under study, that is, it considers the development of the economy as a result of multidirectional activities of various institutions that affect the economy as a whole and the economic behavior of people, among others" (Fakhrutdinova, 2022). Many researchers have established the existence of a relationship between the quality of the institutional environment and the economic development level (Motorina, 2017; Ivanová et al., 2021).

The singling out of the institutions for the HC development in the institutional environment as a separate group is associated, according to scientists, primarily with the increasing role of the human factor in society, the economic development of which has reached the post-industrial stage. "A person, their ability to think creatively and provide knowledge increment become the most important economic growth factor, more important than the availability of natural resources" (Motorina, 2017). In the broad sense of the word, development institutions are interpreted as a mechanism of stimulating state influence. In the narrow sense of the word:

– *institution* is a system of formal and informal norms, rules (restrictions) operating in society and determining the rules of interaction between individuals, and mechanisms of coercion and motivation to fulfill them (Motorina, 2017; Podberyozkin, Rodionov, 2021; Gevraseva et al. 2024);

– *development institute* is also a set of norms and rules, but in a certain area, as well as special organizations whose activities contribute to stimulating the economy, supporting business entities with a focus on solving specific problems.

We emphasize that if earlier the mandatory criterion of a development institution was the direct participation (intervention) of the state (including financing), today the approach related to hybrid and quasi-institutions (quasi-state) is developing (Tatarkin, Kotlyarova, 2013).

First of all, the formation (accumulation) of human capital occurs in the process of interaction of key public social institutions, including the institution of family, trust, and culture (Podberyozkin, Rodionov, 2021; Bobrova et al., 2018), and then development institutions (DI) come into play.

To systematize DI, they often resort to their classification, distinguishing such groups as political, social, economic; formal (a set of laws and organizations, which are fixed in formal law) and informal (not fixed, but accepted way of acting in a certain area); financial (as a rule, funds) and non-financial. Among the financial instruments, scientists single out the institution of investment in human capital, which is "an established stable system of social and economic relations between the subjects of institutional policy, manifested in the form of standards of behavior, stereotypes of thinking, rules and mechanisms of enforcement of these rules regarding the investment strategy of human capital development" (Kristinevich, 2011; Kristinevich, 2013). However, we consider the basic classification to be the one derived from the definition, i.e. development institutions include laws and regulations (Type I) and specialized institutions (Type II). In refraction to the dominants of the human capital matrix, we clarify them in *Table 3*. We emphasize that we have included not only the macrolevel of the economy, but also the micro-level

Table 3. Systematization of the most frequently used human capital development institutions (HC DI)

Dominant spheres related to the HC development	Human capital development institutions (most common)	
	Type I – as a set of laws, rules	Type II – as organizations, structural units
A health care system that ensures the reproduction of human resources and the maintenance of health to preserve its labor potential	Regulatory and legal acts in the field of health care, including national projects, state programs	Regional fund for social initiatives – health of the nation
Education area	Normative legal acts in education, including national projects, state programs, e.g. the Program of connecting all levels of education into a single vertical of training professional staff for branches of the economy	Educational and scientific institutions of additional education that form the intellectual potential of society, such as the organization "Human Capital Development"; mechanisms in the economic support for educational institutions
Personal development, creativity	Entrepreneurship Institute (including the law on entrepreneurial activity)	SME Support Fund; Institutional structures promoting activities in the field of science and innovation (research centers, business angels, innovation centers, technoparks, etc.); Academy of Innovators
Maintaining and developing the professional level of employees in corporations	Corporate telecommuting program for parents with small children	Development institutions in corporations, including: human capital development fund; corporate fund to support socio-economic initiatives; corporate bank of promising ideas
Social capital	Social return on investment – SROI	Register of socially oriented non-profit organizations
According to: (Kristinevich, 2011; Dias, Tebaldi, 2012; Kristinevich, 2013; Maldonado, Corbey, 2016; Chernenko, 2024; Kezia et al., 2019; Bondeza et al., 2019; Azarnert, 2020; Podberezkin, Rodionov, 2021); Register of socially oriented non-profit organizations. Ministry of Labor of Russia. Available at: https://mintrud.gov.ru/nko/default/index (accessed: 01.02.2025); Human Capital Index (HCI). World Bank. Available at: https://data.worldbank.org/indicator/HD.HCI.OVRL; sitography.		

of maintaining and multiplying human capital, the model of which includes such areas as "investments in the development of intra-firm human capital, promotion of employee self-development, retention of creative employees" (Petukhov, 2017).

Methodological provisions and data

We carried out the research using the methods of comparative, institutional, statistical and content analysis, as well as case-study at the country and company level. The data for content analysis were based on the legislative documents of the countries being compared and the websites of the analyzed HC development institutions. The methodology of comparative analysis provides for the comparison of the content of DI and indicators of the countries by the same parameters.

At the first stage, the comparison of countries by aggregate HC was performed. The list of indicators includes GDP at PPP per capita, the country's place in well-known rankings, namely: Global Human Capital Report[8], Human Capital Index[9], The Human Capital Index by authors[10], Human Development Report 2023-24[11], The Global Innovation Index 2024[12]. The choice of indicators is justified by the following. Despite the fact that the GDP indicator is more characteristic of the "classical" theory of economic development, according to which the human being was assigned the role of a driving force, it nevertheless reflects the overall progress. The composite index of human capital development is the main tool of the HC concept because in the framework of modern concepts of economic development, the country's progress should be assessed not only by GDP, but also by achievements in the spheres of education and health.

At the second stage, we carried out the systematization of HC development institutions of the Chechen Republic and comparative analysis of the best practices of their functioning (for development institutions of the first and second types) according to the selected dominant factors. We interpret the systematization of HC development institutions of the Chechen Republic in the context of the generally accepted classification of development institutions as a kind of their inventory.

The concept of "best practices"[13] refers to the best option (tool, method) for achieving a goal, best practices, etc.). Since there is no official filter for which practices can be considered best and which cannot (and success is not always efficiency in a particular company), we have adopted the following criteria in this study: the earliest to appear in practice, a novelty, a regional initiative (this criterion is leading in the context of the competitiveness of regions in the implementation of national projects), the most replicated or frequently encountered in the information field cases from different industries, and the experience of market leaders.

[8] The global human capital report 2017: Preparing people for the future of work. Samans Richard. World Economic Forum. Geneva, Switzerland, 2017. Available at: https://www.weforum.org/publications/the-global-human-capital-report-2017/ (accessed: January 9, 2025).

[9] Human Capital Index (HCI). World Bank. Available at: https://data.worldbank.org/indicator/HD.HCI.OVRL (accessed: October 21, 2024).

[10] Our own taxonometric ranking for this study (Gorbunov, Shorokhov, 2023), which includes 10 variables: prevalence of underweight and stunting in children under 5 years of age, fertility rate, proportion of births attended by skilled health personnel, life expectancy at birth, lifetime risk of maternal mortality and under-5 mortality, years of compulsory education, proportion of people using the Internet and owning an account in a financial institution, and the number of children under 5 years of age who have an account in a financial institution.

[11] Human Development Report 2023–24: Breaking the gridlock: Reimagining cooperation in a polarized world. UNDP (United Nations Development Programme). New York. Available at: https://hdr.undp.org/sites/default/files/2023-24_HDR/HDR23-24_Statistical_Annex_HDI_Table.xlsx (accessed: January 12, 2025).

[12] The Global Innovation Index 2024. Available at: https://www.wipo.int/web-publications/global-innovation-index-2024/en/ (accessed: January 9, 2025).

[13] Theory of best practices. Available at: https://trends.rbc.ru/trends/education/60efef659a79478b2eac415c (accessed: 20.04.2025).

For the express analysis of development institutions, relying on the proposals (mostly controversial) of economists and legal scholars, we have adopted the following compilation of provisions and metrics (Tatarkin, Kotlyarova, 2013; Kurochkin, 2020; Vasilieva et al., 2023): the presence (number) of legislative acts, systematicity (periodicity of updating) of legislation, applicability (the presence of a mechanism for achieving the goal), the opinion of experts (scientific community), the presence of the object of regulation, the fact concerning the influence of the norm on the relations between subjects, enforceability, social value and demand for measures. A detailed analysis in the future (after a certain period of enforcement) will certainly require analysis by quantitative indicators, including the ratio of achieved goals and set goals (stepped and non-stepped), assessment of the effectiveness of state support measures through the achievement of target quantitative indicators provided by the programs, including the amount of funding (Vasil'eva et al., 2023).

The Republic of Belarus and the Republic of Kazakhstan were considered for comparison with Russia on two criteria: they belong to the group of countries with a high level of HC development[14], as well as they are friendly and belong to the same integration bloc of the EAEU (i.e. they are relevant for comparison).

Results and discussions

Table 4 presents the results of step 1, which aims to identify leading countries according to a set of indicators characterizing the relationship between technological and socio-economic development indicators.

We can see that, leading among the analyzed countries in terms of GDP per capita, Russia is also the leader in the global innovation index of countries (Belarus has the lowest values in these indicators). We also note Russia's higher position compared to Belarus in terms of E-participation. Kazakhstan has an intermediate position in terms of GDP per capita and global innovation index. It means that there is a certain coincidence of the countries' positions in these two indicators. However, the situation is mixed with regard to the indicators reflecting HC and innovation: while being the leader in terms of HC development, the

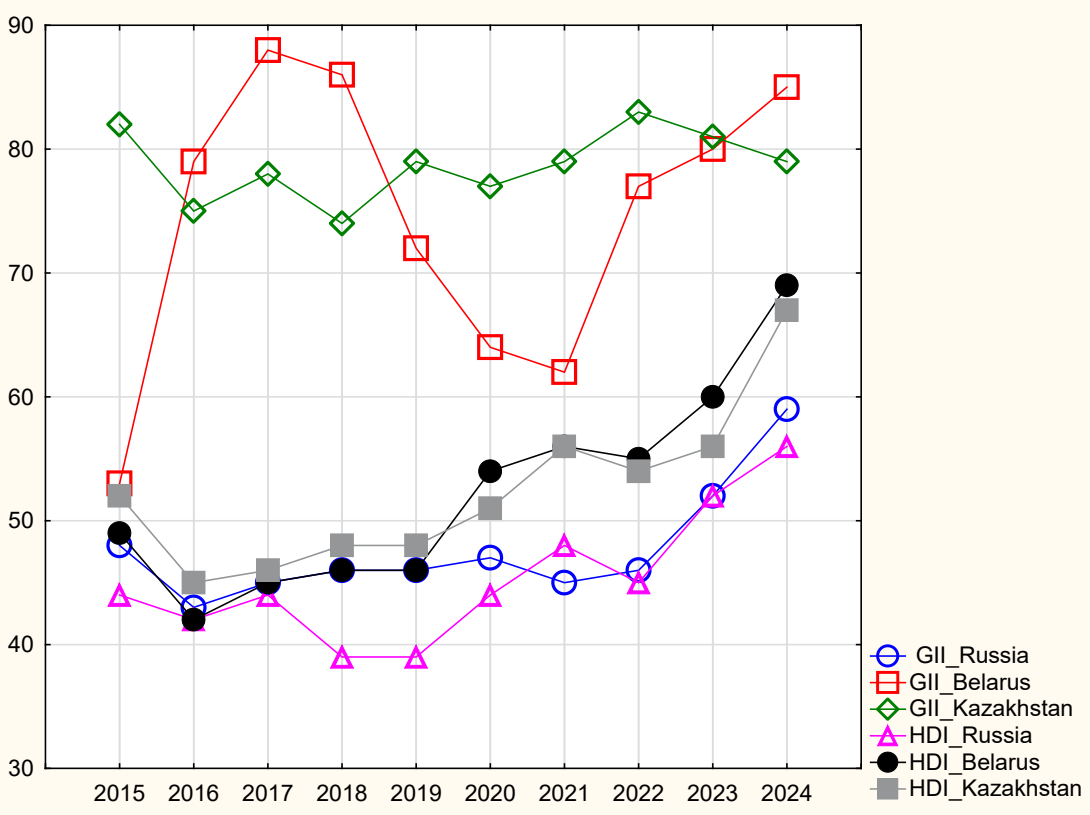
Table 4. Comparison of countries by total human development

Indicators and areas of the economy	Russia	Belarus	Kazakhstan
PPP GDP per capita in U.S. dollars. United States, 2023, World Bank, 192 countries* (for comparison – Luxembourg 143809.51)	44120.14 (54th place)	30763.02 (73rd place)	38515.18 (61st place)
UN E-Participation Index (EPI), World Bank, 2022, 192 countries** (for comparison – Japan 6.0)	59th place with a 3.61 index	86th place with a 2.73 index	15th place with a 4.84 index
Human Capital Index (HCI), World Bank, 174 countries (for comparison – Singapore 0.87913)	41st place with a 0.68142 index	36th place with a 0.70008 index	55th place with a 0.62851 index
Human Development Report 2023-24, United Nations Development Program, 193 countries (for comparison – 0.967)	56th place with a 0.821 index	69th place with a 0.801 index	67th place with a 0.802 index
The Global Innovation Index 2024, World Intellectual Property Organization (WIPO), 133 countries (for comparison – Switzerland 67.5)	59th place with a 29.7 index	85th place with a 24.2 index	78th place with a 25.7 index

Note: index values are given in the range from 0 to 1 or from 0 to 100.
*GDP per capita, PPP (current international $). International Comparison Program, World Bank Group. Available at: https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD (accessed: January 13, 2025).
**UN E-Participation Index (EPI). World Bank Group. Available at: https://prosperitydata360.worldbank.org/en/indicator/WB+GTMI+I+27 (accessed: January 13, 2025).
Source: own compilation.

[14] An overview of the 2023–2024 Human Development Report. Breaking the deadlock. UNDP. Available at: https://hdr.undp.org/system/files/documents/hdr2023-24overviewru.pdf (accessed: 19.04.2025)

Figure 1. Global Innovation Index (GII) and Human Development Index (HDI) rankings of countries



Symbols:

GII – Global Innovation Index (The Human Factor in Innovation),

HDI – Human Development Index (UN).

According to: Human Development Index. Available at: https://statbase.ru/datasets/indexes-and-ratings/human-development-index/ (accessed: 19.02.2025); Ranking of the world's countries according to the UN Human Development Index, 2024 (United Nations Development Programme. Human Development Index 2024. Available at: https://gtmarket.ru/ratings/human-development-index (accessed: 19.02.2025).

Republic of Belarus lags behind in terms of the global innovation index, which characterizes the country's technological development level. The insufficiently high values of the indicators can be partially explained by the following problems of the HC development:

– in Russia, it is the initial insufficiently clear; it is according to the opinion of MGIMO professor A.I. Podberezkin (Podberezkin, Rodionov, 2021), initial formulation of priorities for the HC development;

– in Belarus, it is lack of staff competence, especially in the conditions of digitalization: in the countries of Europe and Central Asia, this factor is considered significant at 7.4% of enterprises, in Belarus – 11.9% (Bogdan, 2021);

– in Kazakhstan, it is spatial heterogeneity of human capital: in fact, the country is divided into four large macro-regions, which reduces the effectiveness of unified policies and requires a targeted approach (Nyussupova, Kalimurzina, 2016; Nyussupova et al., 2024).

Figure 1 shows the relationship between the dynamics of countries' rankings on the Global Innovation Index (GII) and the Human Development Index (HDI).

Table 5. Countries' position in the global innovation index by its constituent elements (2024)

Country	Switzerland (for reference)	Russia	Belarus	Kazakhstan
Total place in the rating (index)	1 (67.5)	59 (29.7)	85 (24.2)	78 (25.7)
Constituents				
Institutional environment	**3**	**126**	**132**	**76**
Human capital	**4**	**39**	**43**	**65**
Infrastructure	7	76	84	68
Market environment	5	57	98	86
Barriers to business	4	53	81	66
R&D implementation	1	52	46	85
Creativity (poetry, drama)	1	53	92	83

According to: The Global Innovation Index 2024. Available at: https://www.wipo.int/web-publications/global-innovation-index-2024/en/ (accessed: January 9, 2025).

Graphical visualization of the dynamics shows the following: GII and HDI trends for Russia almost completely coincide; HDI trends of all three countries coincide; HDI trends of Belarus and Kazakhstan do not coincide with the GII trend; moreover, Belarus has a more broken curve. The situation can be clarified by analyzing the components of the global investment rating, which is interesting for this study because of its representativeness and relevance, since, unlike other ratings, it is updated as of 2024. The Global Innovation Index consists of seven elements, including the quality of development institutions and human capital (*Tab. 5*).

All three countries – Russia, Belarus and Kazakhstan – have relatively good positions in the sphere of human capital. Out of 133 states participating in the ranking, the countries under consideration are in the first half of the ranking. We should note that in 2022, education expenditures amounted to 5% of GDP in Belarus, 4% in Russia and 4.5% in Kazakhstan. This value is above the world average (3.8%), but below the indicators of such countries as Kyrgyzstan (7.2%) and Tajikistan (5.7%). For comparison: in Indonesia, education expenditures in 2022 amounted to only 0.9% of GDP, in Monaco – 1.2%, and in Singapore, which is in first place on the human capital index calculated by the World Bank – 2.5%[15]. The positions of Russia and Belarus are related to the need for additional funding on the principle of reducing the gap in the level of development of the institutional environment compared to developed countries, while in Kazakhstan, for the most part, the necessity to form market relations.

Changes in the human capital index coincide with changes in the income level as expressed by GDP per capita. Therefore, as a rule, countries with a high level of human capital have a higher GDP per capita at comparable prices, and vice versa, countries with a low GDP per capita have a low value of human capital. However, some countries with higher levels of human capital have lower GDP per capita. For example, the Russian Federation has a higher GDP per capita than Belarus, but Belarus has a higher human capital index. This indicates that human capital has not yet reached its potential level and institutional reforms are needed, primarily in labor relations, medicine and education.

Within the framework of stage 2, providing systematization and more detailed study of the institutional factor, we obtained the following result (*Tab. 6*).

[15] Government expenditure on education, total (% of GDP). World Bank. Available at: https://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS (accessed: January 9, 2025).

Table 6. Comparative analysis of the best practices of human capital development institutions

HC components	DI type	Russia	Belarus	Kazakhstan
1	2	3	4	5
Human capital development institutions (selectively, frequently used): typical features				
In education area	I	The seven large-scale national goals include preserving the population, improving their health and well-being; realizing the potential of each person, developing their talents[1]); National Project "Realization of the potential of each person, development of their talents, education of a patriotic and socially responsible person"[2])	Education Code of the Republic of Belarus 243-Z, dated January 13, 2011; strategic initiatives aimed at ensuring the intellectualization of the national economy based on the strategy of digital communications development, interaction in science and innovation, and innovation education	Development Strategy of the Republic of Kazakhstan until 2030, aimed at improving the HC quality)[3]) and the Long-term development strategy "Kazakhstan – 2050"[4]); State programs to improve the quality of education that meets the standards of the future innovation economy of the country, including the Bolashak Program, the Fund of the First President of the Republic of Kazakhstan
	II	ANCO "Human Capital Development" – human resources for high-tech companies of the capital; Technograd Innovation and Education Complex – one of the largest innovative educational complexes[5])	Priority of the Republic of Belarus development until 2025 no. 3: "intellectual country" – quality and accessible education, disclosure of personal potential, creation of a new type of educational system[6])	Sectoral clusters of the personnel training system; Assistance of the state in stimulating the improvement of specialists' qualification level to the requirements of the labor market[7])
In health area	I	National Project "Population preservation, health promotion and improvement of people's health and well-being, family growth"	Law of the Republic of Belarus 2435-XII, dated June 18, 1993 "On health care"	Fund of the First President of Kazakhstan[8]), Strategy "Kazakhstan –2050"
	II	Regional fund for social initiatives "Health of the nation"[9])	State Program "People's health and demographic security" for 2021–2025 (as amended by Decree of the Council of Ministers of the Republic of Belarus 965, dated 18.12.2024)	State program of health care development of the Republic of Kazakhstan for 2020–2025. Resolution 982 of the Government of the Republic of Kazakhstan, dated 26.12.2019
In entrepreneurship and the corporate sector, emphasis on personal creativity and high professionalism	I	Federal Law 209-FZ, dated 24.07.2007 "On the development of small and medium businesses in the Russian Federation"	Program of socio-economic development of the Republic of Belarus for 2021–2025, where the main goal is to build up social capital and create conditions for self-realization of a person[10]); promotion of start-ups, innovative entrepreneurship in the ICT (Bogdan, 2021)	The HC concept goes beyond the discussion of the education and health fields to consider the influence of values and informal institutions that directly affect the formation and quality of an individual's soft skills[11])
	II	Moscow fund for support of industry and entrepreneurship of the Moscow government; Corporate Bank of promising development ideas; Fund for the HC development (intra-corporate)	The system of in-house training in organizations, the base included: its own training center, full-time employees of the organization conducting training, long-term contracts with educational institutions, including specialized secondary education (Makovskaya, 2015)	Centers for "importing behavioral patterns"; A "bright spots" tool, for personal growth among leaders who demonstrate initiative, supportive creativity and other personal qualities

End of Table 6

[1)] About national purposes of development of the Russian Federation for the period till 2030 and on a prospect till 2036: Presidential Decree 309, dated 07.05.2024. Available at: http://kremlin.ru/events/president/news/73986 (accessed: 14.11.2024).
[2)] List of state programs, national and federal projects, priority programs and projects in the Russian Federation (The material was prepared by the specialists of ConsultantPlus). Available at: https://www.consultant.ru/document/cons_doc_LAW_310251/ (accessed:13.01.2025).
[3)] Message of the President of the country to the people of Kazakhstan in 1997 "Kazakhstan - 2030: Prosperity, security and improvement of welfare of all Kazakhstanis". Information-legal system of normative legal acts of the Republic of Kazakhstan / Institute of Legislation and Legal Information. Ministry of Justice of the Republic of Kazakhstan. Available at: https://adilet.zan.kz/rus/docs/K970002030_ (accessed:14.11.2024).
[4)] Message of the President of the Republic of Kazakhstan - Leader of the Nation N.A. Nazarbayev to the People of Kazakhstan "Strategy 'Kazakhstan-2050'. Available at: https://primeminister.kz/ru/gosprogrammy/strategiya-kazahstan-2050 (accessed:13.01.2025).
[5)] Department of Entrepreneurship and Innovative Development of Moscow / Moscow City Government. Available at: https://hcdf.ru/ (accessed: 14.11.2024)
[6)] On Approval of the Program of Social and Economic Development of Belarus for 2021-2025: Decree of the President of the Republic of Belarus of 29.07.2021 № 292 C. 9. Available at: https://www.nbrb.by/mp/target/pser/program_ek2021-2025.pdf (accessed:13.01.2025).
[7)] Department of human capital development. National chamber of entrepreneurs of the Republic of Kazakhstan "Atameken". Available at: https://atameken.kz/ru/departments/10-departament-razvitiya-chelovecheskogo-kapitala (accessed:13.01.2025).
[8)] The Fund of the First President of the Republic of Kazakhstan is a non-profit organization, a public foundation established in December 2000 to promote the strengthening of Kazakhstan statehood, patriotism, further democratization of Kazakhstan society, development of international relations of the Republic of Kazakhstan in cultural, economic and political spheres.
[9)] Regional fund for social initiatives "Health of the nation". Available at: https://рфсизн.рф/ (accessed: 13.01.2025).
[10)] On Approval of the Program of Social and Economic Development of Belarus for 2021–2025: Presidential Decree of the President of the Republic of Belarus 292, dated 29.07.2021. P. 8. Available at: https://www.nbrb.by/mp/target/pser/program_ek2021-2025.pdf (accessed:13.01.2025).
[11)] Human capital development of the Republic of Kazakhstan – "Battle for the Future". Report by S. Kuznetsova, Editor-in-Chief of TopPress.kz Information Portal. May 10, 2020. Available at: https://toppress.kz/article/razvitie-chelovecheskogo-kapitala-respubliki-kazahstan-bitva-za-budush-ee (accessed: 01.02.2025).
Source: own compilation.

Based on the performance criteria of legal acts, state programs, set out in the section "methods" (availability of a package of documents, their regular updating, clear designation of social and economic goals, the presence of a mechanism for their achievement, etc.), we conclude that the analyzed institutions for the development of the first group of HC meet the requirements of the modern economy, which has taken a course on technologization and digitalization while ensuring a high value of HC.

To strengthen the conclusion about development institutions of the second type, let us supplement the information in Table 6 with the following Russian private practices in the field of development institutions (by dominants):

– on the education factor: established on the initiative of the Department of Entrepreneurship and Innovative Development of Moscow, the Autonomous Non-profit Organization "Human Capital Development", which unites projects for retraining personnel for high-tech companies in Moscow, offers a wide range of educational products[16]; one of the largest university innovative and education complexes "Technograd", which acts as "an ecosystem of a new type, combining various formats of personnel training in demanded professions for the high-tech sector of the economy with the involvement of leading companies"[17]; Institutes for youth intellectual development – quantoriums – have become widespread[18];

[16] Department of Entrepreneurship and Innovative Development of Moscow. Moscow Government. Available at: https://hcdf.ru/ (accessed: 14.11.2024).

[17] ANCO "Human Capital Development". Peoples' Friendship University of Russia named after Patrice Lumumba. Available at: https://www.rudn.ru/career/employment-partnerships/partners/ano-razvitie-chelovecheskogo-kapitala (accessed: 14.11.2024).

[18] The Health Initiatives Support and Development Fund provides a variety of financial services other than insurance and pension services. Available at: https://companies.rbc.ru/id/1217700527681-fond-podderzhki-i-razvitiya-initsiativ-zdravoohraneniya-stolitsa-i-oblast/ (accessed: 13.01.2025).

– regional fund for social initiatives "Health of the Nation"[19] and the charitable fund "Health of the Nation" ("popularization and promotion of physical culture, sports and sports art, social support and protection of citizens, participation in work with youth")[20].

In addition to individual mechanisms of technological development of countries, among the best common practices, we identified such development institution as competence centers (in Russia, it is a subdivision of the National Technology Initiative Fund, which provides support to companies from the federal budget, so according to the above criteria it belongs to the second type of development institutions). Among its generalized (for the analyzed countries) characteristics, the most significant are the following[21]: the main goal is to form a network of engineering-educational consortia based on universities and scientific organizations to create innovative solutions; implementation of educational programs to train leaders in the development of new technologies; created in partnership with Russian and foreign organizations; the main performance indicators are the number of trained specialists, the volume of income from activities, the number of patents, and the number of patents.

The effectiveness of their activities is evidenced by the following figures: investments in the "Bashkir–Belarusian Industrial and Investment Cluster" being created in the Republic of Bashkortostan will amount to 100 billion rubles by 2030[22]. Among the main results for 2018–2023, the most significant are the following[23]: almost 61 thousand specialists were trained, more than 3,000 license agreements were concluded for the results of intellectual property, revenues amounted to 27 billion rubles (including about 3.62 billion rubles in 2023), almost 14.5 billion rubles were attracted from extra-budgetary sources cumulatively since 2018. In Kazakhstan, the competence center for agro-industrial complex subjects held 666 seminars on 25 priority areas of agro-industrial complex on a free-of-charge basis on the basis of advanced farms of the country, covering about 10 thousand agro-industrial complex subjects.

According to scientists, public expenditures on education and health care are determinant for the growth of human capital (Beisembina et al., 2023). However, as the analysis has shown, a significant group of development institutions, including knowledge, is formed at the corporate level without the participation of budgetary funds.

It is important to note that common to all the analyzed countries in the conditions of active technologicalization of the economy is the application of the "human-centered" concept of social development. In the context of HC, it is based on such principles as "acquisition of future skills, culture of continuous development, ..., mobility of competencies, respect for the values of employees" (Bogdan, 2021, p. 43).

[19] Regional fund for social initiatives "Health of the Nation". Available at: https://рфсизн.рф/ (accessed:13.01.2025).

[20] Charitable Fund "Health of the Nation". Available at: https://фондзн.рф/ (accessed:13.01.2025).

[21] Competence Center. Available at: https://nti.fund/support/centers/ (accessed:13.04.2025); Competence Center as a point of growth. Chamber of Entrepreneurs of the Republic of Kazakhstan. Available at: https://atameken.kz/ru/pages/619-centr-agrokompetencii (accessed:13.04.2025); The volume of investments in the Bashkir–Belarusian cluster will amount to 100 billion rubles by 2030. TASS. News from 20.02.2024. Available at: https://tass.ru/ekonomika/20040949 (accessed:13.04.2025); Competence Center NORGAU. Available at: https://by.norgau.com/competence_center/ (accessed:13.04.2025).

[22] The volume of investments in the Bashkir–Belarusian cluster will amount to 100 billion rubles by 2030. TASS. News from 20.02.2024. Available at: https://tass.ru/ekonomika/20040949 (accessed:13.04.2025).

[23] Competence Center. Available at: https://nti.fund/support/centers/ (accessed: 13.04.2025).

We have identified the best national practices despite the common features. To replicate them, we recommend the mechanism of creating a single development institute in the format of a digital platform based on the one-stop-shop principle.

Conclusion

Thus, the study has shown that in the coming years the emphasis of economic growth in the context of the technologicalization of the national economy will increasingly shift toward the qualitative rather than quantitative characteristics of human resources, where de facto the key factor is already human capital with the dominance of intellectual and knowledge characteristics, competencies in the digital economy. At the current historical stage, when not just "cosmetic" technological changes are taking place, but the paradigm shift from innovative to technological development, new structural units (small technology companies, technology transfer agents, etc.) become the key actors of the emerging ecosystem. Technological and economic growth (breakthrough) requires not just labor resources as healthy strong people, but specialists with new knowledge and qualifications, with creative thinking and ideas (an intangible asset of the enterprise and society). For Russia, the updated national projects have preserved the high relevance of the human capital factor in achieving the national economic development goals for the period of 2025–2030.

The paper reveals that, on the one hand, human capital is still an interpenetrating set of subsystems of health capital, education and social capital with the dominance of intellectual capital. On the other hand, the content of these components is changing toward intellectualization, creativity, spiritual and moral integrity, more reasonable entrepreneurship, new knowledge system, and is also considered in the context of a continuous cycle of "formation – accumulation – contribution to production (with appropriate return)". So, human capital today is primarily a body of knowledge that determines the socio-economic well-being of the country. The physical component does not just retain its importance, since mental labor as a process of idea generation is energy-consuming, but only the integrative interaction of all components of human capital can bring results.

In general, the transition to the "new man" has already taken place, but insufficient application of institutions for the development of their potential will hamper the formation of new qualities of personality capable of conquering new technological peaks.

One of the tools for the generation of HC are development institutions of the first and second type, which operate simultaneously. Today, the most demanded are those that correspond to the dominants of the matrix of PE factors. Based on the comparative express analysis of national economies, we revealed that they meet the requirements of the technological vector of development of countries. Among the development institutions of the second type, both similarities (competence centers, entrepreneurship development funds, funds for the development of social initiatives) and differences have been revealed. Within the framework of the trend of activation of institutions of knowledge development and HC at the corporate level (retraining programs, organization of employees' work with young children on a remote basis, grant competitions, etc.) such best practices of Kazakhstan as the formation of centers for "importing behavioral models", the program "Bright Spots" for personal growth among creative leaders, as well as industry clusters of the personnel training system in Belarus are highlighted. Other countries will benefit from the Russian experience of nurturing youth talent through the institution of youth quantoriums.

Since Russia ranks only 129th on the "institutional environment" factor concerning the global investment rating, the application of the identified best practices of Belarus and Kazakhstan will allow the country to successfully realize its national goals in both technological advancement and building a sustainable and dynamic economy.

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Corporate Demographic Business Practices: Attitudes of Russian Students as Future Employees

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Abstract. The demographic challenges facing the country, especially given their impact on the problem of personnel shortage in the labor market, are creating a demand for the active involvement of business in the implementation of priority national tasks aimed at supporting families and strengthening family values. An institution of corporate citizenship in the demographic sphere is being formed. Enterprises include in the range of social responsibility tasks to support employees fulfilling parental responsibilities and their families. Corporate demographic policy becomes a factor in successful competition for personnel, contributes to the formation of a reputation as a responsible employer. It is relevant and practically significant to study how important corporate demographic practices are for the employees themselves. In terms of forecasting the development of the situation, the opinion of future employees – Russian students – is of particular interest. The article presents an analysis of the ideas of students of Russian universities about corporate demographic practices, about the importance of these practices when choosing an employer. A special perspective and novelty of the study is to identify the relationship between the attitude of students to corporate demographic practices and the expression of their attitudes towards family and parenthood. The author's methodology for collecting and analyzing qualitative sociological data has been developed and tested. The empirical base consisted of materials from 169 essays by senior students of universities in three federal districts of the Russian Federation – Northwestern, Siberian and Ural. The study revealed a low level of awareness among students about the corporate demographic policy of Russian business. At the same time, the demand for corporate demographic practices depends on the attitudes and value orientations of future employees. Students with high levels of family-oriented attitudes demonstrate higher levels of awareness of corporate demographic practices and give higher ratings to the importance of such practices when choosing an employer. The study confirms the importance of targeted work to develop Russian students' commitment to family values and ideas about the possibility of effectively combining professional and parental trajectories. A conclusion is made about the potential influence of corporate family support practices on the reproductive behavior of future employees, which in turn contributes to the achievement of strategic national goals to overcome demographic challenges.

Key words: corporate citizenship, ESG agenda, corporate demographic policy, Russian students, attitudes toward family and parenthood, employer.

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Introduction

The problem, which the research is aimed at solving, is related to the complex of demographic challenges facing Russian society. The Center for Strategic Research identifies seven groups of such challenges, the main ones being the decline in birth rate and high mortality rate, population aging, internal migration and, as a result, depopulation[1]. Depopulation in the regions becomes a threat to their sustainable socio-economic development and significantly affects the labor market.

The dynamics of the previous decade clearly demonstrates the annual decline in the birth rate. In 2024, 721,728 fewer people were born in Russia than in 2015 *(Tab. 1)*. The country has long failed to

[1] Demographic challenges of Russia. Expert analytical report. Available at: https://www.csr.ru/upload/iblock/704/704bb820549b28a50039d37b02efccd9.pdf

Table 1. Fertility and mortality rates in Russia over the last 10 years

	Year									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Born, people	1,944136	1,893256	1,689884	1,604589	1,484517	1,435850	1,402834	1,306162	1,264938	1,222408
Died, people	1,911413	1,887913	1,824340	1,827827	1,800683	2,124479	2,445509	1,905778	1,760172	1,818635
Increase/decline	+32,723	+5,343	-134,456	-223,238	-316,166	-688,729	-104,2675	-599,616	-495,234	-596,227
According to: Mortality and fertility in Russia. Available at: https://gogov.ru/articles/natural-increase										

ensure even simple reproduction of the population – the total fertility rate (the average number of children per woman) for 2024 amounted to 1.40[2].

The decline in the birth rate is significantly influenced by the change in the gender order of the social structure and the system of values, in which traditional family values are receding into the background, and priority is given to the values of career, material well-being, and personal comfort. This is especially pronounced in young cohorts of the population. The analysis of reproductive attitudes of young people in the studies of domestic scientists (Shabunova, Kalachikova, 2012; Kazenin et al., 2020; Kostina, Bannykh, 2020; Rostovskaya et al., 2023; etc.) reveals trends of delayed parenthood – the birth of the firstborn after 27–30 years of age, and often unwillingness to have children at all.

To realize the priority national goals and solve demographic problems, the state has launched a search for new approaches and tools to strengthen the system of traditional family values and support families with children. At the highest level, in the report on the implementation of the national project "Demography", the possibility and necessity of solving these problems was determined only in conditions of close social partnership between the state, business and society[3]. Today in Russia, it is proposed to rank socially responsible companies by the presence of their own social and demographic programs. The EPS-rating outlines the main evaluation criteria: level of remuneration, own social and demographic programs, charitable projects aimed at solving socially important problems[4]. It is no coincidence that the rating of responsible Russian business is preceded by the words of the President of Russia V.V. Putin: "It is important when business, companies demonstrate responsibility for the country, for the region, for the city where they work, for the professionals in their teams, implement projects in the social sphere, in the field of environmental protection"[5].

In public ESG reports on sustainable development, large companies, along with information on their participation in addressing global challenges, include declarations on the importance of employees feeling socially protected, working in safe conditions, living in comfortable cities and being able to ensure the long-term well-being of their families[6]. Russian Union of Industrialists and Entrepreneurs (RUIE) has been consistently promoting successful corporate practices, including those related to the implementation of demographic priorities of social development[7]. All this is evidence of the formation of the institution of corporate citizenship in the demographic sphere.

[2] Available at: https://www.interfax-russia.ru/main/golikova-summarnyy-koefficient-rozhdaemosti-v-rf-v-2024g-predvaritelno-sostavil-1-4 (accessed: 01.03.2025).

[3] Combining career and family – success of Russia's demographic and human resources policy. Available at: https://xn--80aapampemcchfmo7a3c9ehj.xn--p1ai/upload/semya/%D0%94%D0%BE%D0%BA%D0%BB%D0%B0%D0%B4%20%D0%A1%D0%B5%D0%BC%D1%8C%D1%8F%202024.pdf (accessed: 14.02.2025).

[4] About the rating. Available at: https://xn----etbbhpfd3axw8i.xn--p1ai/#about-rating

[5] EPS-rating. Available at: https://xn----etbbhpfd3axw8i.xn--p1ai (accessed: 01.03.2025).

[6] Severstal's Unified Report. Available at: https://severstal.com/rus/ir/indicators-reporting/annual-reports (accessed: 01.03.2025).

[7] Business. E*mployees. Family. Collection of Corporate Practices* (2025). RUIE. Moscow.

The interest of Russian employers in the sustainable development of the regions and the stability of the labor market is obvious. In a situation of staffing shortage, companies are looking for new reserves in the competition for personnel, and the trend to retain personnel is gaining momentum, including through the expansion of corporate practices to support parenthood and include employees' families in the range of social support. This emphasizes the special relevance of the topic under consideration: corporate demographic policy is a relatively new phenomenon and needs comprehensive research and scientific interpretation. Not only scientists, but, first of all, companies and organizations themselves need to understand how important the inclusion of such practices in the system of corporate social responsibility of the enterprise is for employees themselves, how they assess the effectiveness of these practices, what they consider to be a priority. In terms of forecasting the situation, of particular interest is the position of students of higher education institutions – future employees, namely their awareness of corporate practices to support family employees and the inclusion of these practices in the system of criteria for choosing a future place of work. It is important to consider in more detail the students' perceptions of corporate demographic policy in relation to their value attitudes toward family and parenthood. This is the novelty and a special aspect of practical significance of the study. It seems that the results of the work will help to differentiate corporate demographic policy in relation to target audiences, make it more targeted, allow determining the potential impact of corporate practices of family support and family values on the reproductive behavior of current and potential employees.

Thus, the aim of our study is to identify and analyze Russian university students' perceptions of corporate demographic practices. A special aspect of the goal is to identify the relationship between students' perceptions of corporate demographic practices of business and attitudes toward family and parenthood. One of the aspects of novelty and scientific and methodological significance of the study was the development of our methodology for collecting and analyzing qualitative sociological data and forming a typology of the study participants' commitment to family and parenting attitudes.

Theoretical framework of the study

The inclusion of demographic programs in the social programs of business is considered within the concept of corporate citizenship (Nagi, Robb, 2008; Tutton, Brand, 2023). The concept of "corporate citizenship" emerged in the previous decades of the last century and began to be actively used along with the concept of corporate social responsibility (CSR). In the most general interpretation, corporate social responsibility referred to those business policies that were desirable for the goals and values of society (Bowen, 1953). The concept of "corporate citizenship" is not a complete synonym for CSR. Proponents of the substantive distinction of the terms believe that corporate citizenship is not reduced to CSR practices, the focus shifts from the social plane to the socio-political plane (Peregudov, Semenenko, 2008). Researchers note that the practice of corporate citizenship provides companies with both economic and reputational benefits: it has a positive impact on financial results, maximizes the value of the company, increases profits (Devine, Halpern, 2001), contributes to the growth of staff and customer loyalty (Wong et al., 2020; Mullins et al., 2021; Tang et al., 2023). Meanwhile, strategic business choices in favor of the public good of developing and maintaining habitat and human capital are considered the main indicator of corporate citizenship (Grit, 2004). Researchers suggest that organizations that can be identified as good "corporate citizens" fully incorporate ethical and social goals into the business agenda, placing these values at the core of their corporate governance (Zappala, 2004;

Warhurst, 2004). Corporate citizenship implies a close partnership of business with the state and society. In the field of demography, it implies interaction and mutual exchange of the main actors: the state, which demonstrates interest in including the institution of business in support of the demographic agenda; society, interested in building a fair and sustainable future, and business, which uses corporate demographic policy to achieve strategic goals to build human capital (Bagirova et al., 2024). This is where the heuristic potential of the concept of "corporate citizenship" lies.

Corporate demographic policy is a system of measures aimed at supporting the needs of the enterpise's employees who, in addition to professional and labor functions, also perform family functions, including parental functions, care for elderly parents, etc. (Bagirova, Vavilova, 2021). It is a part of social policy and has recently been regarded by enterprises and corporations as an important mechanism for increasing loyalty and retention of personnel. Corporate demographic policy is a relatively new direction in the social activities of Russian companies, but its content and significance have already been considered in the works of such Russian scientists as T.K. Rostovskaya, A.P. Bagirova, O.M. Shubat, A.S. Vavilova, and others.

Current research has identified the most common and popular directions for the implementation of such policies:

1) health saving of employees and formation of the value of a healthy lifestyle (Rostovskaya et al., 2021);

2) decent remuneration for work, including social support measures (Hodges, 2020; Lee et al., 2022; Wuestenenk, Begall, 2022);

3) respecting family responsibilities of employees with children (Mastersonet al., 2020; Wang et al., 2023).

Thus, the key features of the social policy of family-centered companies are the formation of conceptual support for family values at the highest level of management; creation of a safe corporate environment for employees planning and carrying out parental responsibilities, which meets the demands of society in terms of solving demographic problems.

Theoretical and methodological guidelines for addressing the opinion of students in the context of the stated topic are outlined by two aspects. First, studies in recent years have focused attention on the special role of students in the transformation processes in the labor market and the economy as a whole (Shinyaeva, Tchape, 2015; Emelin, Shinyaeva, 2023; Poplavskaya, 2023; Velikaya et al., 2024). Second, it is in this social group that changes in the system of values and reproductive attitudes are most clearly manifested: the priority of professional, career, rather than family values, delayed parenthood, and the attitude to small children (Nazarova, Zelenskaya, 2021; Rostovskaya et al., 2023).

Materials and methods of the research

In the course of the work, we used a qualitative method of sociological data collection – an extended essay with a focus on a given topic. When choosing it, we relied on the position of scholars who emphasize the priority of qualitative methods in research with a focus on value aspects, which are centered on new, non-mass phenomena expressed in individual judgments (Kishinskaya, 2011). The choice of the search strategy in the qualitative paradigm is due to the fact that both corporate demographic practices and perceptions of them are a very new phenomenon for social science and social practice, which has an ambiguous, subjectively colored assessment.

The empirical base of the study was 169 essays of students from universities in three federal districts of the Russian Federation – Northwestern, Siberian, and Ural. We selected two higher education institutions in each district: in the Northwestern District, it was Saint Petersburg Electrotechnical University "LETI" and Cherepovets State University, in the Siberian District –

Table 2. Distribution of interview participants according to selection criteria

Areas/profiles of study	Total	Humanitarian, social, economic		Natural		Engineering	
Northwestern District	**56**	male	female	male	female	м male	female
Saint Petersburg Electrotechnical University "LETI"	28	4	5	6	4	5	4
Cherepovets State University	28	5	5	5	4	5	4
Urals Federal District	**56**	male	female	male	female	male	female
Ural Federal University	28	4	6	5	4	5	4
Novosibirsk State University of Economics and Management	28	4	5	5	5	5	4
Siberian Federal District	**56**	male	female	male	female	male	female
Irkutsk State University	29	4	5	5	5	5	5
South Ural State University	28	4	6	5	4	5	4
According to: research data.							

Irkutsk State University and Novosibirsk State University of Economics and Management, in the Ural District – Ural Federal University named after the first President of Russia B.N. Yeltsin and South Ural State University. The participants of the study were third- and fourth-year undergraduate students. In addition to the course of study, the selection criteria were the direction of study and gender *(Tab. 2)*.

An essay as a method of qualitative sociological research is to some extent similar to a focused interview, when respondents answer open-ended questions, and additional questions aimed at deepening the topic presuppose the specification of subjective ideas about the subject of the researcher's interest. The specificity of the essay is that it is a whole argument essay on a given topic in a free creative individual-authored manner. The proposed plan/guide of the essay only provided a focus on the topic, served as a guide, but did not limit the authors. The use of projective techniques in the guiding questions strengthened the creative component, allowing revealing the uniqueness of opinions more deeply. This format makes it possible, on the one hand, to preliminarily systematize the information necessary for the research without missing the most significant aspects, and on the other hand, to obtain it in a detailed and emotionally colored form.

In modern development conditions, qualitative methods rely on information technologies, which serve the purpose of improving the tools and popularizing the methods themselves. Students wrote their reflections in Yandex-forms on the topic of corporate policy in the sphere of demography and family support, on the balance of their career and reproductive attitudes, on their dream job, on the dependence of their plans to create a family and have children on their work and career.

The application of Yandex-forms allowed forming an electronic database of qualitative sociological data, supplementing the analysis of meanings and content with methods of statistical analysis of text.

We used the logic of studying a specific problem field, identifying the relationship between students' perceptions of corporate demographic practices of business and commitment to family and parenthood attitudes. For this purpose, we developed our own methodology of typologization by the level of commitment to these attitudes.

To build a typology of the level of expression of attitudes to family and parenting, we used elements of cluster and content analysis, analysis of the frequency of use of words and phrases-markers, performed in Excel and specialized data processing program SPSS. We identified four types of family and parenting attitudes:

1) high level of expression of attitudes toward creating a family and having children;

2) average level of expression of attitudes toward creating a family and having children;

3) delayed nature of the realization of reproductive attitudes;

4) expressed attitudes toward small children or unwillingness to have children.

We applied answers and reflections to the questions to categorize an individual into one or another type: *"Are you married? When (at what age) and under what conditions do you plan starting a family? Will you register your marriage or not? How many children would you like to have? When, at what age do you plan to have your first child? If you do not plan to have children in the next ten years, why?"*.

To divide into types, scores were assigned to each indicator question. The indicators of type separation were the following:

1) time of marriage (immediately after graduation or during education – 3 points; in the next two to three years after graduation – 2 points; closer to 30 years of age and later – 1 point);

2) time of the first-born child's birth (during higher education and immediately after graduation – 3 points; three to five years after graduation – 2 points; closer to the age of 30 and later – 1 point);

3) desired number of children (three or more, two children with the possibility of a third only under certain conditions – 3 points; two children – 2 points; one child and no children – 1 point);

4) emotional attitude toward marriage and family (positive, strongly emotionally colored – 3 points; neutral – 2 points; negative – 1 point).

According to the indicator model, the sum of scores could vary from 4 to 12. The study participants who scored 10–12 points were referred to the group with a high level of expression of attitudes toward family formation and childbirth; students with the sum of 8–9 points – to the group of average level of expression of attitudes to family formation and childbirth; 6–7 points – to the group of "delayed realization of reproductive attitudes"; 4–5 points – to the group of "weakly expressed attitudes to family".

Table 3 presents an example of indicator phrases to categorize individuals into one type or another.

Table 3. Characteristic statements-markers for determining the types of expression of students' attitudes toward family and parenthood

Type	Informant's data	Are you married? When (at what age) and under what conditions do you plan starting a family? Will you register your marriage or not?	How many children would you like to have? When, at what age do you plan to have your first child? If you do not plan to have children in the next ten years, why?
1 type. High level of expression of attitudes toward family formation and childbirth	F, ISU, Irkutsk	*"I got married at 22 ... before the fourth year of my bachelor's degree. The marriage is registered, we immediately indicated to each other that we wanted a proper, full-fledged family"*	*"In good conscience, I would like to have exactly two children.... – two children instead of two adults. Under ideal conditions of existence, not survival - three or four... Preferably in the near future, as long as I have enough health and nerves"*
	M, NSUEM, Novosibirsk	*"I'm single, I would like to have a family at the age of 24 or so. Marriage is obligatory for registration"*	*"I would like to have 2–3 children, with the first born around age 25."*
	F, SUSU, Chelyabinsk	*"I am not married, but I have always wanted to get married. ... I believe that marriage should be registered. It simplifies many aspects of bureaucracy anyway, not only when you have children, but also when it's just the two of you"*	*"I would like to have many children. My (parental) family only has two children, but there are many examples of large families in my life and I have always enjoyed their interaction with each other"*
	M, ChSU, Cherepovets	*"I am married, one year in a registered marriage"*	*"Four, I think, in the near future."*

End of Table 3

Type	Informant's data	Are you married? When (at what age) and under what conditions do you plan starting a family? Will you register your marriage or not?	How many children would you like to have? When, at what age do you plan to have your first child? If you do not plan to have children in the next ten years, why?
2 type. Average level of expression of attitudes toward family formation and having children	M, ISU, Irkutsk	*"I am not married, I plan to start a family after 25, when I have the opportunity and financial stability. Of course, I will register my marriage"*	*"I would like two children, I plan to have my first child at the age of 25–27, subject to my own financial stability and independence, having a regular income, in an ideal situation my own home or the means to buy in the near future"*
	F, UFU, Yekaterinburg	*"I'm not married. If I take all factors into consideration, I would like to get married at the age of 19–21. ... Yes, I would like to legitimize the relationship with my boyfriend"*	*"I would like to have 1–2 children, for me this is the best number of children in the family. I would like to have my first child after the age of 24, but we should remember about how things will be with money and other things. The second baby I would want after the age of 27."*
	F, SUSU, Chelyabinsk	*"...I'm not married. But I would very much like to start a family around 25–27 years old. For this, of course, I need a job with a constant sufficient income and good working conditions. I would like to register my marriage"*	*"I would like to have two children. I would like to have my first child before the age of 30. In the most ideal variant about 25-27 years old. As I believe that by this age it is possible to achieve some success in career and a decent standard of living"*
3 type. Postponed nature of realization of reproductive attitudes	F, ETU "LETI", Saint Petersburg	*"I plan starting a family in about 10 years, when I will be around 30–35 years old. By that time, I will have a higher education, a good job and financial stability. This will make me feel ready for the responsibility and care of a family"*	*"It's hard for me to say exactly how many children I would like to have. ... It's important to have and raise at least one child first to understand what it's like to be a parent. ... I plan to have my first child ... when me and the potential father are in our early 30s".*
	M, SUSU, Chelyabinsk	*"I'm not married. I haven't thought about it yet. Tentatively, I plan to start a family as soon as I am sure that I will be able to provide all the needs necessary to maintain a family home"*	*"I don't plan to have children in the next ten years, as I believe I will be unable to provide for them financially and give them proper upbringing in the near future"*
4 type. Weakly expressed attitudes towards family, attitudes toward small children or unwillingness to have children	F, UFU, Yekaterinburg	*"I'm single. I haven't thought about starting a family yet"*	*"I'm planning one child. ...not until I'm 30."*
	F, SUSU, Chelyabinsk	*"I'm single and have no plans to start a family"*	*"I wouldn't want to have children."*
	M, ETU "LETI", Saint Petersburg	*"I am single. I plan to get married and formalize it after graduation, at the age of about 25–26 years"*	*"The best option would be 1 child. Then I can give him maximum attention. You can have a child already in marriage."*
	F, ETU "LETI", Saint Petersburg	*"Unmarried, fortunately. ... during my studies family will interfere with me, after 25 years, when I will stand on my feet, have a good stable high-paid job, next to me will be a reliable man who understands his obligations. I don't see the point in marriage"*	*"I wouldn't want any at all for now. I don't like children, I'm very selfish."*
According to: research data.			

Qualitative research does not involve quantitative measurements, and the requirement of sample representativeness does not apply to it. At the same time, our methodology was aimed at integrating qualitative and quantitative methods of analysis. Application of elements of cluster and content analysis allows systematizing textual information. Quantitative characteristics of the text, such as frequency of references to certain topics, clustering by similar features in combination with the analysis and interpretation of the underlying meanings of statements, makes it possible to identify hidden links between different elements of the text, classify and categorize information for further analysis.

It seems important to show the empirical structure base in accordance with the constructed typology for a deeper understanding and characterization of the research participants. The first type – a high level of expression of attitudes toward family formation and childbirth – was assigned to 29 essay authors (17%); the second type – an average level of expression of attitudes toward family formation and childbirth – 79 students (47%); the third type – a delayed nature of reproductive attitudes realization – 44 students (26%); the fourth type – weakly expressed attitudes toward family, expressed attitudes toward small children or unwillingness to have children – 17 students (10%).

The analysis of students' perceptions and expectations of future work and the identification of the dependence of these expectations on value orientations allows us to outline some scenario lines of possible development of the situation, to determine the mechanisms of influence on attitudes and expectations.

Results and discussion

To analyze the students' awareness of corporate demographic policy practices, we identified the following corporate demographic policies based on the classification proposed earlier:

1) health care for the employee's family members (corporate family voluntary medical insurance (VMI), the possibility of pregnancy under VMI, family resort and sanatorium vouchers, etc.);

2) assistance in the upbringing, development, education, and organization of leisure activities for employees' children (assistance in placing children in kindergarten and school, children's health camps, vacation programs, vacation matinees, excursions for employees' children, etc.);

4) creating conditions for combining job and parental responsibilities (flexible schedule, remote work, children's areas in the office, corporate volunteer nannies, etc.).

Data analysis showed that students know much more about measures of material support for families: payments and gifts for the birth of the first and subsequent children, one-time payments and supplements to allowances for large families, etc. There is less information about the employer's assistance in the upbringing, development and organization of leisure activities for employees' children. Examples are usually given based on personal experience – childhood memories of "Christmas trees at father's work", trips to summer

Table 4. Students' awareness of corporate practices to support employees with parental responsibilities and their families (number of references according to the clusters of the main directions)

Main areas of support for employees' families	Number of mentions
Material payments	104
Assistance in upbringing, development, organization of children's leisure activities	87
Creating conditions for combining job and parental responsibilities	80
Health promotion for family members of employees	59
According to: research data.	

Table 5. Prioritizing the importance of corporate practices to support employees' families when evaluating and selecting an employer

Main areas of support for employees' families	Number of mentions
Creating conditions for combining job and parental responsibilities	132
Material payments	104
Assistance in upbringing, development, organization of children's leisure activities	37
Health promotion for family members of employees	35
According to: cluster and content analysis of survey data.	

camp "from mother's work", excursions to parents' workplace, etc. The same level of awareness about creating conditions for combining job and parental responsibilities. They mention the possibility to work remotely, paid free days on September 1 for parents of first-graders, farewell to relatives, etc. Awareness of the practices of corporate care for the health of employees' family members is low *(Tab. 4)*.

It is worth noting that in their reflections on corporate practices of supporting employees' families, the authors of the essays more often used generalized terms: "social package", "various social bonuses", etc., rather than mentioning specific measures, which indicates a very general and superficial idea of students as potential employees about corporate practices of family support.

At the same time, the study proved that the students' request for the availability of corporate demographic practices in the arsenal of the future employer is high and formed quite clearly. In the system of criteria for evaluating and choosing an employer, the priority is given to two areas – creation of conditions for combining job and parental responsibilities and material payments with a clear advantage of the former *(Tab. 5)*.

Students as potential employees note the special importance of balancing work and free time: flexible working hours, the possibility to work remotely, the practice of creating conditions at the enterprise for the temporary maintenance of children, assistance to the employee in emergency cases when there is no one to leave the child with – nurseries, social nannies, volunteer practices of caring for children.

"... important family support practices at an enterprise should be those that help employees to effectively combine work and personal life, provide support in raising children and create favorable conditions for the health and well-being of the whole family. For me, the most important are flexible working hours, a program to support children's education, family events and holidays" (F, NSUEM, Novosibirsk).

"...I would like my workplace to be loyal to the fact that I sometimes have to take sick leave because of my child's illness, that they could give me time off or let me leave early from work, that I could participate in important events related to my child" (F, ISU, Irkutsk).

"Flexible working hours: the possibility to combine work and family life. For example, flexible start and end of the working day, possibility to work from home several days a week, or partially remote work. ... Additional vacation, for example, to attend school events, children's competitions or other family events" (F, ETU "LETI", Saint Petersburg).

Material support of parenthood is also important, including payments related to the birth of the first and subsequent children, wage supplements and other benefits to large families, provision of free summer recreation for children, reimbursement of expenses for children's school fees, etc. Such measures are often intertwined with the direction of assistance provided by the enterprise to parental employees in organizing the upbringing, development and leisure of children.

"I would like (employer's) help with purchasing housing" (F, ISU, Irkutsk).

"I would like to see the following support measures: payments at the birth of children, additional vacation for parents with children, New Year vacations and free gifts for children" (F, UFU, Yekaterinburg).

Comparatively infrequent mentioning of corporate practices of health care for employees' family members is not due to the fact that students do not consider them important, but due to poor awareness of them. Our study revealed that students dream of the possibility to receive employer's assistance in terms of medical care, including provision of healthy pregnancy, regular medical check-ups, compensation of expenses for visiting sports facilities, corporate family programs of additional medical insurance. The need to take care of mental health was also voiced – introduction of psychologists in the staff, inclusion of psychologists/ psychotherapists' services in the VMI package; conducting trainings, seminars aimed at restoring psychological balance, etc.

"It is obligatory extended medical coverage (pregnancy management, etc.) (F, NSUEM, Novosibirsk).

"Compensation for medicine, for expenses for important operations and examinations" (M, ETU "LETI", Saint Petersburg).

"I would like to see corporate medical insurance for the whole family. Medical care is a priority" (F, ETU "LETI", Saint Petersburg).

"I would like to see good health insurance for my family and children" (M, ChSU, Cherepovets).

We also revealed the correlation between the assessment of the importance of corporate demographic practices when choosing an employer and the type of expression of attitudes to family and childbirth in the authors of the essays. *Table 6* shows the results of cluster and content analysis – frequency of key category mentions in conjunction with the constructed typology. The key category of the analysis was the mention of corporate practices attributed to one or another corporate demographic policy area. The sum of percentages for each column is more than 100 because the study participants mentioned several practices in their reflections.

The authors of essays of the first and second types would most often like to see measures related to working conditions that would allow them to be with their children more often, to participate in their lives. Among the priorities they name the practices of creating conditions for combining job and parental responsibilities: additional weekends

Table 6. Frequency of references to family support practices of employees in reflections on the importance of such practices in the choice and evaluation of the employer, depending on the type of expression of attitudes toward family formation and having children, % of the total number of informants in each group

	Whole array	High level of expression of attitudes toward family formation and having children (1 type)	Average level of expression of attitudes toward family formation and having children (2 type)	Postponed character of realization of reproductive attitudes (3 type)	Weakly expressed attitudes towards family, attitudes toward small children or unwillingness to have children (4 type)
Creating conditions for combining job and parental responsibilities	78	76	73	61	35
Material payments	62	72	70	48	100
Assistance in upbringing, development, organization of children's leisure activities	22	28	42	23	35
Health promotion for family members of employees	21	18	20	7	12
According to: cluster and content analysis of survey data.					

and vacations for family reasons, flexible schedule to see/meet children from school, to be with them on important dates, the possibility of remote work. The authors of essays with a high level of expression of attitudes toward family and parenthood more often demonstrate interest in corporate care for the health of family members.

"I imagined my future family, then free schedule becomes very important, because children are sometimes unpredictable story, it is difficult to combine a clear schedule with family" (F, NSUEM, Novosibirsk, type 1).

"... corporate calendar of family events, additional vacation days on Father's and Mother's Day, just so that you don't have to go out to work on holidays, assistance in placing a child in a kindergarten/ school, if necessary, discount on the child's visits to sections and schools of additional education" (F, ETU "LETI", Saint Petersburg, type 1).

"If you dream, then do not deny yourself anything – maybe the employer will give family vouchers to sanatoriums, at least once every 2 years. Maybe a certificate for a full medical examination, that would be just great!" (F, ETU "LETI", Saint Petersburg, type 2).

Students with a low level of expression of attitudes toward the family, the attitude toward delayed parenthood and small children noticeably more often than others give preference to material payments, in general show poor awareness and less interest in the practices of supporting the family of workers. Authors of essays of the third and fourth types, when discussing the need/importance of flexible hybrid schedule and "remote work", sometimes mention that it is necessary for the family. However, the style of statements shows that they are more concerned about their own comfort. In this context, they are typical "Zoomers" (Zarubina, 2012; Volkova, Chiker, 2016): they like comfort, rewards and bonuses, interesting trainings and education, they are ready to change jobs if their values are not shared, the balance "personal time – work" is distributed in favor of personal time.

"I dream of a remote job or a job with a flexible schedule. Important criteria when choosing a place to work: salary, boss, schedule, team. It is important that the work was interesting for me, there were no routine tasks, the boss was in the position under arising circumstances. If there are some material bonuses – super" (F, NSUEM, Novosibirsk, type 4).

"Characteristics of my dream job: high salary; career growth; ease of work; adequate and friendly team. What kind of job or employer it will be does not matter. The main thing is my personal satisfaction" (M, ISU, Irkutsk, type 3).

Table 7. Assessment of the impact of corporate demographic practices on the reproductive behavior of employees, as a percentage of the number of students in each typological group

	Whole array	High level of expression of attitudes toward family formation and having children (1 type)	Average level of expression of attitudes toward family formation and having children (2 type)	Postponed character of realization of reproductive attitudes (3 type)	Weakly expressed attitudes towards family, attitudes toward small children or unwillingness to have children (4 type)
They certainly have an impact	52	54	60	50	14
They affect other employees' reproductive plans, but not my plans	13	14	13	10	21
It's nothing more than a nice bonus, with little effect on reproductive plans	19	18	14	19	50
They have no impact	16	14	13	21	14
According to: cluster and content analysis of survey data.					

"If about a dream, the best thing is to be paid for nothing..." (M, UFU, Yekaterinburg, type 4).

"I dream of working from home or work from home if possible (if I want, I go; if do not want – do not go). Hourly rate from 500 rubles/hour is important." (F, ChDU, Cherepovets, type 3).

Another important aspect of the study is the assessment of the impact of corporate demographic practices on the reproductive behavior of employees. Students with a high and medium level of expression of attitudes toward family creation more often note the impact of these measures on the change of reproductive behavior, both their own and others' *(Tab. 7)*.

The productivity and importance of corporate demographic policy, in their opinion, lies in the reduction of barriers to the realization of reproductive plans of employees, comfortable achievement of work-family balance, the effect for the employer is to increase the loyalty and retention of employees at the enterprise.

"I believe that corporate family support measures influence family formation and having children. If a person is sure that the company will help to ensure a balance between family and work ... then the employee will want to stay in such a company as long as possible. In the absence of such measures in the company ... he is unlikely to decide to increase his family" (F, ETU "LETI", Saint Petersburg, type 1).

"... corporate family support measures cannot "force" employees to create families and have children, but they can create favorable conditions, remove barriers and make this decision more accessible and comfortable" (M, NSUEM, Novosibirsk, type 2).

"Yes, I think it affects me in a positive way. It would encourage me to start a family" (F, SUSU, Chelyabinsk, type 2).

"Employee support measures can definitely influence their family plans, as one of the reasons holding people back from having children and getting married is insecurity about their financial situation, this is a problem that is solved by such measures" (M, ChSU, Cherepovets, type 1).

Students with weakly expressed reproductive attitudes more often hold the opinion that corporate demographic practices are nothing more than a pleasant bonus. They can cautiously recognize the impact of such measures on the behavior of "other workers", while they deny the impact on changing their own reproductive plans.

"For someone, perhaps, it (corporate demographic practices) will be important, but for me it may be just an additional bonus and will not affect my plans to create a family in any way" (F, ISU, Irkutsk, type 4).

"It will be a nice bonus, but it will not affect in any way because having children is more serious than just having extra privileges for it" (M, ETU "LETI", Saint Petersburg, type 3).

"My plans will not be affected in any way. I will not love my children because my employer will pay for their vacations, lunches, etc." (F, ETU "LETI", Saint Petersburg, type 4).

"I believe that corporate support measures from the employer can be useful for employees who already have families. But such measures will not change my plans in any way. Having a child in the family is a responsible and financially costly event. ... I am not ready" (F, NSUEM, Novosibirsk, type 3).

Thus, the study proves the correlation between the expression of attitudes toward family formation and childbirth and the assessment of the impact of corporate demographic practices on reproductive behavior.

Conclusion

The active formation of the institution of corporate citizenship in the demographic sphere determines the special relevance of research in this area. One of the main prerequisites for such a process is the government's interest in the inclusion of the corporate sector in the implementation of priority national goals in the field of demography (development of tools for independent assessment of companies taking into account their contribution to the solution of socially important tasks, RSPP

competitions, EPS-rating and support of its leaders, information support of corporate demographic practices, etc.). The interest of the business community is also evident: the implementation of corporate demographic policies is seen as a tool for building up human capital, a condition for successful competition for personnel and, on this basis, for maintaining greater business stability. The creation of conditions for combining professional and parental trajectories due to corporate demographic policy becomes a factor of positive change in the family and reproductive behavior of employees.

In the forecast aspect of the situation development, the opinion of potential employees – students of Russian universities – is of particular interest, namely, to determine the level of their awareness of and interest in the practices of corporate demographic policy.

The study showed that students in Russian regions have a low level of awareness of corporate practices of supporting employees' families at enterprises. According to the participants, employers rarely broadcast information about measures of social support for employees' families in the external environment and purposefully tell students about them as future employees. One of the practically significant conclusions of the study is the need to build a system of informing young people in Russian society, in particular students, about corporate demographic policies implemented by the country's enterprises.

When selecting and evaluating future employment, the most important of corporate demographic practices of business students name the creation of conditions for combining professional and parental responsibilities (flexible work schedule, opportunity to work remotely) and measures related to material support of family workers (lump-sum and one-time payments, benefits, free services).

The study confirmed the hypothesis about the mutual influence of interest in corporate demographic practices and the expression of students' attitudes toward family and parenthood.

On the basis of the developed our own methodology, students were typologized according to the level of expression of attitudes to creating a family and having children. We identified four types: high level of expression of attitudes toward family creation and childbirth, average level of expression of attitudes toward family creation and childbirth, delayed realization of reproductive attitudes, weakly expressed attitudes toward family. According to the research data, students with a high level of expression of attitudes toward family creation demonstrate a higher level of awareness of corporate demographic practices and family support measures and a higher assessment of the importance of such practices when choosing and evaluating an employer. On the one hand, this indicates a higher interest in such information. But there is also a possible inverse relationship, which is important for predicting the development of the situation: more informed students are less likely to show a tendency to postpone their reproductive and marriage plans, assuming future employer support.

The revealed conjugation of the demand for the practices of corporate demographic policy and the level of expression of attitudes toward family and childbirth among future employees allows drawing a conclusion about the importance of targeted activities to form and increase the importance of family values both at an early age and among students. In addition, the results of the research in this part have great practical significance and will be useful for employers to adjust their social policy, provide an understanding of how to make corporate assistance to employees' families more targeted, identify special categories among employees: families with many children, newlyweds, first-born parents, etc., and offer them specific support measures.

We should emphasize that the search strategy chosen by us in the qualitative paradigm has confirmed its heuristic potential. This is another aspect of scientific novelty of the study. Our own methodology, based on the integration of methods

of analysis and understanding of meanings and statistical methods of analysis of qualitative sociological data, made it possible to reveal hidden connections, build typologies, classify and categorize information, and draw deeper conclusions.

Thus, the research results lead to the conclusion that Russian students need to form ideas about the possibility of effectively combining professional and parental trajectories thanks not only to support from the state, but also to a more targeted demographic policy of the employer. Corporate demographic practices of business have the potential to influence the reproductive behavior of young people, thus contributing to the achievement of strategic national goals to build human capital and overcome demographic challenges. These processes need constant research monitoring and scientific support.

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Healthcare Access and Quality for Older Adults as a Special Socio-Demographic Group

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Abstract. The article considers healthcare access and quality for older adults in modern Russia. Based on literature sources and sociological research data, we substantiate the high level and special nature of the needs of older people in medical care. The aim of the work is to assess healthcare access and quality for older adults in the Vologda Region in comparison with other age groups, as well as in the context of the private and public health sectors. The information base includes data from sociological surveys of Vologda Region population collected during 2018–2024, which provided an opportunity to track the dynamics of respondents' opinions, including in the context of the COVID-19 pandemic. Healthcare access and quality are assessed by appropriate indices, which helps to interpret the data using graphical visualization of results in a two-dimensional assessment field. Based on the analysis, we identify the conjugation and dichotomy between the parameters of healthcare access and quality, reflecting common features, as well as significant differences, for various age groups. The practical value and special relevance of the results obtained is due to their correlation with the practices of healthcare commercialization, the division of respondents' assessments between public and private medical organizations. The novelty of the study consists in testing an alternative methodological approach to assessing healthcare access and quality, identifying age differences and the specifics of elderly patients' response to changes in healthcare in the context of the COVID-19 pandemic.

Key words: older adults, healthcare access, healthcare quality, healthcare, public sector, private sector, Vologda Region.

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Introduction

In the first quarter of the 21st century, many of the concerns expressed earlier and related to the dynamics of the world's population were confirmed, but new major epidemiological challenges emerged, and humanity will have to respond to them in the coming decades (Fulmer et al., 2021). Thus, the predicted trend of population aging may lead to even greater than expected negative implications for society and the economy if it is accompanied by the emergence of such serious threats as the COVID-19 pandemic (Grigoryeva, Bogdanova, 2020).

The problems of the older generation are becoming particularly relevant in this context. Although the rights of the elderly population to decent living conditions do not differ from those of other socio-demographic groups, older adults require careful and sensitive treatment due to their physiological, psychological and other characteristics (Fedin et al., 2020). This is especially true in the field of healthcare. In one of the recently published papers on this issue, barriers to healthcare access care have been identified, which can be divided into common ones for all age categories (lack of necessary specialists, inconvenient opening hours, the need to pay for individual procedures) and specific ones that create difficulties in visiting medical institutions specifically for the elderly and people with disabilities. (lack of facilities in the polyclinic for people with walkers and wheelchairs) (Chukavina et al., 2024).

Older age is characterized by an increased risk of developing diseases of the cardiovascular system, neoplasms, decreased body resistance to infections, and other related limitations. Physical and psychological vulnerability are specific characteristics of this age group, and the organization of wide access to adequate medical care for its representatives is an important point in the system of achieving a healthy or prosperous old age (Zemlyanova, 2024; Belekhova et al., 2024). In this regard, both medical care as a social resource and the material objects that are the source of its receiving (for example, polyclinic buildings) are considered from the standpoint of material gerontology as important attributes of everyday life and the environment (Galkin, 2021). Currently, all countries face serious challenges in ensuring a timely and proportionate response to the growing needs of the elderly population for medical care and long-term care. There should be two basic indicators of the effectiveness of healthcare systems: healthcare access, reflecting the very possibility of receiving it, and healthcare quality, characterizing the qualifications of medical personnel and the effectiveness of the care provided, its compliance with the advanced achievements of medical science.

At the same time, monitoring healthcare access and quality at the level of organizations and territories faces a number of difficult methodological and instrumental problems. The most important of them concerns the ambiguity of the content and understanding of the categories under discussion. These terms are often accepted as synonymous, but it is not uncommon for them to be considered as elements of each other. Moreover, there is reason to assume that an approach to interpreting healthcare access and quality based on their opposition will have the greatest analytical value. It was used in this article. For this purpose, a toolkit for assessing healthcare access and quality in the regional dimension has been developed and tested. The aim of the work is to analyze subjective assessments of healthcare access and quality by elderly residents of the region as a social group characterized by a high need for these benefits and a particular sensitivity to their scarcity.

Theoretical aspects

The present study focuses on two important theoretical assumptions: first, the methodological and instrumental possibilities and limitations of assessing healthcare access and quality at the level of population and territory; second, the specifics of the needs, values and, probably, the special perception of medical care by representatives of the elderly population as a socio-demographic group. As an individual grows older, there increases a likelihood of acquiring a chronic pathology or some form of functional disability, such as lack of mobility and strength, loss of vision or hearing, loss of the ability to communicate or cognitive decline, disability. Impaired coordination of movements increases the risk of other injuries, such as falls or road accidents, while becoming an obstacle to recovery. This shows the specificity of older adults as a socio-demographic group that requires additional attention from society, the state and medical services. It for a reason that the concepts related to the responsiveness of healthcare systems to the problems and special needs of the elderly are becoming more widespread in modern management practice[1] (Lehning, De Biasi, 2018).

This specificity is expressed in the need for an integrated approach to providing services to the elderly, especially in cases of dysfunctional disorders, when providing care in medical institutions (Melkonyan et al., 2021; Isaev et al., 2022). The publication issued by the Nordic Medico-Statistical Committee (NOMESCO) proposes and tests, as part of a comparative analysis of the Nordic countries, indicators of the quality of medical care that take into account the specifics of older adults as a special category of patients[2]. However, the authors of the report focus on a narrow category of diagnoses and types of medical services provided in hospital settings, which adds specificity to the assessment, but limits its informative value in relation to the entire elderly population, whose health characteristics and needs for medical care are, naturally, various.

The problem of interpreting the concepts of "access" and "quality" requires special attention. It becomes obvious already at the level of the review of the Russian federal legislation in the field of public health protection. Thus, in the text of RF Federal Law 323-FZ, the components of healthcare access are not strictly separated from the criteria of helathcare quality (Article 10. "Healthcare access and quality")[3]. When analyzing the regulatory framework for assessing healthcare access and quality, a number of inherent contradictions and limitations are also revealed, which makes it difficult to develop and effectively implement measures to ensure these important criteria (Kolomiychenko, 2020). The possibilities and limitations of measuring healthcare access and quality have some differences. Thus, it is generally assumed that access can be measured more effectively than quality, especially when it comes to sociological surveys, which assume subjectivity of perception and, consequently, evaluation. Healthcare access is quite successfully formalized in a number of components identified by D. Peters (Peters et al., 2008). For example, geographical access to medical care can be assessed based on the distance separating the consumer and the provider, as well as the quality of transport and a number of contextual nuances, financial access – based on the willingness and ability of users to pay for the services provided, the availability of insurance tools to protect against the economic consequences of healthcare costs (Lokosov et al., 2024). Financial access is becoming particularly relevant due to the widespread commercialization

[1] Lehning A.J., De Biasi A. (2018). Creating an age-friendly public health system: Challenges, opportunities, and next steps. 18 p.

[2] Health and healthcare of the elderly in the Nordic Countries – from a statistical perspective. Nordic Medico-Statistical Committee. Copenhagen, 2017. 170 p.

[3] On the fundamentals of public health protection in the Russian Federation: Federal Law 323-FZ, dated November 21, 2011.

of the healthcare sector, as well as taking into account the link established by Russian researchers between financial welfare and medical activity (Kislitsyna, Chubarova, 2023). Older adults in this regard fall into the category of increased risk (Mukharyamova, Savelyeva, 2019). With the development of information technology, access has also acquired a "digital" dimension. Thus, the availability of telemedicine technologies and remote consultation options are already adding to the list of aspects of healthcare access (Medvedeva et al., 2022). However, the elaboration of the structure of healthcare access does not negate the difficulty of setting boundaries when conducting appropriate assessments.

The quality of medical care or services as an object of measurement has some fundamental limitations. In most cases, they are due to asymmetric information described as an economic phenomenon by K. Arrow and G. Akerlof (Arrow, 1963; Akerlof, 1970). In the case of mixed healthcare systems, which are typical for most countries, the situation is aggravated by the lack of separation of medical services markets, which makes it difficult to find and analyze information about different treatment alternatives for patients. As a result, quality assessment goes beyond the cognitive capabilities of the consumer. In order to offset information asymmetry, administrative measures are applied, primarily standardization and licensing. The quality assessment is carried out in the context of analyzing the adequacy of routing and following treatment protocols. Informal components of control may also be included, such as moral attitudes and guidelines. However, subjective assessments, if the above-mentioned limitations of interpretation are specified, may also occur with appropriate methodological and technique-related reservations. Thus, the survey on satisfaction with healthcare quality is applied not only at the population level, but also at the micro level. For example, L.V. Mammadova describes the practice of assessing the quality of medical care after surgical interventions in hospital departments of otosurgery. The assessment is carried out by both staff and patients through the dynamics of their quality of life and the psychoemotional state of patients (Mammadova, 2012). We note that in this case, it would be reasonable to assess healthcare access by answering the question about the length of waiting for a planned operation, the distance from the home to the hospital, etc.

However, it is particularly important how the categories "access" and "quality" can and should relate to each other in the context of policy analysis and quality management in healthcare. The analysis of the sources revealed three alternative approaches to the interpretation of the links between healthcare access and quality.

1. Access and quality are accepted, if not as synonymous concepts, then at least adjacent and mutually communicating ones (Tsarik et al., 2017).

2. Access is considered as an element and criterion of quality (Sharabchiev, Dudina, 2013).

3. The categories of "quality" and "access" are separated, but they are analyzed in parallel, and a search is underway for ways to pair them or dichotomize them, which is especially important in the context of the coexistence of the public and private sectors in healthcare. It is this approach that has the greatest analytical value. One of the most striking examples of its successful testing is a study of subjective assessments of healthcare access and quality by citizens of three English-speaking countries – the USA, Canada and the UK, which revealed the nuances of a systems dichotomy[4]. Clear hints of the advantages of this approach can be found, albeit infrequently, in the works of Russian and foreign scientists. For example, Canadian researchers S. Haddad and P. Fournier talk about

[4] Blizzard R. Healthcare System Ratings: U.S., Great Britain, Canada. GALLUP. Available at: http://www.gallup.com/poll/8056/healthcare-system-ratings-us-great-britain-canada.aspx

the danger of absolutizing the principle of universal access to medical care in developing countries to the detriment of compliance with quality requirements (Haddad, Fournier, 1995). In the works of a number of researchers (Kochkina et al., 2014; Shishkin et al., 2019) the dichotomy between quality and access is read "between the lines" in the description of the findings of a sociological survey, according to which a significant part of respondents speak in favor of the quality of medical care even with limited access to it. However, one cannot fail to note the gap inherent in such surveys between motives and attitudes on the one hand and actions on the other (LaPiere effect). In other words, verbalized attitudes are not necessarily implemented, and respondents' answers that do not capture objective experience may not reflect their behavior in real life. One of the objectives of our research was to overcome this omission by appealing to the actual experience of the respondents.

The comparison of criteria for healthcare access and quality provided in commercial and public sector organizations carried out in the article is due to the increasing prevalence among Russia's residents of the practice of paying for medical services from their own funds and also due to the interesting results of this approach to research already found in the periodical press (Ivanov et al., 2023). Access and quality as features of medical care should be considered as universal categories, and the choice of criteria for distinguishing groups within the framework of comparative analysis should be dictated by the specific task of the study. For example, it may be of interest to compare estimates of healthcare access and quality in the light of gender, territorial, property, and other differences. In the context of the above-mentioned urgent problems, first of all, the steady trend of aging and the contradictory development of modern Russian healthcare, the analysis of the ratio of the "access" and "quality" parameters in relation to the age categories of respondents deserves special attention.

Materials and methods

The information base of the work includes the results of sociological surveys representing the opinions and assessments of the adult population of the Vologda Region. Field sociological studies were conducted in the region in 2018, 2020, 2022 and 2024, which makes it possible to assess the situation in dynamics and taking into account changing epidemiological conditions, for example, in the context of the COVID-19 pandemic. The survey was conducted through a handout questionnaire and covered the region's major cities of Vologda and Cherepovets, as well as eight municipal districts, including small cities. The sample size was 1,500 people. The sample was proportional and quota-based, its error was 4%. In the questionnaire, questions about healthcare access and quality are contained in the section on medical activity. First of all, respondents were asked to assess healthcare access ("Please assess the level of healthcare access provided in public and private medical institutions for you") by choosing an answer option from the suggested ones: 1) "high", 2) "medium", 3) "low" and 4) "medical services are completely inaccessible". The question about quality is formulated as follows: "How would you generally assess the level of quality of medical care provided in public institutions (polyclinics, hospitals, etc.) and private medical organizations?" It was suggested to choose one response among the following: "high", "medium", "low", "quality is very poor". The corresponding estimates for two types of organizations – "state polyclinics and hospitals" and "private medical organizations" – were initially divided.

The study was based on the answers of respondents with actual experience of visiting medical organizations during the 12 months preceding the survey. Since the study was focused on identifying the opinions of the region's elderly population, the analysis considers the results concerning this particular category of respondents. To determine the

characteristics of the analyzed population category, data are provided for other age groups (the sample is divided into three age groups: 1) young residents of the region aged 18 to 30; 2) middle-aged, from 30 to 60 (55); 3) older adults aged over 60 (55)), as well as in general for all respondents, regardless of age. Based on the results of the survey, healthcare access (AI) and healthcare quality (QI) indices were calculated. The calculation method in both cases involves calculating the difference between the sums of the specific weights of positive and negative ratings in the total pool of respondents' answers. To exclude negative index values, 100 is added to the resulting difference. The indices are compared in the context of age-specific identification by assessing the depth of differences – through the ratio of the minimum index value to the maximum and through the ratio of the index calculated for the group of older adults to the average value for the entire sample. The parallel analysis of the quality and access parameters is carried out both by calculation, through the ratio of the coefficients corresponding to them, and graphically. The placement of age groups as points in the "access – quality" coordinate system provides analytical value due to its clarity.

Taking into account the rapid development of the private healthcare sector in the region, the analysis of healthcare access and quality was carried out in the context of the public and private sectors. Since in modern conditions the boundary between them is being blurred (for example, in public institutions there are paid departments of medical care, and in private institutions there is a rare practice of paying for medical services through the compulsory medical insurance system), it is necessary to determine the criterion for their separation in order to solve the research tasks. The "form of ownership" criterion was chosen as the basic one. According to it, the healthcare sectors are represented by institutions of the appropriate list of organizational and legal forms.

Results

The elderly in the region demonstrate the greatest need for medical care among all age groups. Although health is the highest value for representatives of the three analyzed population categories, older adults more often than others tend to put it at the highest level of the hierarchical structure of personal values. Thus, while 70 and 67% of young and middle-aged people, respectively, say that health is their main value, the proportion of such responses among the elderly reaches 84%. These differences between age groups are due to a decrease in the subjective importance of material wealth, work and social recognition for the elderly. An increasing demand for medical care in older adults is due not only to the dynamics of value stereotypes, but also to objective requirements (increased risks of diseases and, consequently, the need for regular medical check-ups) and deterioration of physical health: 39% of the older group admit that they suffer from long-term chronic diseases (among young people and the middle-aged category, this indicator amounts to 5 and 10%, respectively).

The absolute majority of representatives of all three age groups, namely 82% of young, 86% of middle-aged and 90% of elderly respondents, recognize personal responsibility for their health. The roles of the state and the family are ranked 3rd and 4th, and there are practically no age differences here. At the same time, with age, there is a slight but nevertheless noticeable transformation of the radius of responsibility for health. Older people place more responsibility for their own health on medical professionals than younger people (58% of the elderly chose this response, while among young people it was 39%, and among middle-aged respondents it was 49%). This is largely due to an increase in their medical activity. The region's elderly residents are more likely than others to become consumers of medical services. While 57% of young people aged 18 to 30 have applied to medical organizations in the last twelve months,

among middle-aged respondents the proportion of applicants has already reached 69%, and for the elderly population it has reached 84% *(Tab. 1)*.

Older adults are more likely than representatives of the young and middle-aged categories of respondents to visit public medical institutions (in 2024, 55% of the elderly visited them exclusively, while this proportion was 34% among young people and 39% among middle-aged people). At the same time, the elderly population insignificantly, but still more often than young people and middle-aged people, show mixed medical activity, alternating or combining appeals to organizations in both health sectors.

It is of interest to analyze the dynamics of the indices showing healthcare access and quality in the context of the COVID-19 pandemic. In the pre-crisis period (we have data for 2018), there was a high level of satisfaction with healthcare access (AI=153.6) and especially with its quality (QI=164.1) among the elderly residents of the region who visited public medical institutions. In 2020, when the pandemic reached its peak, the satisfaction ratings of the discussed category of respondents reached the highest level for the period under consideration (QI=181.4; AI=165.8). In subsequent years, respondents' satisfaction with healthcare access and quality decreased significantly. The situation was particularly negative in 2022 (QI = 104.4; AI = 111.6). At the same time, in contrast to the situation in 2018 and 2020, in the post-COVID period, assessments of healthcare access began to prevail over quality assessments.

Elderly residents' assessments of healthcare access and quality provided in private medical organizations in the Vologda Region have significantly exceeded those in the public sector over the years and have varied in a similar way. In the post-COVID-19 period, there was a decrease in the indices, but these changes were moderate. During the entire period, the quality indices of medical services in private organizations exceeded the accessibility indices.

Representatives of different age groups (in this case older respondents do not show noticeable differences from younger and middle-aged groups) tend to rate healthcare quality higher than healthcare access, regardless of the health sector. These differences can be judged by the ratio of coefficients (QI/AI; *Tab. 2*). Several cases have been recorded when the AI exceeded the QI. The most significant exception was in 2024: estimates of healthcare access provided by government agencies were significantly lower than the quality parameters (QI/AI = 0.882). In the assessments of the elderly, quality indices are higher than access indices, which corresponds to the measurements carried out among representatives of the young and middle-aged groups. The only exception to this rule was young respondents' assessments of the quality of services in private organizations, which in 2020 were not significantly inferior to

Table 1. Distribution of responses to the question "Have you visited medical institutions for the last 12 months?" (Vologda Region, 2024), %

Response	18–30 years old	30–60 (55) years old	**60 (55) years old and >**	Average for all groups
Yes, I have, including:	57.4	68.7	**83.5**	72.5
public	46.4	56.7	**76.5**	62.4
private	23.4	29.4	**28.1**	28.1
Only public	34.0	39.3	**55.4**	44.3
Only private	11.0	12.0	**7.0**	10.1
Both public and private	12.4	17.4	**21.1**	18.1
No, I have not.	42.6	31.3	**16.5**	27.5
Source: sociological survey of the Vologda Region population.				

access parameters (QI/AI = 0.881). The differences between the estimates of the elderly population of the region and those of representatives of other age groups relate not to the fundamental ratio of quality and access parameters, but to the size of the gap between them in favor of the former. In 2024, the prevalence of assessments of healthcare quality received by respondents in private organizations in the region over its access, recorded in the elderly population, reached its maximum value for the entire measurement period for all age groups (QI/AI was 1.275).

Table 2. Indices of healthcare access and quality for older adults in comparison with other age groups

Index	Age group			Average for groups	Difference (min / max)	Deviation of the values for the older adults category from the average
	18–30 years old	30–60 (55) years old	**60 (55) years old and >**			
2018						
Public clinics and hospitals						
QI*	166.6	165.1	**164.1**	164.8	0.985	0.996
AI**	152.4	146.0	**153.6**	150.1	0.951	1.023
QI/AI	1.093	1.131	**1.068**	1.098	0.966	0.973
Private healthcare organizations						
QI	200.0	193.6	**196.0**	195.6	0.968	1.002
AI	178.9	163.2	**164.8**	166.6	0.912	0.989
QI/AI	1.118	1.186	**1.189**	0.989	0.940	1.202
2020						
Public clinics and hospitals						
QI	178.3	177.9	**181.4**	179.6	0.981	1.010
AI	164.4	160.8	**165.8**	163.4	0.970	1.015
QI/AI	1.085	1.106	**1.094**	1.099	0.981	0.995
Private healthcare organizations						
QI	169.4	187.6	**193.6**	187.2	0.875	1.034
AI	192.3	177.8	**177.4**	179.6	0.923	0.988
QI/AI	0.881	1.055	**1.091**	1.042	0.808	1.047
2022						
Public clinics and hospitals						
QI	109.2	106.8	**104.4**	106.2	0.956	0.983
AI	111.6	113.1	**111.6**	112.3	0.987	0.994
QI/AI	0.978	0.944	**0.935**	0.946	0.956	0.988
Private healthcare organizations						
QI	176.2	170.6	**177.0**	173.8	0.964	1.018
AI	152.6	162.9	**151.4**	157.4	0.929	0.962
QI/AI	1.155	1.047	**1.169**	1.104	0.896	1.059
2024						
Public clinics and hospitals						
QI	130.4	133.1	**115.0**	124.9	0.864	0.921
AI	153.6	147.8	**132.5**	141.6	0.863	0.936
QI/AI	0.849	0.901	**0.868**	0.882	0.942	0.984
Private healthcare organizations						
QI	175.5	182.8	**182.9**	182.0	0.960	1.005
AI	167.2	168.3	**143.5**	156.9	0.853	0.915
QI/AI	1.050	1.086	**1.275**	1.160	0.824	1.099

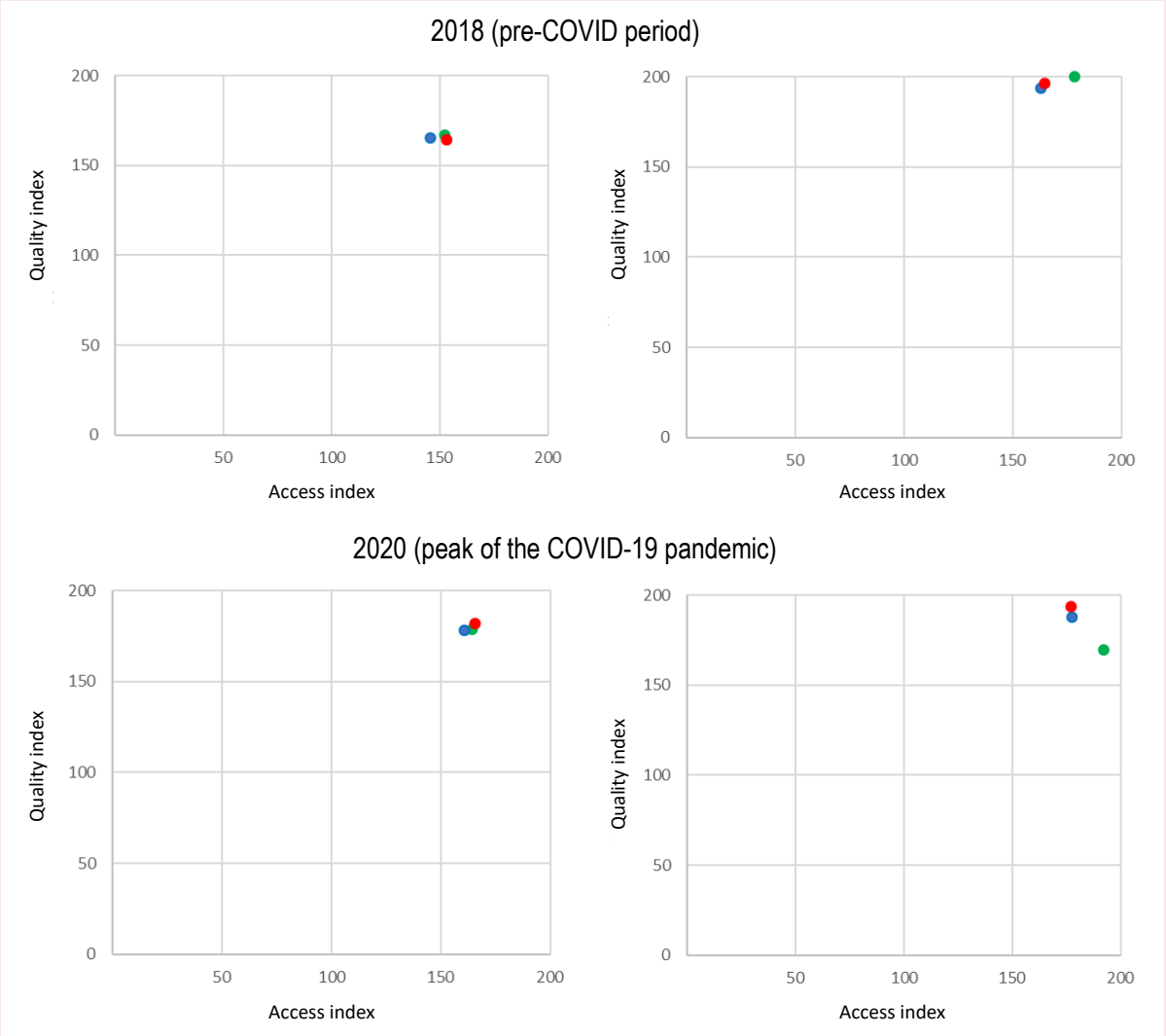
*QI – quality index; **AI – access index.
Source: calculated according to the sociological survey of the Vologda Region population.

Healthcare quality/access parameters ratio provided by public sector institutions in the context of age groups is formed in such a way that the corresponding points on the graph are located as close to each other as possible, and the range of values for both indices is minimal *(Fig. 1)*.

The exception was the assessment of medical care in the public sector in 2024: the older age group was located on the graph in isolation from the young and middle-aged groups compactly located next to each other, and according to both criteria under consideration *(Fig. 2)*.

When it comes to assessing healthcare access and quality within the private sector, the ranges of indices' values are significantly expanded, and this is due to the gap between different age groups. In the estimates for 2018 and 2020, there is a noticeable gap between the elderly and middle-aged groups from the younger ones, whereas in 2022, the opposition to each other is already made up of, on the

Figure 1. Dichotomous scales of healthcare access and quality indices in the public (left) and private (right) healthcare sectors for age groups: 1) from 18 to 30 (●), 2) from 30 to 60 (55) (●), 3) over 60 (55) (●)

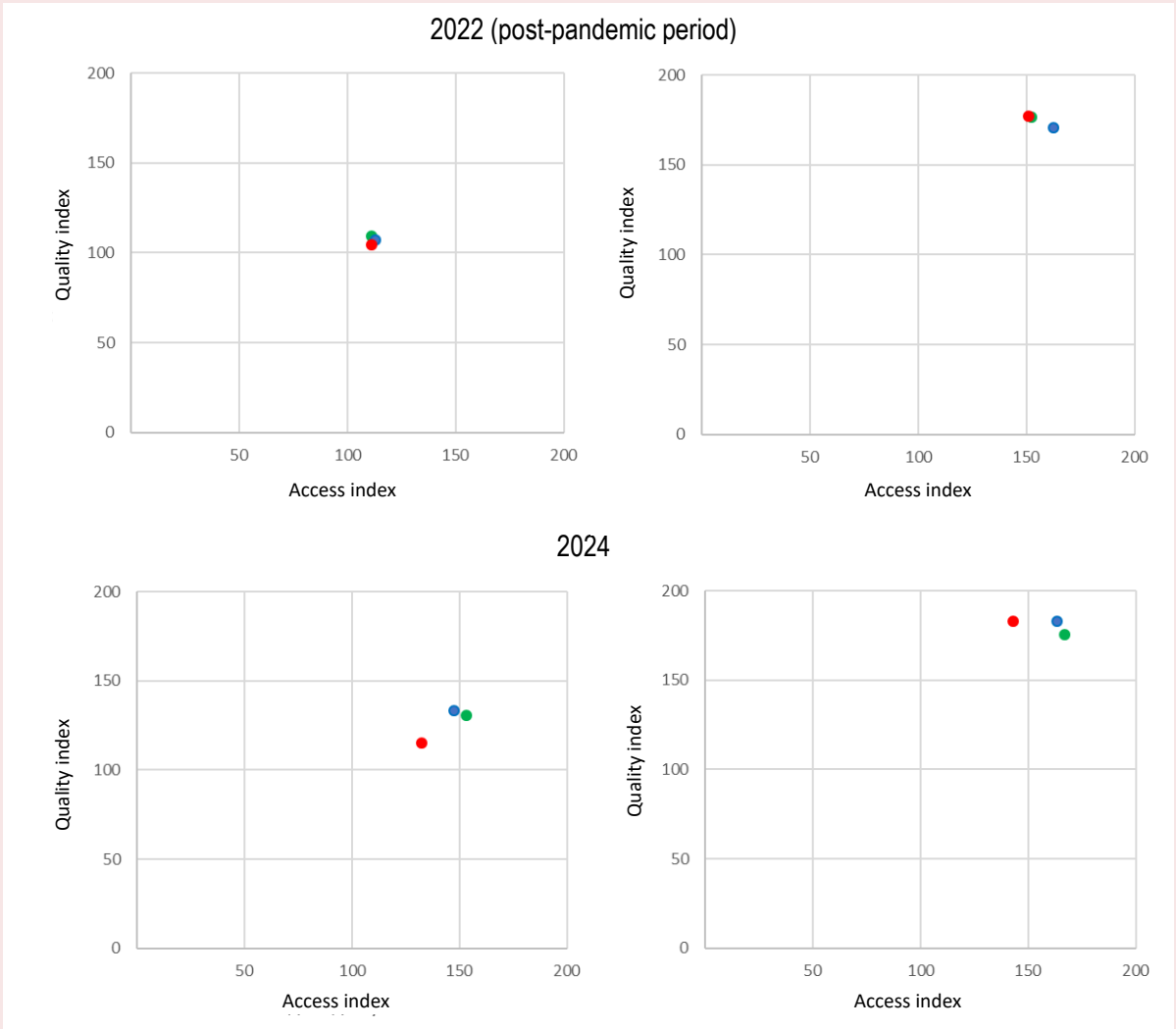


Source: sociological survey of the Vologda Region population.

one hand, the pair "youth and the elderly" located closely in the evaluation field and, on the other hand, the category of middle-aged residents of the region.

In 2024, the maximum variation in the values of healthcare access and quality indices between the elderly and other age groups in relation to public health institutions is recorded for the entire measurement period. The category of the region's elderly residents significantly differed from the young and middle-aged groups on the scale of healthcare care access in the private sector (due to the low ratings given by older adults: the AI for the elderly was 115.0, for the young – 130.4 and for the middle-aged group – 133.1), while in the "quality" parameter there was no significant variation in the indices' values. We note that in 2022, the access index for older adults took on an even lower value – 104.4 (the minimum value of the parameter for the entire measurement period), but the gap from other groups eventually turned out to be insignificant, since the index values for the other two age groups were extremely low (in the group of youth under 30 – 109.2, in the middle-aged group – 106.8; *Fig. 2*).

Figure 2. Dichotomous scales of healthcare access and quality indices in the public (left) and private (right) healthcare sectors for age groups: 1) from 18 to 30 (●), 2) from 30 to 60 (55) (●), 3) over 60 (55) (●)



Source: sociological survey of the Vologda Region population.

Discussion

Respondents' greater satisfaction with healthcare quality rather than access is evidence that the main problem for respondents is the difficulty of obtaining medical care and services. Meanwhile, we can assume that the inverse ratio of the indices, the predominance of the access index over the quality index, would characterize the situation as particularly unfavorable – open access to services of mediocre quality.

The research results for 2024 indicate negative changes in healthcare access and quality provided by government agencies in general across all three age categories of respondents. The gap between the senior group and the other two in the assessments of public sector medical care on both scales, which has appeared for the first time in the history of the measurements, is particularly telling. Since the assessments are based on the respondents' opinions, the reasons for the identified negative changes can be considered as an objective decrease in healthcare access and quality in the public sector, as well as an increased level of expectations and claims of older people, as well as the fact that their lower health characteristics compared to those of other groups force older adults to perceive all existing flaws in the work of medical services more acutely and painfully. At the same time, the fact that in earlier periods, including in the pandemic year, the spread between age groups in quality and access assessments was minimal, gives grounds to look for objective reasons for the differences identified. In recent years, especially in 2024, there has been a significant increase in the cost of living in Russia. Since pension indexation does not make up for the increase in prices for essential goods (food and medicines), inflation is hitting socially vulnerable population groups, including the elderly. Accordingly, it is becoming increasingly difficult for them to find the means to purchase paid services, while access to free services is not improving.

The minimum ratio of healthcare access and quality indices provided by private organizations in the group of young respondents under 30 years of age should be interpreted by recording high estimates of the level of access and modest estimates of quality, which indicates the high expectations and requests of this category of respondents and their available opportunities, primarily informational and financial. An analysis of the proportions of specific respondents' answers allows us to note only one detail that is offset when calculating the indices: the contribution of positive ratings to the overall pool of ratings for government agencies is formed with a noticeable advantage of the "satisfactory" response, while positive ratings for commercial organizations are combined with the prevalence of high ratings, which is especially noticeable in opinions regarding the quality of care. Consequently, respondents perceive medical care provided by the public sector as a kind of minimum guaranteed by the state, while private healthcare providers strive to go beyond these boundaries, claiming to achieve high quality standards.

Comparing the indicators of healthcare access in public and private medical institutions, it is necessary to make a reservation that the accessibility of care in the private and public sectors is fundamentally different in nature. In the public sector, access is primarily related to the very possibility of getting an appointment with a specialist of interest for free, which is determined by a number of spatial conditions (territorial remoteness of the institution, availability of transport, etc.) and organizational (staffing of full-time positions, availability of specialists, and waiting times for an appointment), or to undergo the necessary examination within a reasonable time. In a private clinic, despite a number of similar restrictions (for example, the need to wait for an appointment, the territorial remoteness of organizations, which may be especially relevant for residents of rural areas, etc.), the cost of services is the main factor limiting access.

The proposed index approach to the interpretation of subjective assessments of healthcare access and quality has both important instrumental advantages and limitations. On the one hand, it is characterized by simplicity of calculation and functionality (due to these qualities, it is applicable in the comparative analysis of territorial and socio-demographic units). On the other hand, it hides a number of nuances in the estimates. The positive answers of the respondents included in the index structure latently combine both high and satisfactory ratings, and it is in these responses that the difference in assessments of the public and private sectors manifests itself, the differences between them are leveled, in particular, the overall ratings of public clinics and hospitals are increased. The most difficult problem of interpreting the results is the subjectivity of respondents' understanding of the categories "access" and "quality" embedded in the methodology. And if access as a characteristic of medical care has a certain right to the intuitive nature of its perception and interpretation, then quality is most often accepted as an attribute, the assessment of which should be based on a high level of expertise of the actor who makes the assessment.

Conclusion

Thus, older adults demonstrate a higher level of need for medical care than representatives of other age groups due to the natural deterioration of their health status. In the post-pandemic period, there have been important and mostly negative changes in the assessments of healthcare access and quality by elderly residents in the Vologda Region. This is reflected both in a significant decrease in assessments of the quality of medical care provided in public health institutions (in 2022, the QI was 104.4, which is the minimum index value for the entire measurement period, in 2024 – 115.0), and an increase in 2024 in the gap between the index values for both parameters of medical care provided by the public sector, compared to younger age groups. In 2024, the estimates of the representatives of the older age group regarding healthcare access provided by private medical organizations decreased, which formed a gap in this parameter with the younger age groups in the region. The assessments of the elderly population regarding quality parameters demonstrated stability. As a result, the index of differences in quality and access parameters for the group under discussion reached its maximum value (1.275) for the entire period in question.

The results obtained suggest that older adults find themselves in a special risk group: having a more tangible need for high-quality medical care than other population groups, they are forced to overcome a significant number of barriers to receive it, which is complicated by natural limitations such as health conditions, movement problems, etc. The need to pay for a number of diagnostic and therapeutic procedures, as well as access to an alternative, commercial, channel for obtaining medical services, is complicated by the low level of effective demand. This is reflected in the significant separation of representatives of the older generation from other age groups in assessing healthcare access provided by private organizations.

In general, the index approach we use to assess healthcare access and quality in parallel has prospects for practical application, being characterized by the simplicity of data collection and analysis tools and the clarity of the results.

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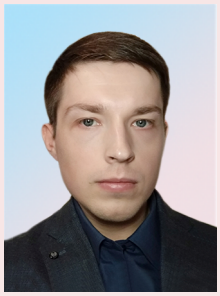
Fertility in the North of Russia: Spatial and Ethnic Patterns



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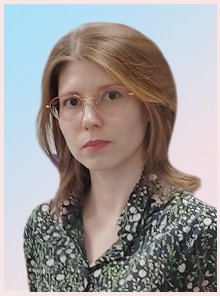

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Abstract. The North of Russia comprises cities and districts that differ in fertility and reproductive behavior; this fact makes the territory an interesting object for demographic research. The paper considers fertility in the North of Russia at the regional and municipal levels, both in conditional and in real generations. Such an approach helps to identify spatial and ethnic patterns. Fertility analysis by region and ethnicity has shown a rapid decrease in differences between Russia's constituent entities, which

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indicates the accelerated completion of the demographic transition in territories with high fertility. At the same time, reproductive behavior patterns within regions are becoming more diverse, which is a sign of the second demographic transition. Indicators above the level of simple reproduction are preserved only among Tuvans and some small-numbered indigenous peoples of the North. At the municipal level, fertility in conditional generations was estimated using data from the population censuses of 2010 and 2021, and in real generations by calculating the total fertility rate using the indirect standardization method for 2015–2023. We identified groups of territories in the North of Russia with high and low fertility rates. It is shown that the median fertility rate in the northern territories has decreased significantly in recent years. A correlation analysis of fertility rates and the ethnic composition of the population revealed that fertility in a municipality is determined primarily by the proportion of titular ethnic groups and small-numbered indigenous peoples of the North, and among young cohorts – only by the proportion of small-numbered peoples. The results obtained are of interest for developing demographic policy measures and making forecasts at the regional and municipal levels. In further research, it is recommended to pay attention to the dependence of fertility on the development of the social infrastructure in the North of Russia.

Key words: fertility, real and conditional generations, spatial analysis, ethnic patterns, municipalities, North of Russia.

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Introduction

The total fertility rate in Russia decreased from 1.76 to 1.41 in 2015–2023, which makes it relevant to study the North of Russia, in some regions of which fertility rates significantly exceed the national average. It is preferable to analyze fertility rates at the municipal level because of the high ethnic mosaicism of the North – taking into account differences in the national composition and spatial location of territories. It is important to understand which northern cities and districts have a higher reproductive potential and why.

Our study analyzes fertility in the municipalities of the North of Russia for 2010–2023 both in conditional generations (by calendar year of birth of children) and in real generations (by year of birth of mothers). Simultaneous consideration from both perspectives is the most methodologically correct approach for studying the fertility evolution processes (Zakharov, 2023, p. 7). Conditional generations are considered with the help of the total fertility coefficient obtained by the method of indirect standardization. These data help to explain short-term changes due to the current socio-economic situation. However, using only total fertility rates can lead to misinterpretations and give misleading signals (Sobotka, Lutz, 2011). The real generations are derived from the results of the 2010 and 2021 censuses. They help to understand long-term historical trends in fertility.

The article begins by reviewing existing studies of fertility in the northern regions of Russia and the world. Then the paper presents the research methodology and an overview of data sources. The research results are divided into two sections. The first one describes fertility patterns at the regional level. It considers the fertility of Russians, titular ethnic groups of the national republics (Kareli, Komi, Tuvinians, and Yakuts) and small-numbered indigenous peoples of the North. The second section is devoted to the fertility analysis

at the municipal level in conditional and real generations. Ethnic factors promoting fertility are identified using correlation analysis. The conclusion summarizes the research results.

Fertility in the North in the optics of conditional and real generations

Fertility in Russia has been studied at all levels – from federal to municipal and settlement levels. The research (Zakharov, 2023) considers the most complete time series of the total fertility of the 20th–21st century on the scale of the whole country in real and conditional generations. P.A. Kishenin calculated the final fertility in real generations for 83 regions of Russia for 1935–2000; the data from 1973 are projected, since women born later have not yet reached reproductive ages (Kishenin, 2023). A.N. Petrosyan examined fertility in Russia at the municipal level in the conditional generations 2011–2019 by calculating the total fertility rate. He used the method of indirect standardization to estimate fertility for 2,304 municipal entities of the first level (Petrosyan, 2021).

At the regional level, the dynamics of fertility levels have been studied both in the North (Fauser et al., 2024) and in the Arctic (Smirnov, 2023), including in real generations (Sinitsa, 2017). In recent years, among the Northern regions, only the Magadan Region is characterized by a fertility rate below the national average, but in the second half of the 2010s, there was a trend toward a reduction in total fertility throughout the North (Fauser et al., 2024, p. 138). At the municipal level, censuses have examined fertility in the Yamal-Nenets Autonomous Area (Arkhangelsky, 2021) and the Komi Republic (Fauzer, 2023). The example of the Republic of Sakha (Yakutia) reveals differences in fertility rate of municipalities by their economic specialization (Lebedeva et al., 2022, p. 411). The highest indicators were demonstrated by agricultural territories. Sample surveys show that young northerners, as well as Russian residents in general, have a decreasing desired and expected number of children (Popova, 2022, p. 102), with women having lower indicators than men (Arkhangel'skii, Kalachikova, 2021, pp. 168–169). Research works have considered the periodization of demographic policy measures in the North (Zyryanova, Popova, 2021) and comparative analysis of maternity capital programs (Vakulenko et al., 2024).

International studies have examined fertility in northern European countries (Heleniak, 2024) and the global Arctic (Heleniak, Bogoyavlenskiy, 2014), including municipal data (Jungsberg et al., 2019). For a long time, Northern Europe was characterized by high fertility relative to most of the developed world (Comolli et al., 2021). This was attributed to a generous social security system, long parental leave, and high equality between the sexes in both the labor market and the household. In 2010, total fertility was 1.87 children per woman in Finland, 1.98 in Sweden and 2.22 in Iceland. After 2010, the rates declined steadily and by 2024 were almost identical to the European average: 1.26, 1.43 and 1.56 respectively[1].

Scandinavian demographers' studies show that the downward trend in total fertility is primarily due to a decline in first-born children (Ohlsson-Wijk, Andersson, 2022), i.e., an increase in the share of the population that is childless (Jónsson, 2024). This is particularly pronounced among women under 30 years of age (Hellstrand et al., 2021). Fertility declines and child birth is postponed also among couples living together (Hellstrand et al., 2022). Researchers attribute the changes to uncertainty and gloomy perceptions of the future among new generations of northern residents (Neyer et al., 2022). Immigration does not affect the situation significantly, as fertility differences between natives and migrants narrow within one or two generations (Höhn et al., 2022).

In a number of northern countries, fertility depends on the ethnic composition of the population, the share of small-numbered indigenous

[1] Fertility rate in 2024 lower than ever before. Statistics Iceland. Available at: https://www.statice.is/publications/news-archive/inhabitants/births-2024

peoples of the North (Bogoyavlenskiy, Siggner, 2004, p. 33). For example, in Canada, fertility among the Inuit of the northern territories is twice as high as among the non-indigenous population (Morency, 2018, p. 45). In the USA, infertility is 1.4 times more common among Alaska Natives and American Indians than among whites (Craig et al., 2019). In Russia, ethnic differentiation of fertility based on the results of the 2021 census in real generations was studied using data from Moscow (Arkhangelsky, 2024). Ethnic and spatial patterns of fertility on the scale of Northern Russia at the municipal level have not yet been considered.

Methods and data

The object of the study is the Far North population and equated areas[2] in 2010–2021. We consider the first level of municipal structure – urban districts, municipal districts, and municipal areas. In total, the North includes 294 territories with a combined population of 9.35 million as of 2021 (6.4% of Russia's population). These territories cover about 69% of the country's area and are of great economic importance. Only 13 regions that are fully included in the Far North bring 32.3% of tax payments to the federal budget[3].

It is important to consider the fertility rate in the North of Russia taking into account the national composition of the population. The share of small-numbered indigenous people of the North exceeds half of the total population in 20 municipalities with a combined population of 134,300 people. The largest nationalities in them are the Dolgans, Koryaks, Nenets, Soyots, Tuvinians-Tojins, Khanty, Chukchi, Evenks, and Eveny. In another 41 municipalities, more than half of the residents are representatives of the titular ethnic groups of the national republics (Altaians, Buryats, Komi, Tuvinians, and Yakuts). As of the beginning of 2024, the population of these territories amounted to 1,114.2 thousand people. The combined share of small-numbered indigenous people of the North and titular ethnic groups exceeds 10% in 117 municipalities *(Fig. 1)*.

At the regional level, we will consider only 13 constituent entities of the Russian Federation, the territories of which are fully included in the list of the Far North and equated areas. These are the Republics of Karelia, Komi, Sakha (Yakutia) and Tyva; the Kamchatka Territory; the Arkhangelsk, Magadan, Murmansk, and Sakhalin regions; the Nenets, Khanty-Mansi, Chukotka, and Yamal-Nenets autonomous areas. Data on fertility in the regions in conventional generations were obtained from the Unified Interagency Information and Statistical System (EMISS). Data in real generations are taken from the appendix to the article (Kishenin, 2023). This is the most complete in terms of time coverage publicly available dataset on fertility by region. The value for the whole North was calculated as a weighted average of the number of women in the 13 Northern regions.

The method of indirect standardization was used to estimate the total fertility rate (TFR) of municipalities (Petrosyan, 2021, p. 50). We chose it for two reasons. First, Rosstat does not publish age-specific fertility rates at the municipal level, which are necessary for the application of other methods. Second, even if the data were available, due to the small population of some municipalities of the North, the use of direct methods to calculate the fertility rate would give a large error. We used the following formula:

$$TFR_i = TFR_{Russia} \times \frac{B_i}{\sum_{j=15}^{49} ASFR_{Russia} \times \frac{P_i}{1000}}, \quad (1)$$

where:

TFRi – total fertility rate of municipality I;

B – actual number of births;

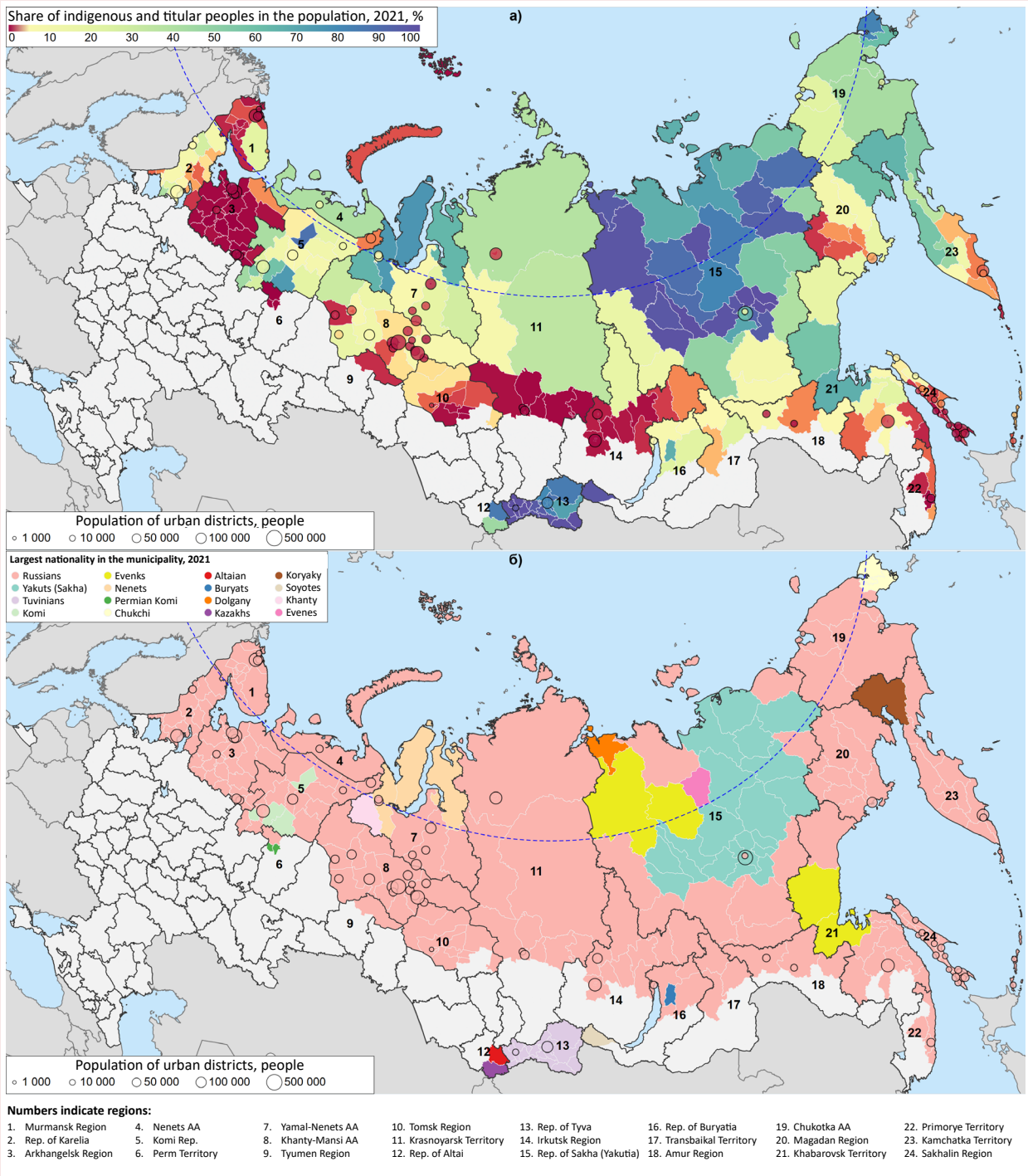
ASFR – age-specific fertility rates by five-year groups;

P – female population.

[2] On Approval of the List of the Far North Areas and Localities Equated to the Far North Areas...: RF Government Resolution 1946, dated November 16, 2021. Available at: http://government.ru/docs/all/137437

[3] Finances of Russia – 2024 (2024): Stat. coll. Moscow: Rosstat. 458 p. Appendix. Tab. 2.5.

Figure 1. Share of titular and small-numbered indigenous people (top, %)
and largest nationality (bottom) by municipality in the North of Russia, 2021



According to: Results of the All-Russian Population Census 2020–2021. Territorial bodies of Rosstat.

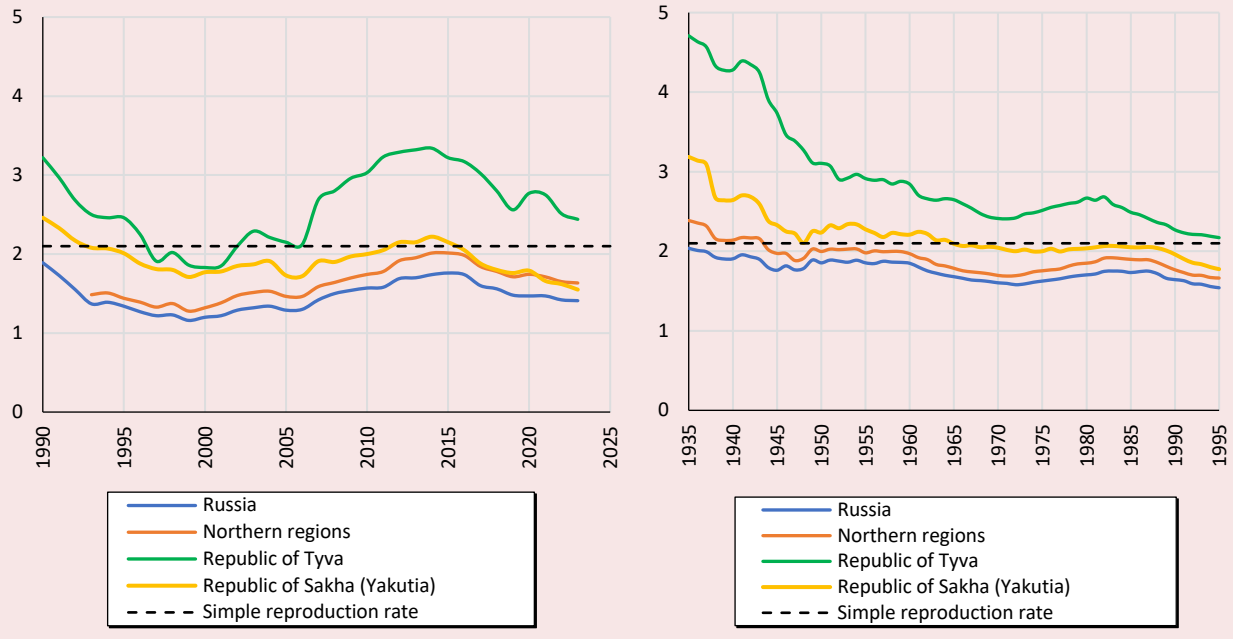
We took fertility rate in Russia of the corresponding years as a standard. The indicator was calculated for a three-year time period by averaging the values to reduce the impact of statistical outliers. The data for calculations were obtained from the Database of Indicators of Municipal Entities[4] (BDPMO) and EMISS[5].

We used data from the 2010 and 2021 population censuses in the context of municipalities and five-year age groups obtained from the territorial bodies of Rosstat to estimate fertility rate at the municipal level in real generations. For those regions for which the necessary tables were unavailable on the Rosstat website, they were provided upon request. Fertility maps in the North were constructed using the VegaLite.jl package in the Julia programming language.

Research results: regional level

Fertility rate in 13 northern regions *(Fig. 2a)* exceeds the national average, and the gap has increased compared to the 1990s. The republics of Tyva and Sakha (Yakutia) are particularly interesting. While in the former the TFR was significantly above the average for the North and in some years exceeded 3 births per woman, Yakutia, which was characterized by high fertility until 2015, equaled the average for the North. The Russian North did not reach the level of simple reproduction even in the most favorable 2014–2015, when fertility rate was 2.01. In real generations *(Fig. 2b)*, the level of simple reproduction was last achieved for the generation born in 1943. All subsequent generations did not provide expanded reproduction, although they exceeded the average Russian level. When

Figure 2. Total fertility of conventional and real generations in Russia and northern regions: calendar years 1990–2023, generations born in 1935–1995, number of births per woman



According to: EMISS. Total fertility rate. Availble at: https://fedstat.ru/indicator/31517; (Kishenin, 2023).

Data on real generations born in 1973–1995 are projected. The value for the northern regions is calculated as a weighted average of the total number of women.

[4] Database of Indicators of Municipal Entities. Rosstat. Available at: https://rosstat.gov.ru/storage/mediabank/munst.htm

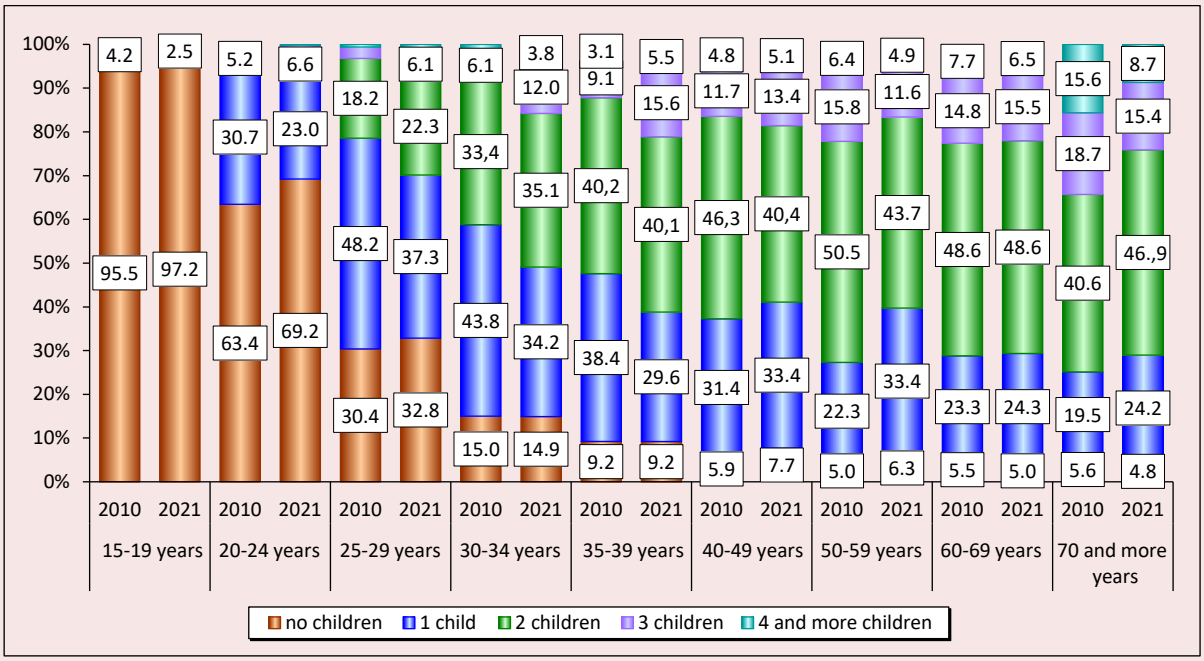
[5] EMISS. Available at: https://fedstat.ru/indicator/31517; https://www.fedstat.ru/indicator/30973

analyzing real generations, the Republics of Tyva and Sakha (Yakutia) also stand out. Of all the northern regions, only Tyva has more than two children per woman, even for generations born in the 1990s, although in this region the final fertility rate has more than halved since 1935 (from 4.7 to 2.2) and is projected to decline further. Women born in Tyva in the early 21st century are likely to have a final fertility lower than two.

During the intercensal period of 2010–2021, the number of childless women in the North at young ages (15–29 years old) has significantly increased *(Fig. 3)*, which is a sign of the second demographic transition, the revision of individual views on marriage and family. At the same time, the share of women with two children aged 20–34 increased. The share of women who had three children increased at all ages up to and including 49 years of age. At the same time, the share of women with one child decreased in the ages up to 39 years. We can state that the variability of reproductive behavior has increased. Cohorts born before 1940 stand out in terms of the number of women with many children. According to the 2010 census, more than a third of them had three or more children. In 2021, among women of the same ages born before 1951, already less than a quarter had three or more children. In all age groups over 50, the final childlessness rate was quite low, not exceeding 6.3%.

Fertility varies by ethnic groups and territories. Russians make up 74.6% of the population of the North of Russia. According to the data of the 2021 census, fertility among Russian women was below the level of simple reproduction in all regions and age groups *(Tab. 1)*. The only exception is women of the Nenets Autonomous Area who were born earlier than 1961. Nevertheless, fertility rate of Russians exceeds the national average in most northern regions. For example, in the 30–34 age group (born in 1987–1991), values below the national average (1.30) were recorded only in the Chukotka AA (1.28), the Magadan (1.27) and Sakhalin regions

Figure 3. Distribution of women in the northern regions by age groups and number of children born, 2010 and 2021, %



According to: Results of the 2010 and 2021 population censuses. Available at: https://24.rosstat.gov.ru/folder/66693

Table 1. Average number of children born in real generations to Russian women in the northern regions of Russia, 2021 census

Region	Age, years old							
	20–24	25–29	30–34	35–39	40–49	50–59	60–69	70 and more
Nenets AA	0.46	1.09	1.64	1.88	1.86	1.91	2.15	2.36
Republic of Tyva	0.45	1.23	1.63	1.82	1.72	1.75	1.91	1.97
Republic of Sakha (Yakutia)	0.46	1.04	1.53	1.75	1.77	1.78	2.00	2.09
Khanty-Mansi AA	0.31	0.93	1.46	1.74	1.73	1.68	1.91	2.05
Arkhangelsk Region (without AA)	0.31	0.94	1.49	1.73	1.68	1.74	2.02	2.06
Yamal-Nenets AA	0.33	0.88	1.44	1.71	1.70	1.67	1.85	1.96
Komi Republic	0.38	1.03	1.49	1.70	1.64	1.67	1.91	2.02
Republic of Karelia	0.27	0.89	1.43	1.67	1.62	1.61	1.85	1.86
Chukotka AA	0.42	0.89	1.28	1.57	1.58	1.60	1.73	1.85
Kamchatka Territory	0.39	0.89	1.34	1.56	1.56	1.55	1.77	1.80
Murmansk Region	0.31	0.87	1.34	1.60	1.54	1.51	1.73	1.74
Russia	*0.28*	*0.83*	*1.30*	*1.53*	*1.55*	*1.56*	*1.72*	*1.75*
Magadan Region	0.35	0.86	1.27	1.51	1.55	1.54	1.76	1.83
Sakhalin Region	0.33	0.84	1.26	1.47	1.49	1.52	1.74	1.80
According to: Results of the All-Russian Population Census 2020–2021. Volume 5. Table 14 Rosstat. Available at: https://rosstat.gov.ru/vpn/2020								

(1.26). The highest values are in the Nenets AA and Tyva (1.64 and 1.63). In the age group from 25 to 29, all northern regions exceed the national average. We can assume that the reproductive attitudes of Russians are influenced by the environment, total fertility in the territory of residence, as well as its degree of urbanization. The difference between the minimum and maximum value for the northern regions in most age groups is about 0.4 births per woman.

Among the titular ethnic groups of the national republics, Tuvinians have the highest fertility rate *(Tab. 2)*. At the age of 30–34, there are more than two children per woman, and by the end of the reproductive age the value approaches 2.5. Fertility rate of Tuvinian women in Tyva is higher than outside its borders. The Tuvinian-Tojin sub-ethnos, which is one of the smallest, stands out. Already by the age of 30-34 years the average number of children is 2.5, by 40–49 years – 2.7. Yakuts are the second titular

Table 2. Average number of children born in real generations to women of titular nationalities of the republics of the North of Russia by region and age group, census 2021

Nationality	Region	Age, years old							
		20–24	25–29	30–34	35–39	40–49	50–59	60–69	70 and more
Tuvinians-Tojins	Republic of Tyva	0.63	1.78	2.50	2.76	2.70	2.64	3.19	4.25
Tuvinians	Republic of Tyva	0.59	1.47	2.09	2.42	2.47	2.40	2.90	3.76
	Russia	0.55	1.45	2.08	2.42	2.46	2.39	2.88	3.74
Yakuts	Republic of Sakha (Yakutia)	0.40	1.17	1.91	2.34	2.40	2.36	2.52	3.00
	Russia	0.40	1.17	1.90	2.32	2.40	2.35	2.51	2.98
Komi Izhemtsy	Komi Republic	0.72	1.46	1.85	2.10	2.10	2.11	2.46	3.32
Komi	Nenets AA	0.42	1.55	2.24	2.14	2.25	2.23	2.59	3.48
	Yamal-Nenets AA	0.49	0.99	2.05	2.00	2.29	2.15	2.45	3.22
	Murmansk Region	0.60	1.19	1.89	1.96	1.83	1.88	1.96	2.35
	Russia	0.42	1.21	1.72	1.92	1.86	1.90	2.16	2.44
	Komi Republic	0.45	1.27	1.73	1.93	1.85	1.89	2.16	2.44
Karelians	Republic of Karelia	0.25	0.83	1.49	1.74	1.68	1.76	1.98	2.13
	Russia	0.24	0.77	1.38	1.70	1.67	1.75	1.97	2.07
According to: Results of the All-Russian Population Census 2020-2021. Volume 5. Table 14. Rosstat. Available at: https://rosstat.gov.ru/vpn/2020									

ethnos that reproduce themselves, but the figures are somewhat lower than those of Tuvinians. The number of children born per woman above two is reached by the age of 35–39. In the younger generations of Yakuts, fertility rate is noticeably lower than in Tuvinians, as evidenced by the previously discussed dynamics of fertility in the context of republics (Fig. 2b). The Komi have the lowest fertility rate in the Komi Republic, where 88.5% of the nationality live. In reproductive ages, the number of children per woman is no more than 1.93 (35–39-year-olds), and more than 2 – only for women born before 1961. Higher fertility rates among Komi women are recorded in the Nenets and Yamal-Nenets autonomous areas, where the value of 2 is reached already in the age group from 30 to 34 years. The Komi-Izhemtsy sub-ethnic group also demonstrates high fertility rates – 2.1 births per woman aged 35–39. Karelians are characterized by the lowest fertility rate among the titular ethnic groups of the northern republics. The level of simple reproduction is reached only for women born before 1951. The indicators are slightly higher than for Russians in Russia.

Fertility of titular ethnic groups is heterogeneous. While European ethnic groups (Komi and Karelians) do not differ much from Russians in terms of fertility rates, Asian ethnic groups (Yakuts and especially Tuvinians) have higher fertility rates. If we do not consider the smallest ethnic groups, where the number of women is less than 100 per region, the results of the 2021 census provide information on the number of births among 16 small-numbered indigenous peoples of the North by region and age group *(Tab. 3)*.

Table 3. Average number of children born in real generations to women of small-numbered indigenous people of the North of Russia by region and age group, 2021 census

Nationality*	Region	Age, years old							
		20–24	25–29	30–34	35–39	40–49	50–59	60–69	70 and more
Nenets	Yamal-Nenets AA	0,91	1,85	2,59	2,99	3,43	3,51	3,86	4,42
	Nenets AA	0.81	1.58	2.29	2.59	2.50	2.58	3.15	3.75
Dolgans	Republic of Sakha (Yakutia)	0.39	1.44	2.33	3.07	3.07	2.95	3.68	3.90
Khanty	Yamal-Nenets AA	0.60	1.62	2.40	2.75	2.85	2.98	3.19	4.32
	Khanty-Mansi AA	0.71	1.50	2.04	2.36	2.27	2.28	2.58	2.78
Koryak	Magadan Region	1.33	1.79	2.03	1.72	3.43	2.16	2.47	1.75
	Kamchatka Territory	0.79	1.38	1.87	2.19	2.24	2.24	2.42	3.20
Even	Republic of Sakha (Yakutia)	0.65	1.47	2.20	2.54	2.65	2.72	3.13	3.61
	Chukotka AA	1.06	1.26	2.15	2.39	2.21	2.77	2.56	3.82
	Kamchatka Territory	0.98	1.02	2.00	2.40	2.44	2.30	2.45	2.95
	Magadan Region	0.75	1.23	1.60	2.08	2.05	1.98	2.28	3.29
Chukchi	Chukotka AA	0.77	1.51	1.90	2.23	2.47	2.63	2.77	3.19
	Kamchatka Territory	1.12	1.33	1.75	2.31	2.19	2.29	2.90	2.93
Evenki	Republic of Sakha (Yakutia)	0.57	1.44	2.06	2.49	2.55	2.57	2.88	3.34
Selkup	Yamal-Nenets AA	0.80	1.47	2.11	2.34	2.42	2.38	2.80	3.13
Niwch	Sakhalin Region	0.63	1.22	2.04	2.24	2.29	2.31	2.51	2.39
Mansis	Khanty-Mansi AA	0.56	1.37	2.03	2.17	2.21	2.23	2.43	2.69
Chuvan	Chukotka AA	0.79	1.06	1.82	2.40	2.08	2.39	2.17	2.96
Eskimo	Chukotka AA	0.78	1.48	1.49	2.12	2.13	2.28	2.70	3.27
Itelmes	Kamchatka Territory	0.63	1.28	1.79	1.98	1.96	1.93	2.08	2.38
	Magadan Region	0.73	0.83	1.30	1.41	1.83	2.09	2.20	2.21
Kamchadal	Kamchatka Territory	0.60	1.14	1.65	1.98	1.88	1.86	2.17	2.24
Saami	Murmansk Region	0.54	1.16	1.63	1.92	1.89	1.94	2.09	2.29
Vepse	Republic of Karelia	0.08	0.64	1.10	1.53	1.53	1.58	1.91	1.88

* Specifies nationalities representing at least 0.2% of those indicating nationality in the region and with at least 100 women aged 15+.
According to: Results of the All-Russian Population Census 2020–2021. Volume 5. Table 14. Rosstat. Available at: https://rosstat.gov.ru/vpn/2020

The majority of small-numbered indigenous people are still in the mode of extended reproduction: Dolgans, Koryaks, Mansi, Nenets, Nivkhs, Selkups, Khanty, Chuvans, Chukchis, Evenks, Eveny. The demographic transition to small children in areas densely populated by these peoples has not yet been completed. For women of some nationalities, the average number of children in late reproductive ages exceeds three: the Nenets in the Yamal-Nenets Autonomous Area, Dolgans in Yakutia, and Koryaks in the Magadan Region. At the same time, fertility rate of the same Nenets, but in the Nenets Autonomous Area, is significantly lower and reaches only 2.6 births. The Khanty in the Khanty-Mansiysk AA are characterized by a lower fertility rate than in the Yamal-Nenets AA. Among older generations of women aged over 70, the highest rate is among the Nenets in the Yamal-Nenets AA (4.4).

According to 2021 data, some small-numbered indigenous peoples have not reached the level of simple reproduction. These are Itelmens, Kamchadals, Saami, and Veps. The latter two nationalities live in the European North near large cities, which contributes to their assimilation and transformation of reproductive attitudes. The Veps in Karelia have only 1.53 children per one woman aged 35–39, which is almost equal to the level of Russians. It is interesting that among Veps even older women (70 years and more) have given birth to less than two children in their lifetime. Eskimos occupy an intermediate position between the two groups of ethnic groups, being approximately at the level of simple reproduction – 2.12 children for women aged 35–39.

Thus, Tuvinians and the majority of small-numbered indigenous people are still characterized by a higher fertility rate than the Russian average. A number of other peoples, including the Komi and Karelians, are showing signs of the second demographic transition. The age of motherhood is increasing, the two-child family is no longer the social norm, and there is greater variability in fertility rates. For a more complete understanding of fertility processes in the North, let us move to the municipal level of analysis.

Fertility in the municipalities of the North of Russia

Changes in real generations of fertility for 2010–2021 at the municipal level are not uniform among different age groups (Tab. 4). The median value of fertility increased only among 25–44-year-olds. The calendar shift due to maternity capital and favorable socioeconomic situation increased fertility among these generations in the intercensal period. While in 2010 among 30–34-year-olds only 20 municipalities had more than two children born per woman, in 2021 – already in 54. At the same time, the number of municipalities with less than one child per woman decreased from 139 to 59. A significant increase in fertility rate was also observed at the age of 35 to 39 years.

At the same time, among younger and older ages the situation is the opposite, fertility rates have decreased. The decline in the number of children in older ages clearly indicates the impact of demographic transition. If in 2010 there were quite a few municipalities where there were more than four children per woman, now there are only among those over 70 years of age. The only exception is the Mongun-Taiginsky District of Tyva, where in 2021 there were more than four children per woman aged 65–69. Among women of reproductive age, the highest value is in Anabarsky District (3.2 for women aged 40–44). Areas where the average number of children for 18–19-year-old women was higher than 0.5 have practically disappeared. In the age category of 20–24-year-old women, the number of territories with low fertility (less than 0.5) almost doubled. Adolescent fertility also decreased – the median value of the average number of children among 15–17-year-olds decreased from 0.015 to 0.009.

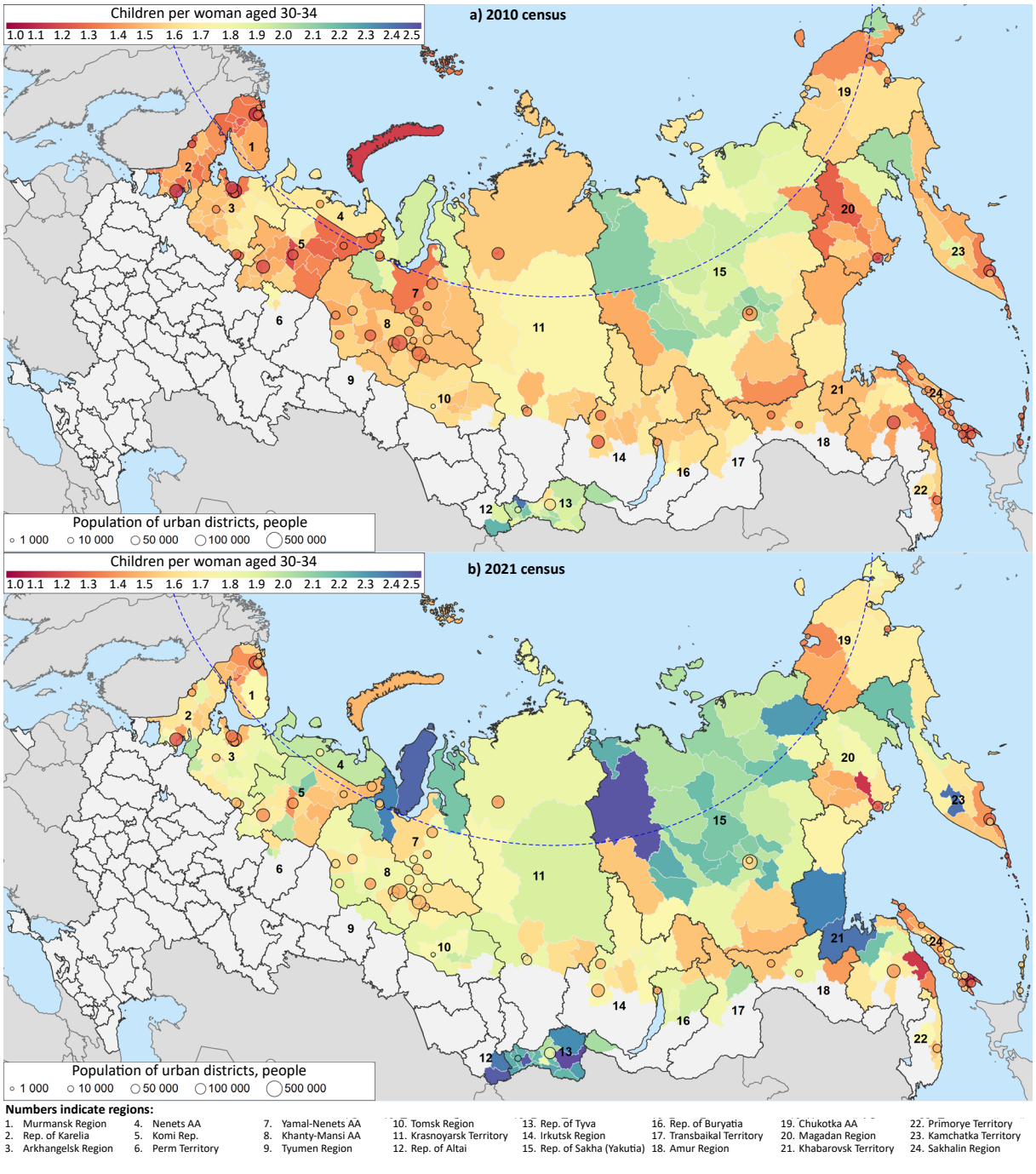
Table 4. Distribution of municipalities of the North of Russia by average number of children per woman by age group, 2010 and 2021

Year and average number of children	All, 15 or more years old	Including by age, years old:												
		15–17	18–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70 and more
2010, total municipalities, of which:	**294**	**294**	**294**	**294**	**294**	**294**	**294**	**294**	**294**	**294**	**294**	**294**	**294**	**294**
0.00–0.49	–	294	287	80	–	–	–	–	–	–	–	–	–	–
0.50–0.99	–	–	7	213	76	–	–	–	–	–	–	–	–	–
1.00–1.49	59	–	–	1	209	139	36	6	–	–	–	–	2*	–
1.50–1.99	171	–	–	–	9	135	198	184	138	99	68	77	57	21
2.00–2.49	62	–	–	–	–	20	54	70	117	142	163	147	138	91
2.50–2.99	2	–	–	–	–	–	6	34	33	35	37	38	42	91
3.00–3.49	–	–	–	–	–	–	–	–	6	14	15	16	23	33
3.50–3.99	–	–	–	–	–	–	–	–	–	4	5	6	16	15
4.00 and more	–	–	–	–	–	–	–	–	–	–	6	10	16	43
midpoint	1.76	0.02	0.20	0.60	1.12	1.51	1.75	1.87	2.03	2.14	2.18	2.18	2.29	2.68
2021, total municipalities, of which:	**294**	**294**	**294**	**294**	**294**	**294**	**294**	**294**	**294**	**294**	**294**	**294**	**294**	**294**
0.00–0.49	–	294	292	142	–	–	–	–	–	–	–	–	–	1**
0.50–0.99	–	–	1	144	51	–	–	–	–	–	–	–	–	–
1.00–1.49	22	–	1**	8	212	59	9	4	18	15	3	2	1	–
1.50–1.99	192	–	–	–	31	180	178	183	189	181	154	115	86	69
2.00–2.49	77	–	–	–	–	54	74	68	57	68	101	126	143	139
2.50–2.99	3	–	–	–	–	1	31	37	30	28	32	38	42	32
3.00–3.49	–	–	–	–	–	–	2	2	–	2	4	12	16	32
3.50–3.99	–	–	–	–	–	–	–	–	–	–	–	1	5	7
4 and more	–	–	–	–	–	–	–	–	–	–	–	–	1	14
midpoint	1.82	0.01	0.09	0.50	1.21	1.69	1.89	1.91	1.84	1.84	1.98	2.09	2.15	2.24

* Urban district Novaya Zemlya and Ostrovnaya.
** – Urban district Novaya Zemlya.
According to: Results of the 2010 and 2021 Population Censuses. Territorial bodies of Rosstat.

Let us consider the spatial differentiation of fertility on the example of 30–34-year-old women *(Fig. 4)*. This is approximately the middle of the reproductive period. It is not difficult to notice that the territories of high fertility have spatial localization in the areas inhabited by indigenous peoples. These are practically the entire Tyva Republic (Tuvinians), the east of the Altai Republic (Altaians, Kazakhs), the north of Yakutia (Yakuts, Dolgans, Evenks, Eveny), the Yamal Peninsula (Nenets, Khanty), remote areas of the Khabarovsk Territory (Evenks), some territories of Kamchatka (Koryaks, Eveny). In the Komi Republic, the Izhemsky District, where predominantly Komi-Izhemsky people live, stands out. Low fertility rates are concentrated in large cities, in regions with a low share of rural population (Murmansk and Sakhalin regions), in the extractive northeast of the Komi Republic, and in most of the Republic of Karelia. For most age groups, the lowest fertility rate was recorded in Novaya Zemlya urban district, which is not surprising, given its defense function. The vast majority of other urban districts are also characterized by low fertility rates.

Figure 4. Number of children per woman aged 30 to 34 by municipalities of the North of Russia, 2010 and 2021



According to: Results of the population censuses of 2010 and 2021. Territorial bodies of Rosstat.

Table 5. Distribution of municipalities of the North of Russia by the value of the total fertility rate and the largest nationality, averaged values 2015–2017 and 2021–2023

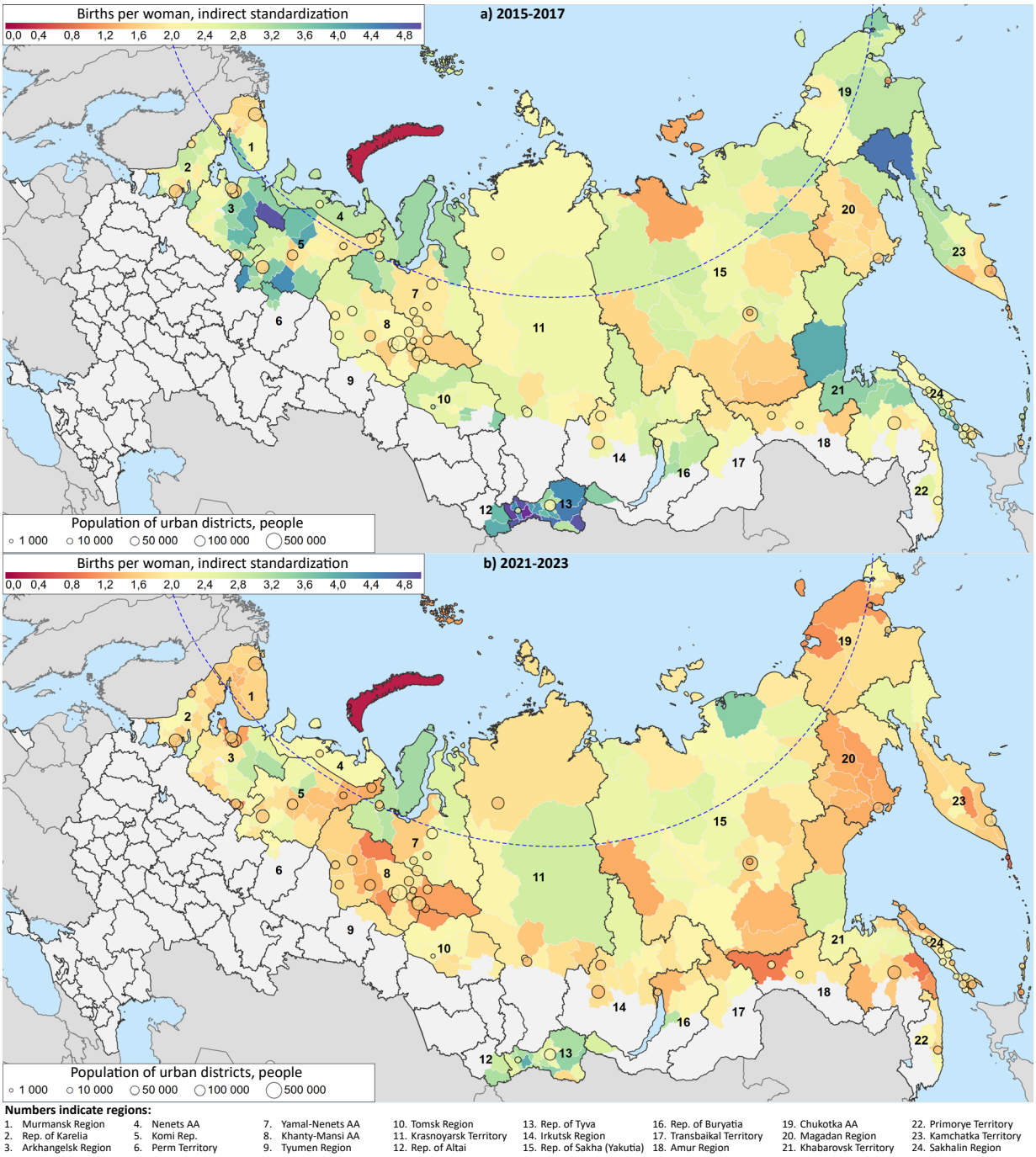
TFR (indir.)	All, 2015–2017	By largest nationality				All, 2021–2023	By largest nationality			
		Russians	Tuvinians	Yakuts	Others		Russians	Tuvinians	Yakuts	Others
Total municipalities	**287**	**223**	**19**	**22**	**23**	**287**	**223**	**19**	**22**	**23**
0.00–0.99	**1**	1	–	–	–	**5**	5	–	–	–
1.00–1.49	**12**	12	–	–	–	**60**	59	–	1	–
1.50–1.74	**29**	26	–	3	–	**65**	61	1	2	1
1.75–1.99	**60**	58	–	2	–	**54**	50	–	3	1
2.00–2.24	**42**	39	1	1	1	**44**	31	1	9	3
2.25–2.49	**28**	24	–	3	1	**23**	9	4	5	5
2.50–2.99	**48**	33	1	11	3	**20**	5	5	1	9
3.00–3.49	**32**	17	3	2	10	**14**	3	7	–	4
3.50–3.99	**15**	11	1	–	3	**1**	–	–	1	–
4 and more	**20**	2	13	–	5	**1**	–	1	–	–
midpoint	**2.25**	2.11	4.36	2.54	3.44	**1.80**	1.69	2.78	2.08	2.54
According to: BDPMO of Rosstat, EMISS.										

While the data of real generations show an increase in fertility in some cohorts due to high rates in the early 2010s, the dynamics of the TFR indicates a significant decline in the number of births per woman over 2015–2023 *(Tab. 5)*. The number of municipal entities with total fertility less than 1.75 increased from 42 to 130. At the same time, the number of municipal entities with TFR above 3 decreased from 67 to 16. The median fertility rate decreased from 2.25 to 1.80, in the administrative centers of the regions – from 1.54 to 1.50. Among the 36 municipalities where fertility rate in 2021–2023 reached the level of more than 2.5 children per woman, the largest nationality is Tuvinians in 13; Russians in eight; Nenets in three; Yakuts, Evenks – two municipalities each; Altai, Dolgans, Kazakhs, Komi (Izhemtsy), Koryaks, Soyots, Khanty, Eveny – one municipality each. The highest value is observed in Dzun-Khemchiksky District of the Tyva Republic (4.00) and Allaihovsky District of Yakutia (3.54).

The TFR value calculated by the indirect standardization method decreased over the period in 256 out of 287 municipalities of the North for which data are available *(Fig. 5)*. The greatest changes occurred in the Tyva Republic (by 1.32 on average), the Perm Territory (1.27), the Komi Republic (0.94), and the Chukotka AA (0.92). It is worth noting that indirect standardization is not very well suited for studying the indicator in dynamics, since it strongly depends on changes in fertility in the territory taken as a standard. Areas with high fertility are localized in approximately the same places as in the real generations data. We can also note relatively high fertility in the Evenki district of the Krasnoyarsk Territory and in the east of the Arkhangelsk Region. On Novaya Zemlya, the TFR values were 0.25 and 0.21 in 2015–2017 and 2021–2023, respectively.

Correlation analysis of fertility indicators and ethnic composition at the municipal level confirmed a high dependence of the fertility rate on the national composition of the population *(Tab. 6)*. The highest correlation for the majority of ages in real generations, as well as for the total fertility rate, was demonstrated by the indicator "the share of titular and small-numbered indigenous peoples in the population". For ages from 35 to 49 years the value of the linear correlation coefficient reaches 0.83–0.84, for the total fertility rate – 0.59.

Figure 5. Total fertility rate of municipalities of the North of Russia, calculated by the method of indirect standardization, averaged values for 2015–2017 and 2021–2023



According to: BD PMO of Rosstat EMISS.

Table 6. Correlation matrix of fertility rates and ethnic composition of municipalities of the North of Russia (n = 294)

Indicator (2021)	Average number of children born by age, 2021								TFR, 2021–2023
	15–17 years	18–19 years	20–24 years	25–29 years	30–34 years	35–39 years	40–44 years	45–49 years	
Number of nationalities	-0.03	**-0.23**	**-0.40**	**-0.55**	**-0.58**	**-0.55**	**-0.53**	**-0.55**	**-0.52**
Share of Russians, %	-0.06	-0.09	**-0.30**	**-0.57**	**-0.74**	**-0.82**	**-0.84**	**-0.82**	**-0.57**
Share of titular, %	-0.05	0.01	0.09	**0.42**	**0.60**	**0.68**	**0.69**	**0.69**	**0.50**
Share of small-numbered indigenous people, %	**0.22**	**0.23**	**0.48**	**0.44**	**0.41**	**0.44**	**0.43**	**0.42**	**0.28**
Share of titular and small-numbered indigenous people, %	0.07	0.13	**0.33**	**0.60**	**0.75**	**0.83**	**0.84**	**0.83**	**0.59**
Share of others, %	-0.06	-0.17	**-0.20**	**-0.22**	**-0.20**	**-0.19**	**-0.20**	**-0.22**	**-0.20**
Mosaicism index	0.09	-0.01	**0.23**	0.17	0.17	0.16	0.17	0.13	0.05

Note. Values significant at the 0.999 level are in bold.
According to: Census results – 2021; BDPMO of Rosstat, EMISS.

Individually, the share of titular nationalities and small-numbered indigenous people do not show such a high statistical correlation with fertility. However, for younger ages (from 15 to 19 years) a significant correlation of fertility is recorded only with the share of small-numbered indigenous people, since titular peoples are not prone to early births. The share of Russians also clearly describes the level of fertility at older ages and in conventional generations, but the sign of the correlation is negative. The higher the share of Russians, the lower fertility rate in the municipality.

The total number of nationalities living in a municipality has a significant negative relationship with fertility, as high diversity of nationalities is usually characteristic of large cities, where fertility is lower than in rural areas. Finally, Eckel's ethnic mosaicism index (Manakov, 2019) does not show a high correlation with fertility, as ethnic homogeneity can be a consequence of both a high share of one of the small-numbered peoples and a high share of Russians.

Conclusion

Our research studies fertility in the North of Russia for the first time simultaneously in real and conditional generations, at the regional and municipal levels. Regional analysis proves that there is a convergence of final fertility between the northern regions. Even the Republic of Tyva is rapidly approaching the Northern and national average. It is likely that women born in Tyva at the beginning of the 21st century will no longer reach the level of simple reproduction. The Republic of Sakha (Yakutia), with the exception of some districts, is already almost identical to the Northern average. At the same time, signs of the second demographic transition are observed in the North of Russia. The age of motherhood is increasing, the variability of reproductive behavior is growing – simultaneously with the growth of the share of childless, the share of two- and three-child mothers is increasing. The final childlessness is growing.

Analysis of the average number of children by region and nationality revealed a high variability of indicators. Even for Russian women the number of children born differs by tens of percent depending on the region. The titular nationalities of the North can be conditionally divided into two groups. While the Komi and Karelians have long demonstrated fertility rate close to the average Russian level, Yakuts and especially Tuvinians have a higher number of children per woman. The sub-ethnic groups of Tuvinians-Tojinians and Komi-Izhemians are still distinguished by high fertility rates. High

indicators are also characteristic of the majority of small-numbered indigenous peoples. The Nenets, Dolgans, Khanty and Even are particularly notable. At the same time, the Itelmen, Kamchadals, Sami and Veps have fertility rates below the level of simple reproduction.

The analysis of the population of municipal entities in real generations demonstrated that the average number of children among women aged 20 to 39 years increased over 2010–2021. However, these indicators are largely due to the calendar shift associated with the implementation of fertility stimulation programs and the generally favorable socio-economic situation in the early 2010s. The data of conditional generations obtained by the method of indirect standardization of CSR show that from 2015–2017 to 2021–2023 fertility rate decreased in 89.2% of municipal entities in the North of Russia. The median value of the total fertility rate for all municipalities decreased from 2.25 to 1.80. Municipal analysis confirmed the rapid convergence of reproductive attitudes of small-numbered indigenous people indigenous with the rest of the population. Although areas of compact settlement of small-numbered indigenous people still show higher results, the gap is narrowing.

Correlation analysis has shown that the share of titular and small-numbered indigenous people in the population describes fertility rate better than other indicators of ethnic composition. For women aged 15 to 24, fertility is most strongly correlated with the share of small-numbered indigenous people in the population. The identified regularities can be used in the construction of demographic forecasts at the regional and municipal levels, as well as in the development of measures of demographic policy.

We can conclude that for some time to come the small-numbered indigenous peoples of the North will be in the mode of expanded reproduction. At the same time, regional demographic and social policy should be ready for the convergence of reproductive plans and needs of indigenous peoples with the rest of the Russian population. Simultaneously with the decrease in the final fertility rate, the way of life and economic behavior of the small-numbered indigenous peoples of the North will be transformed. Further research should pay attention to the issues of fertility dependence in the municipalities of the North of Russia on the location of social infrastructure facilities in the conditions of high migration outflow.

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Effects of E-Commerce on Export Trade: Spatial Panel Data Models for Regions of China

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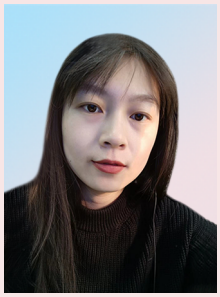

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Abstract. The primary goals of the paper are to examine the impact of e-commerce on export trade and to determine whether the level of e-commerce development has spatial spillover, siphoning, and threshold effects on export trade. The goals predetermined the choice of research methodology. This paper constructs the spatial lag model and threshold model based on the panel data of 31 China's regions (provinces and other districts) from 2009 to 2022. The empirical results show a strong spatial autocorrelation and a robust spatial lag effect on the export trade in China. The improvement of the regional e-commerce level can directly promote the development of local export trade and has a significant positive spatial spillover effect, i.e., the improvement of the local e-commerce level can lead to the development of export trade in neighboring regions; there is no siphoning effect between provinces. According to the result of the threshold effect, there is a single-threshold effect of e-commerce on the impact of export trade, and the positive effect of different levels of e-commerce development on export trade is on an upward trend. The value of the research is a specific application of spatial regression modeling in empirical studies, and the findings provide insights for promoting the synergistic development of e-commerce and export trade.

Key words: export trade, e-commerce, spatial regression model, spatial spillover effect, threshold effect, siphon effect.

Introduction

E-commerce is essential in promoting consumption, guaranteeing employment, facilitating foreign trade, and developing the digital economy. As a new trade model, e-commerce breaks through the geographical limitations of the traditional market and connects into a unified market on a global scale with the information network as a link; establishing an e-commerce platform reduces transaction costs and broadens sales channels. The iterative innovation of the e-commerce model and the in-depth integration with the real economy have reconstructed the industrial chain and value chain, promoting the transformation and upgrading of traditional industries.

According to the China E-Commerce Report (2022), China's e-commerce development has been remarkable. The e-commerce transaction volume reached RMB 43.83 trillion in 2022, a growth of 3.5% year-on-year after 19.6% growth in 2021. Cross-border e-commerce imports and exports have been climbing yearly, with transactions reaching RMB 15.7 trillion in 2022 and imports and exports exceeding 2 trillion Yuan for the first time. The development of e-commerce has dramatically optimized the structure of China's foreign trade and promoted the international competitiveness of foreign trade enterprises.

As the economic and trade links between regions become closer and closer, and the new economic geography theory continues to be improved, it has become an important topic to research the dynamic spatial evolution of trade, people, and capital flows by taking them fully into account in the spatial correlation. The tasks of the paper are to examine the impact of e-commerce on export trade and to determine whether the level of e-commerce development has spatial spillover, siphoning, and threshold effects on export trade.

Based on the background of developing e-commerce and facilitating foreign trade, combined with the theory of new economic geography, we put forward the following thoughts and questions: How does e-commerce promote the rapid development of regional export growth? Does the level of e-commerce development in one region affect the export trade of neighboring areas? Is there a spatial spillover effect of the development of e-commerce on export trade? Is it positive or

negative? Do different levels of e-commerce development have different impacts on export trade? As the development of e-commerce is an essential step in the transformation of the digital economy in China and the expansion of its opening up to the outside world, clarifying its impact on export trade will help regions in the future to promote consumption, stabilize foreign trade, develop digital economy and stimulate economic activity.

Literature review

The impact of e-commerce on export trade

With the advancement of globalization and the rapid development of information technology, e-commerce has gradually become an integral part of international trade. Mainly during COVID-19, e-commerce played a key role. Researchers generally agree that the rise of e-commerce provides new opportunities for business development. The study (Onjewu et al., 2022) based on World Bank Enterprise Survey data on 249 small manufacturing enterprises in Italy, found that e-commerce positively impacted direct exports while significantly increasing firm resilience, thus accelerating the recovery of direct exports. (Kastratović, Bjelić, 2022) utilized panel data for 32 European countries spanning the period from 2009 to 2022 and found that the development of e-commerce positively impacted exports, especially in the services and manufacturing sectors. This finding suggests that the development of e-commerce can be used as a policy tool to promote exports. Researchers have conducted in-depth studies on the impact of e-commerce on international trade. (Peng, 2021) analyzed the development status of cross-border e-commerce in China, used the Vector Auto regression model to conduct empirical research, and found that cross-border e-commerce significantly positively impacts international trade.

To assess the influence of e-commerce on international trade more accurately, researchers have used various empirical research methods. (Hayakawa et al., 2021) estimated the gravitational equations of bilateral trade between 2019 and January-August 2020 for 34 reporting countries and their 145 partner countries and found that the development of e-commerce can help mitigate the negative influence of COVID-19 on international trade. (Shanmugalingam et al., 2023) used a set of estimation procedures such as descriptive statistics, correlation matrix, Static Tests (Levine-Lin-Chu test, Breitung test, Augmented Dickey-Fuller test, Harris-Tzavalis and Im-Pesaran-Shin test), Kao cointegration test, autocorrelation test and heteroscedasticity test. The dynamic panel data were analyzed using a two-step generalized method of moments (GMM) estimation. The results of the empirical research indicate that e-commerce has a significant influence on the international trade of Asian countries. Asian governments should adopt policies related to telecommunication technology to improve e-commerce and obtain potential benefits from international trade.

Spatial regression models

Since its emergence in the 1970s, inter-spatial econometrics has developed for over 40 years, received extensive research attention and application, and achieved fruitful results. The first law of geography was proposed by an American geographer (Tobler, 1970) who elaborated the spatial correlation, which holds that anything is correlated with anything else and that things closer together are more correlated than things farther away, thus laying the foundation of spatial quantitative analysis. (Cliff, Ord, 1973) introduced spatial correlation into the economics analysis and avoided the biased conclusions of traditional econometric analysis caused by ignoring correlation. It was not until the publication of Spatial Econometrics (Klaassen, Hendrik, 1979) that the birth of spatial econometrics was formally marked. (Anselin, 2010) pointed out that data have spatial correlation and dependence, the spatial structure of economic variables should be considered, and spatial factors should be incorporated into the setting of

econometric models. According to (Goodchild, 1992) spatial econometrics based on spatial data correlation is mainly used to analyze spatial dependence and spatial heterogeneity between regions. Subsequently, many researchers have joined in the field (Cressie, 1993), (LeSage, Pace, 2009), (Elhorst, 2014), (Kozhevnikov, Voroshilov, 2024), (Uskova et al., 2024).

The choice of spatial regression model has also become a concern for researchers. The LM-Error for spatial error model (SEM) was proposed to discriminate the selection problem of non-spatial and spatial error models. (Yandell, Anselin, 1990) proposed that the LM-lag discriminates between non-spatial and spatial lag model selection problems. The Lagrange multiplier (LM) test is one of the methods commonly used to discriminate spatial regression models by estimating the model without spatial effects by OLS. The residuals of the OLS regression are subjected to the LM test to obtain the LM statistic (including the LM-Error statistic and the LM-Lag statistic) and its Robust-LM statistic (including the R-LM -Error statistic and R-LM-Lag statistic), further test the significance of these statistics as the basis for spatial econometric model selection. Specifically, if neither the LM-Error statistic nor the LM-Lag statistic is significant, the OLS model with non-spatial effects is chosen; if only one of the above two statistics is significant, the spatial error model (SEM) is chosen if the LM-Error statistic is significant, and the spatial lag model (SLM) is chosen if the LM-Lag statistic is significant; if both statistics are significant, the Robust-LM-Lag model is used, then using the Robust-LM statistic discrimination, the spatial error model is chosen if the R-LM-Error statistic is significant, and the SLM is chosen if the R-LM-Lag statistic is significant; In particular, (Anselin, 1990) combined the SEM and the SLM into a spatial Durbin model (SDM) so that it not only takes into account the spatial effects of the explanatory variables but also the spatial effects of the explanatory variables if the LM test indicates that spatial effects should be included in traditional econometric models, the SDM can be used directly according to (Elhorst, 2012).

A review of the literature in the last five years reveals a wide range of studies on applying the spatial regression model in e-commerce and export trade. The study by (Amidi, Fagheh Majidi, 2020) found that the impact of spatial spillovers or spatial dependence is one of the significant determinants of economic growth and those spillovers of geographic location and trading partners have a significant impact on economic growth. The study by (Wang et al., 2020) focused on the spatial effects of foreign trade and foreign direct investment (FDI) on the upgrading of the regional industrial structure in China. They found that foreign trade and FDI are essential drivers of industrial structure upgrading in China, and foreign trade has significant spatial spillover effects. This finding provides a valuable reference for understanding the spatial effect of trade facilitation on the export of manufactured goods. (Yamaka et al., 2023) analyzed the spatial spillover effect of Internet development on foreign trade based on panel data from 31 provinces in China from 2003 to 2016. It was found that Internet development has a positive correlation between regions, and SDM verifies its spatial effect. Internet development promotes local foreign trade and has positive spatial spillover effects on neighboring provinces. Therefore, strengthening Internet infrastructure and expanding penetration, especially in the tertiary sector, is crucial to enhancing China's advantages in international trade.

By summarizing the relevant literature, it is found that although there are differences in the selection of each subdivided influencing factor and research methods, researchers generally argue that the development of e-commerce has a significant positive effect on export trade. However, only some studies use the spatial regression model to analyze the spatial effect between e-commerce and export

trade, which needs further exploration. This paper analyzes the spatial correlation between the level of e-commerce development and export trade in 31 provinces in China (except Hong Kong, Macao, and Taiwan).

Research hypothesis

E-commerce breaks down geographical constraints, enabling exporters to reach potential customers worldwide and greatly expanding the scope of export markets. Through e-commerce platforms, exporters can reduce many of the intermediate links in traditional trade, such as agents and distributors, thereby lowering trade costs. In addition, e-commerce reduces the cost of inventory, logistics, and marketing, improving enterprises' competitiveness. More transparent information on e-commerce platforms enables exporters to satisfy each other's demand and supply better. This helps to reduce information asymmetry and transaction risks and improve trade security. E-commerce facilitates the flow and sharing of information; e-commerce platforms provide a wealth of market information that can help enterprises better understand the market demand and competitive situation and promote the flow and sharing of information between regions. Through e-commerce, enterprises can more accurately grasp market trends and develop more reasonable export strategies. For example, e-commerce platforms provide real-time transaction information and order processing functions, making the transaction process faster and more convenient. This helps to speed up exporters' capital turnover and improve transaction efficiency. E-commerce simplifies trade through Electronic Data Interchange (EDI) and electronic payment.

Moreover, through the e-commerce platform, exporters can more easily understand the trade policies and regulations of the trading countries and adopt corresponding strategies to deal with trade barriers. E-commerce provides exporters more business opportunities and competitive advantages by breaking geographical restrictions, reducing transaction costs, improving transaction efficiency, enhancing information transparency, expanding marketing channels, simplifying trade processes, and coping with trade barriers. Therefore, hypothesis H1 proposes that:

H1: E-commerce contributes to the development of regional export trade.

With the increasing economic and trade links between regions, as well as the continuous improvement of the new economic geography theory, trade, people, capital, and other factors flow within a particular spatial range, e-commerce not only has an impact on the export trade in the region but also has an impact on the development of export trade in neighboring regions. Suppose too much industrial agglomeration in the region leads to too much competitive pressure on resources. In that case, it will lead to inter-regional flow, migration, and dissemination of resources such as technology, human resources, and capital, which will ultimately be conducive to achieving the development of neighboring regions (Wei et al., 2022).

The development of e-commerce will promote the upgrading of the local industrial structure. It will have a radiation-driven effect on the surrounding areas through cross-regional cooperation and exchanges, including transportation infrastructure, market demand, technology and experience, and other resources to the neighboring areas of the diffusion and transfer of such positive spatial spillover effects to help promote the development of export trade in the neighboring areas, the formation of inter-regional benign interaction and synergistic development (Lu, Hu, 2024). However, e-commerce is more aggregated in a region, which may also produce the "siphon effect", i.e., a region, through the development of e-commerce, improve inter-regional economic competitiveness, based on its own natural advantages and attractiveness may, in turn, attract all kinds of high-quality resources, factors of production, as well as a capital investment

in neighboring regions inflow, which is detrimental to the economic development of neighboring regions (Sun, 2023). Under the siphoning effect, a region's e-commerce may have a negative spillover effect on the export trade of neighboring regions. Therefore, the hypothesis is proposed:

H2: There are spatial spillovers in the impact of e-commerce on export trade.

H2a: E-commerce has positive spillover effects on export trade in neighboring regions.

H2b: E-commerce has adverse spillover effects on export trade in neighboring regions.

According to the marginal theory of the law of diminishing marginal utility (Ormazabal, 1995) when the development of e-commerce is at a particular stage, the impact on the export trade will show a marginal diminishing effect, so the two variables may not be in a single linear relationship. According to the factor crowding effect (Broersma, van Dijk, 2007), when trade, capital, and personnel aggregation over a certain degree will produce a "congestion effect", it will cause excess resources, consumer demand decline, the effective utilization of funds to reduce labor force and other costs of production, resulting in diminishing marginal utility, output efficiency decline, the emergence of diseconomies of scale, which are not conducive to the development of e-commerce, the impact on export trade will show a diminishing marginal effect. Diseconomies of scale are not conducive to the high-quality development of export trade. Excessive agglomeration of e-commerce will lead to all kinds of resources of blind and disorderly competition, leading to "formalism" in blind innovation, resulting in a waste of resources, which is not conducive to the high-quality development of export trade (Shen, Pan, 2023). Several factors also constrain the spatial spillover effect of e-commerce on regional export trade; in the e-commerce environment, both sides of the trade through the e-commerce platform for transactions, the lack of information interoperability and mutual understanding, resulting in a certain degree of risk in trade. The e-commerce platforms of some developed regions have substantial financial and technological advantages; they can suppress the e-commerce platforms of other regions by lowering prices and providing better after-sales services, resulting in unfair competition. This makes it difficult for some small and medium enterprises (SMEs) to survive in the export trade market, further aggravating the inequality of international trade. Logistics plays a crucial role in e-commerce, but fluctuations in logistics costs and unstable logistics service levels may hurt export trade. Excessively high logistics costs will increase the operating costs of e-commerce and reduce its competitiveness.

In contrast, poor logistics service levels may lead to problems such as damage to goods and delays in delivery, affecting customer satisfaction and trust. The cross-border transaction characteristics of e-commerce make tax and regulatory issues more complex. Differences in tax policies and regulatory standards in different regions may lead to trade frictions and disputes. The promotion benefit does not simply increase linearly with the growth of the e-commerce development level; only when the agglomeration degree is maintained within a specific range can it be influential in promoting export trade. Therefore, hypothesis H3 is proposed:

H3: There is a threshold effect on the impact of e-commerce on export trade; that is, different levels of e-commerce development will have different impacts on export trade.

Variable depictions

Dependent variable: Export trade. It is measured using the trade volume of goods exported from each China province from 2009 to 2022, taking the natural logarithm with the symbol $\ln Export_{it}$. The data source is the China Statistical Yearbook and General Administration of Customs.

Core independent variable: e-commerce development level. This study adopts the e-commerce development index from 2009 to 2022 to estimate

the level of e-commerce development in the region, symbolized as $Ecommerce_{it}$. The E-commerce development index by province is based on the massive data of the Alibaba platform of Ali Research Institute, covering both online business index and online shopping index, which comprehensively and intuitively reflects the level of e-commerce development in each province. It is calculated by the entropy value method; indicators for calculating the e-commerce development index are shown in *Table 1*.

Control variables: This paper aims to investigate the influence of e-commerce on export trade and needs to control the impact of other factors on export trade. The level of economic development, degree of openness to the outside world, level of tax burden, level of innovation, transport accessibility, and industrial structure will also affect the development of export trade, so we included the above six factors as control variables to account for effects of e-commerce on export trade, the specific measurements are as follows:

1) Level of economic development measured by the average GDP per capita (in current prices) and take the natural logarithm of the symbol $InperGDP_{it}$;

2) Degree of openness to the outside world = total import and export of goods / GDP (in current prices), the symbol is $Open_{it}$;

3) Level of tax burden is measured by the proportion of tax revenue of the government of each province in the GDP, the symbol is $InTax_{it}$, government guides enterprises to optimize the structure of exports by adjusting export tax policy to improve quality and value-added of exported commodities, and promotes sustainable development of export trade; this variable can measure the degree of government's intervention in economy, or measure the degree of institutional environment of each province;

4) Transportation accessibility is measured by interaction term the number of highway mileage×cargo volume of each province, and take the natural logarithm, the symbol is $Intransport_{it}$;

5) Level of innovation is measured by the number of applications for acceptance of national patent in each province, the symbol is $Innovation_{it}$, the stronger the level of science technology and innovation, the more products with independent intellectual property rights and core technology can be produced, thus improving quality and added value of export trade;

6) The ratio of the value added of the secondary industry to the value added of the tertiary industry reflects the industrial structure of each province as well as its ability to supply export commodities, symbolized by $Industry_{it}$.

Table 1. Indicators for calculating e-commerce development index in Chinese provinces

First-level indicators	Second-level indicators	Calculation method
Internet business index (0.5)	Internet business density index (0.3)	B2B e-merchant density = number of B2B e-merchants/population, retail e-merchant density = number of retail e-merchants/population
	Index of transaction level of online merchants (0.2)	Percentage of total transaction value of online merchants above scale = number of retailers with annual turnover over 240,000/number of retail online merchants
Online shopping index (0.5)	Online shopping density index (0.3)	Online shopping density = number of online consumers/population
	Online shopping consumption level index (0.2)	Percentage of online shoppers above scale = number of consumers who purchased more than $10,000 online in a year/number of online shoppers
Source: Provincial e-commerce index data (idata. work). Accessed: 07.05.2024.		

Model construction

To better reveal the impact of e-commerce on regional export trade and differences in spatial spillover effects, this paper constructs three spatial regression models as follows:

$$SEM: \ln Export_{it} = \alpha_0 + \alpha_1 Ecommerce_{it} + \\ + \beta_1 Control_{it} + \lambda W\varepsilon_{it} + \mu_{it}; \quad (1)$$

$$SLM: ln_{it}\, Export = \alpha_0 + \rho W Ecommerce_{it} + \\ + \alpha_1 Ecommerce_{it} + \beta_1 Control_{it} + \lambda W\varepsilon_{it} + \mu_{it}; \quad (2)$$

$$SDM: \ln Export_{it} = \alpha_0 + \rho W \ln Export_{it} + \\ + \alpha_1 Ecommerce_{it} + \alpha_2\, WEcommerce_{it} + \\ + \beta_1 Control_{it} + \beta_2 Control_{it} + \lambda W\varepsilon_{it} + \mu_{it}. \quad (3)$$

Spatial weighting matrix

In this paper, the adjacency matrix is chosen to reflect the spatial relationship between provinces; if provinces are adjacent, there is a proximity relationship, and the weight is 1; otherwise, the weight is 0. The formula constructs spatial weights:

$$W_{ij}^{s} = \begin{cases} 1, \text{ if } i \text{ and } j \text{ are not neighborly relations} \\ 0, \text{ if } i \text{ and } j \text{ are not neighborly relations} \end{cases}.$$

Spatial autocorrelation test

Spatial autocorrelation is defined by one size measurement and one spatial contiguity measurement, while spatial cross-correlation can be defined by two size measurements and one spatial contiguity measurement (Cliff, Ord, 1973). The value of Moran's I generally lie between [-1, 1]. If the value is greater than 0, then the variables are spatially positively correlated. In the case of export trade, high values are adjacent to high values, and low values are adjacent to low values. If the value of Moran's I is close to 0, the variables are randomly distributed, and there is no spatial correlation.

Does the impact of e-commerce on export trade have a spatial spillover effect, i.e., is the export trade of a province affected by the level of e-commerce development of neighboring districts? This paper uses Global Moran's I to measure the spatial correlation of export trade under the construction of an adjacency matrix, as shown in *Table 2*. The results verify that Global Moran's I of export trade during 2009–2022 is greater than 0 and is significant at a 1% level, indicating a significant spatial correlation in the export trade of each province.

Table 2. Moran's I for export trade, 2009–2022

Year	I	E(I)	sd(I)	z	p-value*
2009	0.369	-0.033	0.119	3.391	0.001
2010	0.386	-0.033	0.119	3.535	0.000
2011	0.365	-0.033	0.119	3.360	0.001
2012	0.359	-0.033	0.119	3.301	0.001
2013	0.351	-0.033	0.118	3.246	0.001
2014	0.351	-0.033	0.118	3.257	0.001
2015	0.413	-0.033	0.118	3.779	0.000
2016	0.396	-0.033	0.118	3.629	0.000
2017	0.386	-0.033	0.118	3.565	0.000
2018	0.380	-0.033	0.118	3.508	0.000
2019	0.371	-0.033	0.117	3.439	0.001
2020	0.386	-0.033	0.117	3.575	0.000
2021	0.384	-0.033	0.118	3.549	0.000
2022	0.387	-0.033	0.117	3.590	0.000

Source: own calculations.

Spatial regression analysis is conducted to respond to the above question.

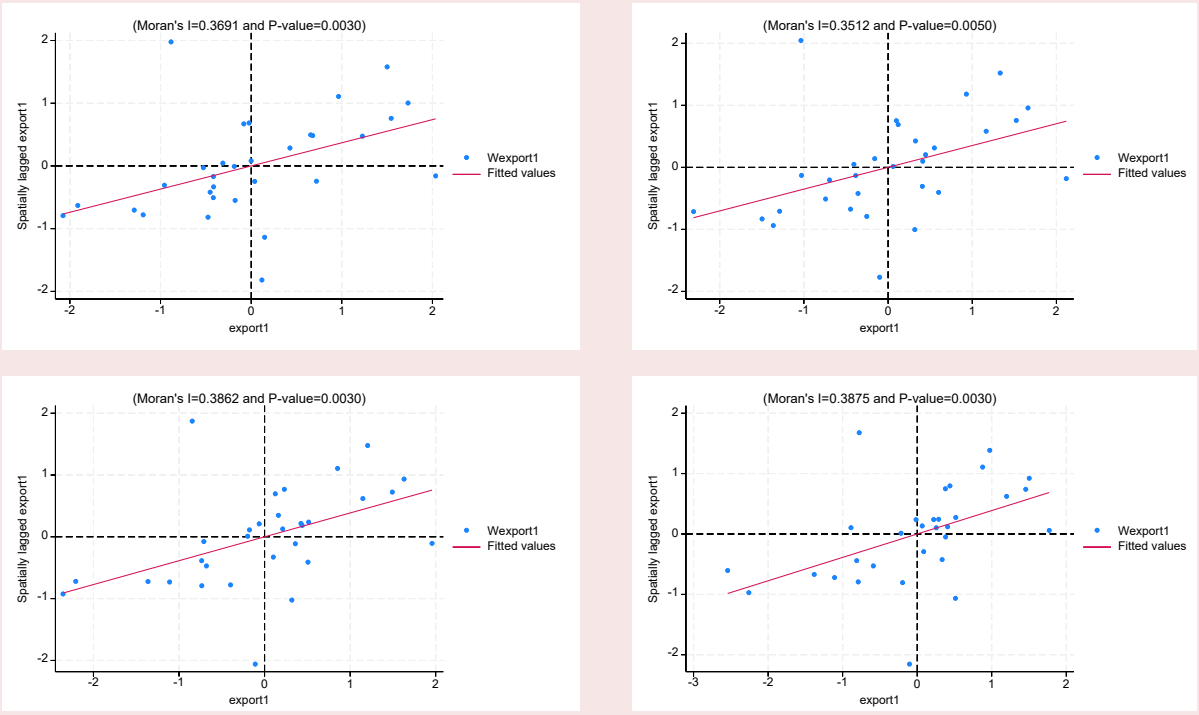
Moran scatter plot is used to study local spatial features by describing the correlation between variable Z and its spatial lag. The horizontal axis of the scatter plot corresponds to the described variable, and the vertical axis corresponds to the spatial lag vector. It can be divided into four quadrants, corresponding to the four types of local spatial linkage between regional units and their neighbors (high-high, low-high, low-low, and high-low clusters). To further study the spatial correlation of export trade, the Moran scatter plot is made with relevant data of spatial weight matrix W1 of the neighboring indicators, as shown in *Figure 1* (Due to the large number of years, the relevant computed values are more similar, so the representative years are selected for demonstration).

As can be seen in Figure 1, most regions are in the first and third quadrants. Overall, China's export trade shows a positive spatial correlation. Moran's I reveal an upward trend, indicating a spatial clustering effect in China's regional export trade from 2009 to 2022.

Regarding the selection of the spatial regression model, this paper uses an autocorrelation test to determine which one of SLM, SEM, and SDM is best suited. Firstly, the LM test is used for the model selection, and the results are presented in *Table 3*. The results verify that the LM-Error and Robust LM-Error obtained under LM-test respectively failed the significance test, and the LM-Lag and Robust LM-Lag are significant at 1% level, so SLM is more suitable for the study in this paper.

If the LM test shows that spatial effects were included in the traditional econometrics model, the

Figure 1. Moran's scatterplot for export trade in selected years



Source: own calculations.

more generalized SDM can be utilized directly for estimation. However, the results of the LM test in our study show that the spatial error model does not include spatial effects, so the SLM is chosen for its robustness and accuracy of regression results.

The results of the Hausman test in *Table 4* show Prob > chi2 = 0.0000, which rejects the original hypothesis, so the fixed-effect model is chosen for regression analysis. The results of the LR test show that the spatial-temporal fixed-effect (two-way fixed effects) model is more suitable for our study. This study selects the spatial lag model (SLM) with two-way fixed effects. The estimation of the LM test, Hausman test, and LR test are listed in Table 3 and Table 4.

Robustness test

The omission of variables is a problem in most research. To test the robustness of the model, a control variable that may have an impact on export trade is added – the level of human capital, which is measured by the proportion of the number of students enrolled in universities in each province in the total population, with the symbol InHCit, The higher the level of human capital, the higher the level of science and technology and the ability to innovate, the more capable export trade can produce more self-owned intellectual property rights and core technology products, and improve the quality and added value of export trade. Through establishing the spatial regression model, some scholars collected data for empirical testing and found that improving human capital structure and stock can promote export trade development (Dai et al., 2021). The regression results of Model 1 are presented in Table 6. After adding control variables, the e-commerce regression coefficient on export trade and the spatial effect coefficients are still significantly positive, that adopted the robustness test.

Replacement of spatial weight matrix

We perform the robustness test by transforming the spatial weight matrix and the adjacency matrix into the economic distance space weight matrix, with the formulas, respectively:

$$W_3 = \begin{cases} \frac{1}{pergdp_{ij}^2} & i \neq j \\ 0 & i = j \end{cases},$$

where $pergdp_{ij}$ is the difference in GDP per capita between regions i and j. To minimize the error, the inverse square form is used as the spatial weight, and the weight of the diagonal of the matrix is zero.

Table 3. Results of the LM test

Test	Statistic	df	p-value
Spatial error			
Lagrange multiplier	0.879	1.000	0.349
Robust Lagrange multiplier	1.722	1.000	0.189
Spatial lag			
Lagrange multiplier	13.893	1.000	0.000
Robust Lagrange multiplier	14.736	1.000	0.000
Source: own calculations.			

Table 4. Results of Hausman, LR test

	chi2(7)	Prob > chi2
Hausman	73.60	0.0000
LR test both ind	38.62	0.0000
LR test both time	932.41	0.0000
Source: own calculations.		

The distance spatial weight matrix depends on the geographic distance between regions based on latitude and longitude. Commonly used methods are the inverse of distance and the inverse of distance squared, which decay slower as the spatial effect increases with distance. Therefore, this paper uses the inverse of the square of the distance to set the distance spatial weight matrix. The formula is as follows:

$$W_2 = \begin{cases} \dfrac{1}{d_{ij}^2} & i \neq j \\ 0 & i = j \end{cases},$$

where d_{ij} is the geographic distance based on latitude and longitude between areas *i* and *j*.

According to the results of Model 2 and Model 3 in Table 6, the significance levels of the explanatory variable coefficients and rho coefficients are the same after replacing the spatial weight matrices, so the empirical results are robust.

Replacement variable measurement

The interaction term between the number of highway miles and freight volume in each province is introduced into the SLM because of the possible positive synergistic effect when measuring the degree of transportation accessibility. To test the robustness of the model, the interaction term is replaced with two separate variables for regression, and according to the results of Model 4, the sign of the coefficients of the variables does not change

Table 5. Results of the robustness test

Variable	(1)	(2)	(3)	(4)
$Eccommrce_{it}$	0.182***	0.176***	0.170***	0.118***
	(0.0364)	(0.0358)	(0.0355)	(0.0368)
$lnperGDP_{it}$	1.290***	1.474***	1.326***	1.391***
	(0.123)	(0.122)	(0.130)	(0.126)
$Open_{it}$	1.896***	2.404***	2.320***	2.262***
	(0.172)	(0.158)	(0.158)	(0.159)
$lntransport_{it}$	-0.0887**	-0.0947**	-0.117***	
	(0.0359)	(0.0373)	(0.0370)	
lnhighway				-0.585***
				(0.169)
$Industry_{it}$	0.229***	0.157**	0.207***	-0.0693*
	(0.0627)	(0.0663)	(0.0643)	(0.0382)
$lninnovation_{it}$	-0.0867***	-0.109***	-0.116***	0.245***
	(0.0297)	(0.0305)	(0.0300)	(0.0636)
$lnTax_{it}$	2.886**	2.329*	2.227*	-0.0978***
	(1.300)	(1.335)	(1.321)	(0.0299)
$lnHC_{it}$	35.60***			
	(8.102)			
lncargo				1.994
				(1.298)
rho	0.261***	-0.127***	0.306***	0.273***
	(0.0569)	(0.0407)	(0.0760)	(0.0570)
sigma2_e	0.0388***	0.0422***	0.0412***	0.0397***
	(0.00265)	(0.00287)	(0.00282)	(0.00271)
Log-likelihood	85.9949	70.1272	72.5357	80.6896
Observations	434	434	434	434
R-squared	0.334	0.318	0.314	0.219
Number of code	31	31	31	31
Source: own calculations.				

after replacing the variable measures, and the significance levels are the same, so the empirical results are robust.

Analysis of spatial effects

Table 6 reports the results of SLM regression with the two-way fixed effects. The four models' fitting results show that e-commerce development positively correlates with export trade. In the spatial lag model, except for the level of tax burden, the estimated coefficients of the other variables pass the test of significance at the 1% level, which suggests that the development of e-commerce is conducive to the promotion of the growth of export trade without considering the condition of regional heterogeneity. So, the rise of the digital economy, e-commerce, intelligent services, and other industries has led to the transformation and upgrading of traditional trade, promoting the advancement of factors of production, the change of trade structure, and the improvement of product quality and export trade volume. Based on this, we can conclude that Hypothesis 1 is valid. Coefficients of spatial autocorrelation in SLM is significant, indicating that the export trade has a significant spatial autocorrelation, which is the same as the aforementioned spatial autocorrelation test results, so the use of the SLM has a certain degree of rationality. From the perspective of additional control variables, economic development, and export trade show a significant positive correlation. This is consistent with the reality of China's regional economic development; the improvement of economic quality includes the level of domestic demand, the level of the manufacturing industry, and the optimization of industrial structure, which can create large-scale domestic demand, and the products exported gradually shift from traditional labor-intensive products to high-technology, high-value-added products, which improves the quality and efficiency of export trade.

Table 6. The regression results of SLM with the two-way fixed effects

Variable	Main	Direct	Indirect	Total
$Ecommerce_{it}$	0.144***	0.147***	0.0513***	0.198***
	(0.0360)	(0.0366)	(0.0174)	(0.0489)
$lnperGDP_{it}$	1.328***	1.342***	0.473***	1.815***
	(0.125)	(0.105)	(0.115)	(0.150)
$Open_{it}$	2.214***	2.266***	0.802***	3.068***
	(0.160)	(0.178)	(0.207)	(0.285)
$lntransport_{it}$	-0.105***	-0.104**	-0.0372**	-0.141**
	(0.0365)	(0.0403)	(0.0189)	(0.0569)
$Industry_{it}$	0.230***	0.223***	0.0806**	0.304***
	(0.0640)	(0.0738)	(0.0365)	(0.106)
$lninnovation_{it}$	-0.113***	-0.115***	-0.0407***	-0.156***
	(0.0297)	(0.0291)	(0.0143)	(0.0400)
$lnTax_{it}$	2.005	1.952	0.679	2.632
	(1.310)	(1.331)	(0.496)	(1.790)
rho	0.283***			
	(0.0570)			
sigma2_e	0.0404***			
	(0.00277)			
Log-likelihood	76.4663			
Observations	434	434	434	434
R-squared	0.298	0.298	0.298	0.298
Number of code	31	31	31	31
Source: own calculations.				

Openness and export trade show a significant positive correlation; with the increase in the level of openness, local enterprises and foreign enterprises trade more and more frequently, bringing more advanced management experience at the same time, but also conducive to undertaking international industrial transfer, promote the development of export trade in the region.

The estimation for transportation accessibility is negative and passes the significance test at the 1% level. Transportation accessibility significantly impacts export trade, which may be explained by the following reasons: constructing and maintaining transportation infrastructure requires significant capital investments. In a situation of limited resources, high infrastructure costs may crowd out funding for other essential economic activities; the construction of transportation projects, especially large-scale projects such as roads, railways, and airports, may cause environmental damage, such as land erosion, pollution of water resources and reduction of biodiversity. These problems affect local ecosystems and may negatively influence international reputation and export markets. In addition, carbon emissions and energy consumption will grow with increased traffic, adversely affecting global climate change, which may increase the environmental burden and costs for high-carbon-emitting enterprises; transport connectivity may lead to a concentration of resources, talent, and capital in certain regions, exacerbating imbalances in regional development; and traffic congestion may worsen with increased traffic. This will not only increase the cost of transportation and time but may also reduce transportation efficiency and hurt export trade.

There is a significant positive correlation between industrial structure and export trade; the upgrading of industrial structure positively promotes export trade by optimizing the structure of export products, improving the competitiveness of export enterprises, promoting the specialized division of labor and industrial chain integration, enhancing international competitiveness, promoting trade facilitation, and providing diversified market opportunities.

The level of innovation shows a significant negative correlation. Technological risks and uncertainties often accompany innovation, and new technologies or products may face problems such as low market acceptance and insufficient technological maturity, which may lead to difficulties in product promotion and affect export trade; innovation requires a large amount of capital investment, especially in the research and development (R&D) stage. High R&D costs may increase the financial pressure on enterprises and reduce their profitability, which concerns their export capacity. Intellectual property protection issues affect the stability and sustainability of export trade; in the international market, some countries may erect technical trade barriers to restrict imports of high-technology products from other countries. These barriers may include procedural standards, certification requirements, and patent protection, making it difficult to export innovative products.

The estimation of the tax burden in the SLM does not pass the significance test, although it is significantly correlated with export trade. In this regard, this paper argues that under the influence of the siphoning effect of existing big cities. At the same time, the government guides enterprises to optimize the export structure by adjusting the export tax policy; it will also hurt the export trade; for example, a higher level of tax burden will directly lead to an increase in the cost of exported products, which will reduce the competitiveness. Considering the spatial effect of exports, it is difficult to evaluate whether the level of tax burden can positively affect the development of the region's overall export trade.

The estimation of the spatial auto-correlation coefficient is positive. It passes the significance test at the 1% level, which suggests that there exists apparent agglomeration in the process of China's

export trade and that the export trade of a province is affected by the level of e-commerce development of the neighboring regions. The spatial spillover effect mainly manifests in the following aspects.

1) Industrial agglomeration and diffusion: regions with well-developed e-commerce tend to attract more export enterprises, creating an industrial agglomeration effect. Such agglomeration promotes the improvement of local e-commerce infrastructure and logistics and strengthens market expansion. When e-commerce develops to a particular stage, the need to spread outward may arise due to resource constraints and rising costs. At this point, neighboring regions tend to become the preferred diffusion areas, thus being positively affected by the development of e-commerce.

2) Information and technology spillovers: regions with developed e-commerce have more advanced technologies and richer market information. These technologies and information may overflow to neighboring regions through personnel mobility and enterprise cooperation. Enterprises in neighboring regions can take the opportunity to learn to improve their e-commerce level and thus enhance their export competitiveness.

3) Market expansion and complementarity: e-commerce development of e-commerce helps enterprises explore new markets and expand the scale of exports. When the level of e-commerce in neighboring regions is improved, local enterprises can leverage their market influence to expand the international market further. At the same time, the market demand of neighboring regions may also become a new growth point for indigenous enterprises, forming a complementary effect.

4) Policy interaction and synergy: the interaction and synergy of e-commerce development policies of neighboring regions can contribute to forming a regional e-commerce scale advantage. This advantage is conducive to the development of local export trade and enhances the whole region's international competitiveness.

To further measure the spatial characteristics of the impact of e-commerce on export trade, In this paper, the spatial effect is divided into the following three parts: direct effect consists of two aspects; one refers to the impact of the level of e-commerce development on the export trade of the province, and the other refers to the impact of the level of e-commerce development on the export trade of the neighboring provinces, which in turn feeds the development of the export trade of the province. The indirect effect refers to the spatial spillover effect, i.e., the impact of the e-commerce development level of neighboring provinces on the export trade of the province. Total effect refers to the average degree of influence of a province's e-commerce progress on China's export trade. The regression results for each effect are listed in Table 6. The direct effect of e-commerce development is significantly positive, indicating that e-commerce in a province promotes the export trade of that province, further confirming that hypothesis 1 holds. Among the direct effects of other control variables, economic development, openness to the outside world, and industrial structure significantly contribute to the development of export trade in that province, transport and innovation have a negative effect, and tax burden does not contribute significantly to the development of export trade in that province.

Regarding indirect effects, e-commerce passed the 1% significance test and had a positive spillover effect on export trade of neighboring provinces; hypothesis 2 holds. Regarding the total effect, e-commerce generally promotes the development of China's export trade, and the regression results are significant. In addition, the regression coefficient rho is significantly positive, indicating that the export trade of the province will be positively influenced by the export trade of the neighboring provinces, i.e., there is no "siphoning effect" of the export trade among the provinces.

Threshold effect test

The regression of baseline and spatial effect analyses show that e-commerce development promotes export trade, but does this effect have nonlinear characteristics? In this paper, the core explanatory variables are used as threshold variables to measure the nonlinear impact of e-commerce on export trade. It is necessary to determine whether there is a threshold effect. If a threshold effect exists, it is also necessary to determine the number of thresholds that exist further. As shown in *Table 7*, the single-threshold effect passed the significance test at the 5% level, and the double-threshold effect and the triple-threshold effect did not pass the significance test. The threshold value is 12.3446, and the confidence interval is [12.0192, 12.6271] at the 95%. The influence coefficient is 0.05 when it is lower than the threshold and 0.11 when it is higher than the threshold, indicating that the positive effect of different levels of e-commerce development on export trade shows an upward trend; therefore, hypothesis H3 is valid.

Discussion

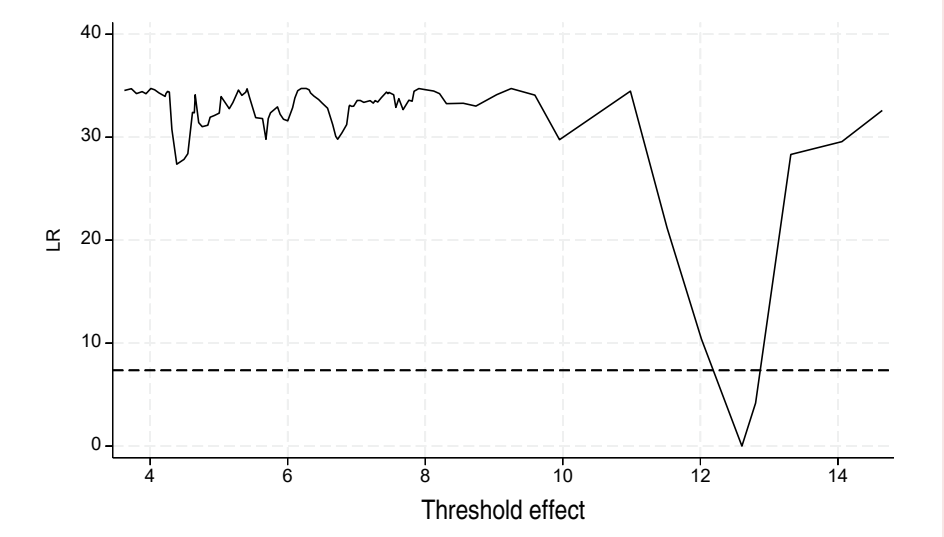
The authors do not claim to build a fundamentally new approach to the study of impacting e-commerce on export trade. The article consistently uses proven methods to determine the importance of e-commerce for the development of 31 Chinese regions. Nevertheless, the authors did not aim to study the patterns of territorial industrial organization. The issues of enterprises' location, availability of resources, forms of industrial organi-

Table 7. Results of the threshold effect test

Threshold variables	Threshold	F-value	P-value	10%	5%	1%
Level of e-commerce development	single threshold	49.77	0.0140	31.4987	36.3850	54.1600
	dual threshold	11.22	0.5480	24.7579	31.3395	44.2781
	three thresholds	8.18	0.6020	19.0847	24.0540	33.0369

Source: own calculations.

Figure 2. Threshold effect LR chart



Source: own calculations.

zation, the structure of regional economies, and the principles of regional policy, that are the elements of mesoeconomics, put in a "black box". In case of China's regions, if great number of variables and extra large data volume complicated significantly the research, they will definitely be considered in the following modifications of the approach.

The versatility of the tools used suggests that the approach can be applied to other national case-study as well. The country under research can be a unitary (like China) or a federal state. An important prerequisite is the availability of administrative territories with published statistical reports. Yet, national peculiarities can affect the architecture of the model. In some cases, the spillover effect will be detected, in other cases, the siphoning effect will be found. A serial study of national economies will certainly help to understand the importance of e-commerce in different business environments and identify the factors influencing its application. But this is a separate topic for future research.

Conclusions

In this article, the authors investigate in methodological and practical issues of the impact of e-commerce on regional export trade. Based on the panel data of China's 31 provinces from 2009 to 2022 we proved the impact of e-commerce on export trade through the spatial regression model and threshold effect model. From the space perspective, this paper empirically examines the spatial correlation between the level of e-commerce development and export trade using a spatial regression model. The results demonstrate that the development of e-commerce has a significant positive spatial spillover effect on export trade. Economic growth, openness to the outside world, industrial structure, and innovation significantly promote export trade. At the same time, case-study revealed that the government tax burden does not contribute much to export trade. At the same time, transportation accessibility has negative impacts under certain restricted circumstances. Therefore, when promoting the construction of transportation infrastructure, it is necessary to fully consider its probable cost and environmental, social, and political impacts and to take adequate measures to reduce these negative impacts. E-commerce encourages the development of China's export trade, and there is no "siphon effect" between provinces. According to the analysis of the threshold effect, there is a single-threshold effect of e-commerce on the impact of export trade, and the positive effect of different levels of e-commerce development on export trade is on an upward trend.

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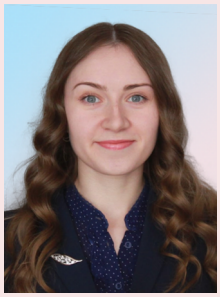
Ecosystems for the Sustainable Development of Local Territories: A Review of Theoretical Approaches



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Abstract. The disproportions of Russia's spatial development (shrinkage of the developed space, polarization of the settlement system, distortion of the support frame) are challenges for sustainable development and for ensuring national security. In such conditions, local territories are most vulnerable, which, if located far from the centers of resource attraction, have limited opportunities to respond to current challenges. In turn, it is at the local level that the practical implementation of the goals and objectives of sustainable development is carried out, which ultimately determines the situation at higher levels. The ecosystem approach, which assigns a significant role in this process to the participants of the territorial ecosystem and their interaction with each other and with the external environment, seems promising for the study of the sustainable development of local territories. The aim of the review is to analyze scientific discourse on the sustainable development of local territories in the context of an ecosystem approach. The work uses general scientific methods of critical analysis, comparison, generalization, grouping and classification. The information base includes Russian and foreign scientific literature on the sustainable development of individual territorial units and the ecosystem approach, as well as international and Russian regulatory documents in the field of sustainable development. The article discusses terminological features of the concepts "sustainable development", "ecosystem approach" and "local sustainable development territories". We reveal the intersections of the concept of sustainable development and the ecosystem approach, and the possibility of their logical combination into a single conceptual framework in relation to local territories. On the basis of generalization and systematization of scientific literature, we define the terms "sustainable development of local territories" and "ecosystem for the sustainable development of local territories", and identify key structural and functional elements of the ecosystem for the sustainable development of local territories.

Key words: sustainable development, local territories, ecosystem approach, ecosystem for the sustainable development.

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Introduction

The development of local territories is becoming an increasingly relevant topic of scientific research and management activities in the context of the growing impact of global and regional challenges to socio-economic development. Climate change and scarcity of some natural resources, population growth and demographic aging, expanding migration flows, depopulation of rural settlements and problems of urbanization of urban areas, manifestations of digital inequality, poverty and growing commercialization of social services – these and other challenges of our time exert significant pressure not only on global development and individual states, but also on local territories, requiring the development and implementation of sustainable development strategies that will preserve natural resources, improve the quality of life and ensure long-term economic growth of individual territorial entities. The development of local territories is essential for achieving the global sustainable development goals set by the United Nations (UN SDGs), as these territories have a unique opportunity to adapt global strategies to their specific conditions, taking into account their geographical location, socio-economic characteristics, local resources, cultural, and environmental features.

Achieving sustainable development of local territories is impossible without the development and implementation of effective management strategies that take into account the peculiarities of each territory, local and national development goals outlined in the program and strategic documents of the states. In addition, building a balanced and effective system of sustainable development of local territories is necessary for cooperation between different levels of government and involvement of local communities in the decision-making process, which can be practically realized through the principles of the ecosystem approach.

The aim of the review article is to analyze the scientific discourse on the sustainable development of local territories in the context of the ecosystem approach. The first part of the paper provides a brief overview of the concept of sustainable development, its meaning, evolution and key principles. In the second part, attention is paid to approaches to the construction of the definition of sustainable development of local territories. The third part outlines the essence of the ecosystem approach, reflects its role in the practice of local governance, analyzes studies of ecosystems for the sustainable development of local territories, identifies structural and functional elements of the ecosystem for the sustainable development of the local territory.

We used the methods of critical analysis, comparison, generalization, grouping and classification to implement the research objectives. The information base consisted of Russian and foreign scientific literature on the research problem, as well as international and Russian conceptual-strategic and regulatory-legal documents in the field of sustainable development. The selection of scientific papers on sustainable development of individual territorial units and the ecosystem approach was carried out in the scientific search systems eLibrary, Taylor & Francis Online, Google Scholar by keywords (in Russian and English[1]). Based on the analysis of abstracts, we selected papers that directly address the issues of sustainable development, the ecosystem approach and sustainable development ecosystems, including in relation to local territories. When selecting sources, we took into account the relevance of materials in terms of their contribution to the ongoing discourse on the stated topics. The remaining publications were systematized into several groups in accordance with the analytical framework of our study.

Sustainable territorial development: brief discourse

The sustainable development concept emerged as a response to the growing concern about socio-economic (high poverty levels, inequality between rich and poor countries, use of resource-intensive technologies, inadequate pricing of natural resources, increasing consumerism, etc.) and environmental (anthropogenic disturbance of landscapes, pollution, reduction of species diversity, availability of drinking water, etc.) problems (Fauser et al., 2018). Quite quickly, the sustainable development concept became a kind of platform for transforming international cooperation and intensifying the multilateral search for answers to global challenges. Its unifying idea was the convergence of three conceptual pillars – economic development, social justice, and environmental protection.

The evolution of the sustainable development concept reflects changes in the understanding of the relationship between the economy, society and nature. The early stages (1960s–1970s) focused on environmental protection and the negative environmental impacts of industrial development. Central events were the publication of the Club of Rome "Limits to Growth" report and the UN

[1] The keywords used in the search were sustainability, sustainable development, sustainable urban development, sustainable development of cities, sustainable rural development, sustainable development of rural areas, local territories, small territories, urban areas, rural areas, municipality, municipal entity, ecosystem approach, ecosystem of sustainable development.

Stockholm Conference on the Environment (1972). The understanding of the need to harmonize economic growth with the ecological potential of the planet was formed. The concept is associated with the Brundtland Commission and its report "Our Common Future" (1987). The term "sustainable development" acquires generic features – trinity of economic, social and environmental aspects of development; consideration of long-term consequences and interests of future generations. The concept of sustainable development was recognized worldwide after the Earth Summit in Rio de Janeiro (1992) and the adoption of Agenda 21, which established it as a basis for international policy and an important component of national policies of the world's countries. Many European countries began developing environmental legislation and pursuing environmentally oriented economic policies (Andrianov, 2005). At the beginning of the 21st century, the focus shifted to the creation of integrated models of sustainable development (green, circular, low-carbon economy) based on the application of innovative approaches and environmentally friendly technologies in production. The concept gained new impetus after the UN General Assembly adopted the Sustainable Development Goals in 2015, which became the global agenda for the coming decades and covered a wide range of issues – from eradicating poverty and hunger, ensuring quality education to preserving marine ecosystems and combating climate change. As a result, the sustainable development concept has evolved from an initial environmental focus to an integrated approach that considers the balance of economy, society and nature, as well as intergenerational equity.

At present, sustainable development is not an unchanging state of harmony, but a process of constant change, in which the scale of resource exploitation, the direction of investment, the orientation of technical development and institutional changes are consistent with the current and future needs of humanity[2]. Currently, there is no unified approach to understanding the essence of the category "sustainable development", which is due to both the multivariant translation of this term from English and its use in relation to different-level economic systems (Shchukina, 2015). All the concepts used are united by the following: preservation of the system equilibrium; care for future generations; qualitative and quantitative changes in three interrelated components – economic, social and environmental; growth in the standard of living and quality of life; rational use of natural resource potential; environmental conservation (Gutman, Basova, 2017; Fauser et al., 2018).

The main criticism of sustainable development is that it does not question the ideology of economic growth and does not provide a working alternative to the philosophy of consumption. In addition, no document or program has formulated specific criteria for sustainable development. The prevalence of anthropocentric views over ecocentric views is also often noted (Du Pisani, 2006). Overall, sustainable development is difficult to achieve because it is essentially limited by the regenerative capacity of the ecosystems that sustain the planet (Mensah, 2019).

Thus, sustainable development is related to the principle of achieving human development goals and at the same time maintaining the ability of natural systems to provide the resources and ecosystem services on which the economy and society depend (Mensah, 2019). The issue of sustainable development is centered around inter- and intra-generational equity anchored on three-dimensional separate but interrelated pillars, namely environment, economy and society. Sustainable

[2] Development and international economic cooperation: Environmental: Report of the World Commission on Environment and Development. UN. Available at: https://www.un.org/ru/ga/pdf/brundtland.pdf (accessed: 15.01.2025).

development cannot be achieved through isolated initiatives, it requires integrated efforts at various levels. Decision makers must be constantly mindful of the relationships, complementarities and trade-offs between all spheres of the sustainable development and ensure responsible human behavior at international, national, societal and individual levels to support and promote the principles of this paradigm for human development (Mensah, 2019).

Local territories in the context of sustainable development

The achievement of the sustainable development goals at the local level, unlike the higher levels (global and country), implies not declarative and framework statements, but concrete actions, practical implementation of sustainable development principles (Schwab, Brower, 1997; Ilyina, Mirenkova, 2014; Oosterhof, 2018; Krasnoshtanova, 2022). The activities of local governing structures in this direction contribute to solving not only local, but also national and global problems of sustainable development (Schwab, Brower, 1997). Nevertheless, in the practice of research on the sustainability of territorial systems, in most cases the factors and parameters of sustainability at the global and regional scale are considered, less often – at the district spatial level, and very little attention is paid to local territorial systems (Gogoberidze et al., 2022).

In Russian and foreign studies of sustainable development at the local level, an administrative-territorial approach is most often applied to the definition of local territories, according to which they are understood as territories limited by the boundaries of municipalities (Kovaleva, Kucherenko, 2019). They include both municipalities themselves and their associations or part of the territory within the boundaries of municipalities (Uskova et al., 2013). Thus, separate studies are devoted to the sustainable development of municipal districts (Sevastyanova, Yatsenko, 2020), intra-district municipal formations (Khvorostukhin, 2014), cities (Zhang et al, 2025), urban areas (Alipour, Galal, 2021), rural territories (settlements) (Zakshevsky et al., 2023), or groups of municipalities identified on some basis, for example, geographically – local coastal territorial systems (Gogoberidze et al., 2022). In studies of sustainable development at the local level there are also other terms synonymous with local territories, in particular, local spatial formations (Menshchikova et al., 2014), local territorial systems (Gogoberidze et al., 2022), territorial systems of local communities (Balanced Development Management..., 2016), but in practice their essence is also reduced to territories within the boundaries of municipalities. Therefore, the administrative-territorial approach is seen as relevant in the context of the study of sustainable development of local territories.

Sustainable development in the research and management planes is mainly considered separately for cities and rural areas. The international community paid attention to the problems of sustainable development of local territories at the end of the 20th century. Since then, a number of profile concepts, declarations, charters and programs have been adopted. All of them contain principles and goals of sustainable development, practical recommendations for their implementation at the local level, as well as outline the obligations of local authorities and communities to comply with these principles. *Table 1* presents the main milestones in the development of international, European and Russian policy in the field of sustainable urban and rural development, including its key documents. Thus, by now there is a base of international, European and domestic documents regulating the issues of sustainable development of all types of local territories, as well as urban and rural settlements separately.

Table 1. Key stages of development and documents of international, European and Russian policy in the sustainable development of local territories

In the area of sustainable urban development	In the area of sustainable development of rural areas
International	
1976–1978: *United Nations Human Settlements Program*, adopted as a follow-up to the UN Conference on Human Settlements and Sustainable Urban Development Habitat I (Vancouver, Canada).	
1996: *World Plan of Action for Sustainable Human Settlements Development "The Habitat Agenda"* and "*Istanbul Declaration on Human Settlements*", adopted at the Habitat II Conference (Istanbul, Turkey)	
2001: *Declaration on Cities and Other Human Settlements in the New Millennium*, adopted at the 25th Special Session of the UN General Assembly "Istanbul + 5" (New York, USA)	
2015: *17 Sustainable Development Goals (SDGs)*, including SDG 11 "Ensure inclusive, safe, resilient and sustainable cities and human settlements".	
1996 *Sustainable Cities Program*, adopted jointly by the United Nations and UNEP	**1992:** *"Agenda 21"*, Chapter 14 "Promoting Sustainable Agriculture and Rural Development", adopted by the United Nations Conference on Environment and Development (Rio de Janeiro, Brazil).
2016: *Urban Development Program*, adopted at the United Nations Conference on Housing and Sustainable Urban Development Habitat III (Quito, Ecuador)	**1996:** *Regulations for Sustainable Agriculture and Rural Development*, adopted at the session of the Food and Agriculture Organization of the United Nations (Rome, Italy).
European	
1985: *European Charter of Local Self-Government* (Congress of Local and Regional Authorities of the Council of Europe)*	
1994: *Aalborg Charter* (Aalborg, Denmark) **2007:** *Leipzig Charter for a Sustainable European City* (Leipzig, Germany) **2008:** *EU Covenant of Mayors*	**1991:** *EU LEADER Program to support sustainable growth and development of rural communities, businesses and the rural environment* **2000:** *EU LEADER+ Program aimed at developing competitiveness of rural regions*
Russian	
2003: *Federal Law 131-FZ "On General Principles of Organization of Local Self-Government in the Russian Federation"* **2025:** *Federal Law 33-FZ "On the General Principles of Organization of Local Self-Government in the Unified System of Public Power"*	
2002: "*Moscow Declaration*", adopted at the All-Russian Meeting 'Ensuring Sustainable Development of Russian Cities' (Moscow, Russia) **2006:** *Priority Program "Integrated development of single-industry towns".* **2023:** *Charter of Sustainable Cities of Russia (ESG Charter)*	**2006:** *Federal Law "On the Development of Agriculture"* **2010:** *Concept of sustainable development of rural areas of the Russian Federation for the period up to 2020* **2013:** *Federal Target Program "Sustainable Development of Rural Territories for 2014-2017 and for the period up to 2020"* **2015:** *Strategy for Sustainable Development of Rural Areas of the Russian Federation for the Period until 2030*

* In accordance with the Federal Law 43-FZ, dated February 28, 2023 "On the termination of international treaties of the Council of Europe with respect to the Russian Federation" from March 16, 2022 the European Charter of Local Self-Government does not apply to Russia. However, the provisions of the Charter are of interest in terms of reflecting the global policy of sustainable development of territories and its evolution.

According to: (Sustainable development of rural areas…, 2013; Fauser, Smirnov, 2023); regulatory documents; (Dolgikh E.I., Antonov E.V. (2015). Rating of sustainable development of Russian cities. *Demoscope Weekly*, 631–632. Available at: http://demoscope.ru/weekly/2015/0631/tema01.php (accessed: 16.01.2025).

Theoretical approaches to the study of the sustainable development of local territories

Despite the presence of studies devoted to the problems concerning the sustainable development of local territories (districts, cities, rural settlements), most of them lack a definition of this concept. The few scientific papers and regulatory documents that contain its definition mainly use the categories of "sustainable development of municipalities", "sustainable development of rural areas" and "sustainable development of cities". O.V. Shumakova and M.A. Rabkanova identified two approaches to the definition of sustainable development of local, particularly rural, territories – process and systemic. The first one considers sustainable development of rural areas as a process of changing various spheres of life of the rural community (social, economic and environmental) aimed at increasing agricultural production, improving the efficiency of agriculture, achieving full employment of the rural population and raising its standard of living, rational use of land, etc. The authors call it a disadvantage because it does not take into account the features of rural areas and does not reflect the mechanisms of influence on the process of their development (Shumakova, Rybkanov, 2014). The system approach, along with the process approach, considers sustainable development as a process of change in various spheres of life of the rural community (social, economic, and environmental), but additionally indicates the mechanisms of impact on the development of rural areas, i.e. reflects management of the sustainable development. The advantage of this approach is the description of a set of interacting and interrelated components of sustainable development (Shumakova, Rybkanov, 2014).

The analysis of the concepts presented in *Table 2* allows concluding that the process approach to the definition of the sustainable development of local territories prevails in regulatory and legal documents and research works. Basically, sustainable development is understood as a continuous process that implies both stability (preservation, maintenance) of individual socio-economic parameters and quantitative and qualitative changes (increase in production volume, increase in efficiency). In addition, a number of definitions equate sustainable development with balanced development, which implies taking into account the interests of all actors. At the same time, an important goal of the sustainable development is to meet the needs of the population, which is expressed in the improvement of the standard of living and quality of life. According to T.V. Uskova, sustainable development is a harmony of opposites: stability and changeability, preservation and renewal, unity and diversity (Uskova, 2009).

Some researchers include not only balanced socio-economic and environmental, but also spatial development in the definition of the sustainable development of local territories, particularly rural ones (Zakrzewski et al., 2023). We agree with this point of view, since the spatial factor plays a key role in access to resources: territories remote from the centers of attraction of resources have limited opportunities to respond to current challenges and threats (depopulation, poverty, unemployment, population aging, digital divide, etc.), which carries significant risks for their sustainable development. In addition, most definitions emphasize the importance of sustainable development in addressing local, site-specific problems.

Based on the analysis of the scientific discourse, *the sustainable development of local territories* can be understood as a *process of balanced socio-economic, environmental and spatial development of local territories of different levels (districts, urban and rural settlements) for the purpose of rational use of available resources, environmental conservation and ensuring a high quality of life in the interests of present and future generations, allowing solving local problems.* At the same time, balanced development

Table 2. Definitions of the sustainable development of local territories

Term	Definition	Authors/documents
Sustainable development of municipalities	Mode of functioning and development of self-organizing local system, oriented toward harmonization of community and environment life activity, provided by economic reproduction to improve the level and quality of life.	E.A. Pastukhova
Sustainable development of rural areas	Stable socio-economic development, increased agricultural production, improved agricultural efficiency, rational use and protection of land, full employment of rural population and improved living standards, provided, inter alia, as a result of activities not related to agricultural production, including activities to provide services in the field of rural tourism.	Federal Law of the RD 264-FZ, dated December 29, 2006 "On the Development of Agriculture"; Strategy for Sustainable Development of Rural Areas of the Russian Federation for the period up to 2030.
	A complex dynamic process of positive changes in indicators characterizing the social, economic and environmental condition of rural areas, controlled and monitored by the state with the help of the monitoring system, aimed at expanded reproduction of agricultural producers, diversification of their agricultural production, attraction of investments, use of innovations through effective actions of state authorities, local initiatives and elements of self-organization of economic entities.	O.V. Shumakova, M.A. Rybkanov
	Purposeful process of transition to a new level of spatial and balanced development of interrelated socio-ecological-economic subsystems, localized within the boundaries of rural areas, which allows to ensure increased efficiency of the rural economy, preservation of the natural basis of life and a high level of quality of life of rural population.	V.G. Zakshevskii et al.
	Maintaining the quantitative and qualitative characteristics of the rural community at a level that allows solving key problems of internal development of the rural area, as well as ensuring the fullest fulfillment of its main functions and, consequently, the competitiveness of the area in the conditions of the changing external environment.	A.Ya. Trotskovskii et al.
Sustainable urban development (sustainability of urban development)	An integrated process that leads to solving urban problems, improving the living conditions and quality of life of citizens by achieving a balanced socio-economic and environmental development through the rational use of resource potential (including geographical, urban planning features of the urban area, potential capabilities of the population, economy, industry, infrastructure) and not exceeding the maximum permissible environmental loads.	D.A. Denevizyuk
	The multi-dimensional capacity of a city to successfully function in economic, social and environmental dimensions simultaneously.	I.A. Shmeleva, S.E. Shmelev
	A process that leads to a balanced solution of social, economic and environmental problems of urban settlements, improving the comfort of life of citizens through the rational use of urban resources, effective urban planning and not exceeding the assimilation potential of urban ecosystems, in the interests of present and future generations of people.	A.P. Anisimov, G.Sh. Uzakova
According to: (Pastukhova, 2007; Denevizyuk, 2012; Sustainable development of rural areas …, 2013; Shumakova, Rybkanov, 2014; Shmeleva, Shmelev, 2019; Zakshevskii et al., 2023; Anisimov, Uzakova, 2023); regulatory documents.		

in relation to the economic space implies reliance on several principles: the presence of proportionality of development and the absence of significant disproportions in social, economic, infrastructural and other systems of territories; achievement of connectivity of local territories based on sustainable, intensive and parity links between them; consistency of development goals on the part of all stakeholders – population, business, authorities (Uskova, Patrakova, 2024).

The presented definition of the sustainable development of local territories, on the one hand, agrees well with the existing interpretations of sustainable development in international and Russian regulatory and legal documents, on the other hand, deepens and complements them, because it takes into account the spatial aspect in addition to economic, social, and environmental aspects. In addition, the proposed definition facilitates the process of operationalization of the concept, strictly outlining its theoretical framework.

Studies concerning the sustainable development of local territories have become one of the natural stages in the evolution of the global concept of the sustainable development. In foreign science, the study of sustainable development at the local level took shape in the concept of sustainable local development (SLD), which appeared relatively recently (in the late 20th – early 21st century) and was designed to solve localized socio-economic and environmental problems in such a way as to ensure sustainability for future generations (Batar et al., 2024). It is based on the concept of local development, which implies the process of improving the economic, social and environmental situation of a given territory based on the use of endogenous resources to improve the well-being and quality of life of its population (Dawkins, 2003). At the same time, endogenous resources are the most characteristic element of the concept, as they take advantage of the economic and social dynamics of a certain territory (Milán-García et al., 2019).

In Russian science, the issues concerning the sustainable development of local territories are often covered from the position of *L. Heisenberg's theory of central order and entropy approach* (Tatarkin, Gershanok, 2006; Tolstuch et al., 2020; Gamidullaeva et al., 2022), the essence of which is that the optimality of the vector of society's development is determined by human activity, corresponding to the requirements of moral relations, aimed at the development and improvement of human well-being and preservation of natural resources. At the same time, the development of society should not lead to an increase in the entropy of ecosystems (Gamidullaeva et al., 2022).

In the study of the sustainable development of local territories, more and more attention is paid to the spatial aspect, which is associated with the processes of urbanization, compression and fragmentation of developed space (especially rural areas), depopulation and depopulation of rural areas. This issue is mainly considered in the context of spatial localization (Zakrzewski et al., 2023) and center-periphery differences (Sustainable Development of Rural Territories..., 2013).

Ecosystem approach to sustainable development: essence, principles, role in management

The sustainable development of territories is a priority direction of modern planning and management, reflecting the need for a balanced approach to solving economic, social and environmental problems of life, involves changes in the economic system of territories in the direction of improving the socio-economic efficiency of its functioning (Kosygina, 2020). The current situation actualizes the need to mobilize additional resources and involve stakeholders in economic relations to solve the problems of territorial development, which is possible to implement within the framework of the ecosystem approach.

When considering the concept of "ecosystem" in scientific discourse, an analogy with natural

(biological) ecosystems is made (Ritala, Almpanopoulou, 2017). Natural ecosystems are a set of jointly functioning organisms interacting with the physical environment in a certain area (Ramenskaya, 2020).

However, in contemporary Russian and foreign studies, this definition covers socio-economic (Vigren, Eriksson, 2025), technological, platform (Kuimov et al., 2023) and other ecosystems that function within a certain external environment, including territory, industry, cluster, and form a complex of interacting elements (actors, stakeholders). Unlike natural ecosystems, everything that concerns socio-economic development is an artificial formation. The main goal of an ecosystem is to maintain or ensure its sustainable development, including by obtaining the best results through the integration of dissimilar resources of different actors. In this case, the interrelationships between the constituent elements serve as the basis for the structure of the ecosystem (Solovieva, 2019). In a generalized interpretation, an ecosystem is a set of actors that interact to achieve a common goal or create value. Interactions take place at different levels, with varying degrees of dependence on each other. In ecosystems, actors have freedom of action and the right to make independent decisions, but they must inevitably be willing to cooperate and work coherently within a unified system (Jacobides et al., 2018). A successful ecosystem is one in which all actors are satisfied with their positions. In this case, the structure of an ecosystem is made up of actors, positions, relationships and actions (Adner, 2016).

In the context of the study of the sustainable development of territories, we pay special attention to socio-economic ecosystems. In G.B. Kleiner's interpretation, a socio-economic ecosystem is understood as "a localized complex of organizations, business processes, innovative projects and infrastructural formations capable of long-term independent functioning due to the circulation of resources, products and systems" (Kleiner, 2019). In turn, the ecosystem of territories is a system of interactions between all elements of economic activity, including territorial authorities, enterprises of the production industry, population, social institutions, mass media, civil society institutions (Popov, Skvortsov, 2023). At the same time, the definitions of researchers also emphasize the voluntary nature of interaction between ecosystem participants (Tolstykh et al., 2021).

Theoretical justification and study of ecosystem functioning in scientific discourse are united by the ecosystem approach, which requires researchers to develop new strategies and tools for managing ecosystems, primarily of the socio-economic type. Its application to the sustainable development of territories is reflected in the practice-oriented management concepts of "public-state management", "municipal public policy" and "intersectoral partnership/interaction". In this respect, we are talking about the formation of an interdisciplinary approach, synthesis of the provisions of economic, sociological and management theories. The noted concepts are also based on the joint responsibility of government bodies, public institutions and economic entities for solving the problems of territories (Smotritskaya, 2024).

The application of the concept of public-public management opens up opportunities for the creation of socio-governmental horizontal ties that allow for a more flexible and responsive response to the challenges faced by territorial communities (Nisar, 2012; Smorgunov, 2022). Modern approaches to municipal public policy are similarly aimed at creating conditions for achieving public interests through partnership on the principles of building constructive interaction. L.I. Nikovskaya and V.N. Yakimets define municipal public policy as "programs and priorities of public authorities, mechanisms and technologies of their implementation, developed with the expectations

and with the participation of the main groups of civil society – small and medium businesses, non-profit and public organizations through their representatives" (Nikovskaya, Yakimets, 2019).

The importance of intersectoral partnership as a tool for solving social problems emphasizes the need to create a synergetic effect from combining the resources of various organizations. This not only contributes to improving the quality of life in the territories, but also involves all stakeholders in the decision-making process, which, in turn, strengthens the responsibility and interaction between them. The principles of cross-sector partnership are the development of network communication, continuous improvement of system productivity, constructive consideration of partners' interests, diversification of partnership mechanisms, resource synergism, conscious interdependence, equal access to participation in interaction (Yakimets, Nikovskaya, 2018). An extended interpretation of the principles of ecosystem organization, as well as the ecosystem approach in general, is given in the works of L.A. Gamidullaeva and co-authors. The research team identifies a number of key principles, including self-organization and self-development; trust and partnership; corporate culture; customer focus; project orientation; innovation and openness to change. They emphasize the importance of cooperation based on the exchange of information and resources. Equally important are transboundary and interdisciplinarity, which emphasize the need to integrate different knowledge to achieve sustainable ecosystem development. Each of the above principles serves as a basis for creating harmonious and productive interaction between all ecosystem participants, which, in turn, contributes to its dynamic growth and evolution in a rapidly changing world (Gamidullaeva, Grosheva, 2024). The principles outlined by the authors correlate with the development and functioning of the ecosystem for the sustainable development of territories. Thus, the revision of traditional governance models towards horizontal interactions becomes the key to successful sustainable development, which is confirmed by the SDG targets. The seventeenth SDG calls for strengthening the means of implementation and revitalizing the global partnership for sustainable development[3].

Although elements of the ecosystem approach to territorial development are reflected in various theories and concepts, it remains a framework and generalization due to its complex structure. This structure includes not only a plurality of actors, but also a holistic system of relationships that cannot be reduced to a simple set of bilateral interactions to achieve a result. Interactions play a key role in the functioning and development of ecosystems, although the external environment is also important in determining the conditions and drivers of these processes. Changes in the external environment can significantly affect the balance of an ecosystem, leading to changes in its structure and function. The ecosystem approach requires consideration of all these factors and interactions for the sustainable development.

Thus, the ecosystem approach allows moving to a new qualitative level of socio-economic space development (Alikaeva et al., 2020). The sustainable development of territories requires a comprehensive and multilevel approach, which cannot be realized only by the efforts of government structures. Effective mobilization of resources and active involvement of interested actors in the process of planning and implementation of activities become key development factors. The ecosystem approach brings together the efforts of different actors, helping to create synergies between economic, social and environmental interests. This cooperation not only increases the sustainability of development strategies, but also helps to adapt to the changing

[3] Sustainable Development Goals 2015. United Nations. Available at: https://sustainabledevelopment.un.org (accessed: 23.01.2025).

external environment, ensuring flexibility and innovation in solving problems.

Ecosystems for the sustainable development of local territories

The ecosystem approach for the spatial development of local territories is currently recognized as extremely promising, since the focus on ecosystems, rather than on industry, enterprise or region, makes it possible to maximize the use of the existing potential (natural, human, scientific, technical, etc.) of territories. Ecosystems, forming a special development environment, connect cities, centers of industrial production with remote areas (local communities). Thus, the sustainable territorial ecosystems contribute to the development of local communities and influence the spatial development of the whole country (Gamidullaeva et al., 2022). Nevertheless, there are few studies of the sustainable development ecosystems. Their current state is generally characterized by fragmentation, which is expressed in the study of individual aspects of sustainable development, and the lack of comprehensive empirical measurements.

One of the examples of studies that comprehensively consider ecosystems for the sustainable development is the work of T. Tolstykh, L. Gamidullaeva and co-authors (Tolstykh et al., 2020), in which, based on the entropy approach, it is proposed to assess the sustainability of the territorial ecosystem, namely through the level of utilization of various types of territorial capital (human, productive, natural). According to the authors, the sustainability of a territorial ecosystem depends on the sustainability of its constituent ecosystems and is determined by such factors as the potential of actors (uniqueness of technologies, resources, competencies) included in the internal ecosystems of the territory, the degree of links between internal ecosystems, the degree of links between actors and other actors within ecosystems, and the degree of coherence between different types of territorial capital (Tolstykh et al., 2020; Gamidullaeva et al., 2022).

In another paper by L. Gamidullaeva et al., the ecosystem approach is applied to the development of rural territories, in particular, its practical application is proposed in terms of organizing the process of selecting participants of the rural ecosystem to ensure its balanced development (Gamidullaeva, Grosheva, 2024). Researchers consider the rural ecosystem as an association of several administrative districts with common resource, institutional and socio-economic potential within a vast region. The actors of the rural ecosystem can be agro-industrial, industrial and engineering enterprises, IT-startups, research and knowledge-intensive organizations, resource providers, sectoral regulators and territorial authorities. The paper shows that in practice, a rural ecosystem should be created around an industrial cluster in such sectors as agriculture, industry, housing and catering. Its creation should be facilitated by a competent and balanced policy aimed at improving the quality of life in the area and counteracting the trend of migration outflow (Gamidullaeva, Grosheva, 2024).

Despite the identified progress in the field of research on territorial ecosystems for the sustainable development, there is still no conceptual framework for local territories, in particular, there is no definition of ecosystems for the sustainable development of local territories, and their structural elements have not been identified. To fill the existing gaps, we propose a definition of the concept *"ecosystem for the sustainable development of local territories"*. This is a *complex dynamic institutional environment that encourages various actors to mutually beneficial cooperation on issues of balanced socio-economic, environmental and spatial development of local territories of different levels (districts, urban and rural settlements) based on the principles of voluntariness, mutual benefit, self-organization and self-development to preserve the environment and ensure a high quality of life in the interests of present and future generations.*

Table 3. Structural and functional elements of the ecosystem for the sustainable development of the local territory

Structural and functional element	Description
Internal environment	Formed by formal (normative-legal acts, state support organizations, etc.) and informal institutions (habits, rules, stereotypes, patterns of behavior and interaction of individuals in society)
Internal ecosystems (microecosystems)	Ecosystems functioning and interacting within the local territory. These are production, innovation, social, environmental, cultural, communication ecosystems, business ecosystems and others.
Actors (stakeholders)	Actors (participants) carrying out activities and interactions. Actors can be participants in several ecosystems simultaneously. These are territorial authorities, enterprises of the production sector, population, social institutions, mass media, civil society institutions, and others.
Functions	Activities defined by individual actions of actors
Opportunities for influence	The ability of actors to influence internal and external conditions of ecosystem functioning (e.g., local government initiatives, investment projects of local enterprises, etc.).
Interactions	Establishing and maintaining links between different actors and elements of the ecosystem (e.g., partnership agreements, joint projects, information exchange, etc.)
According to: (Adner, 2016; Tolstykh et al., 2020; Gamidullaeva et al., 2022; Kotomina, 2024).	

The ecosystem for sustainable development can be characterized by such structural and functional elements as internal environment, microecosystems, actors, functions, opportunities for influence, and interactions *(Tab. 3)*. Actors, actively interacting with the help of special technologies, methods and tools, realize their functions and influence key microecosystems (Kotomina, 2024). They are united by functional-target interests, forming numerous sectoral, entrepreneurial, innovation, business and other ecosystems. Functional ecosystems form a single ecosystem of the territory, overlapping and complementing each other (Tolstykh et al., 2020). In addition to interconnections with each other and with internal ecosystems, actors interact with the external environment. In the course of their communication, knowledge, information, resources and technologies are exchanged. The quality of performance of functions by actors and their impact on micro-ecosystems determine the achieved level of the sustainable socio-ecological-economic development of the territory (Kotomina, 2024). At the same time, the internal environment ensures the functioning of actors and the possibilities of their influence on micro-ecosystems.

The external environment for the ecosystem of the local territory is society, territories, and industries that interact with it. As well as the internal environment, it is formed by formal and informal institutions, but functioning outside the local territory. These are institutions of higher levels – regional, national, global. At the same time, the external environment can both ensure sustainable development and create barriers to it.

Thus, ecosystem behavior depends on both the external environment and the behavior of actors and their interactions with each other (Gamidullaeva et al., 2022).

Conclusion

The territorial aspect of sustainable development is of particular importance in the context of growing urbanization, growing pressure on natural resources and increasing anthropogenic pressure on ecosystems. The sustainable development of territories implies integrated resource management, minimizing negative environmental impacts, improving the quality of life and ensuring fair conditions for all citizens. At the same time, the implementation of SDGs at the territorial level requires taking into account the specifics of each individual area, including its geographical location, socio-economic characteristics, cultural features, and environmental conditions.

A common trend in both international sustainable development policy and research is a shift in focus from global and national levels to regional and municipal levels. This is evidenced by the 11th SDG "Making cities and human settlements open, safe, resilient and sustainable"[4]. In addition, the ecosystem approach to studying the sustainable development of territories is gaining popularity, which makes it possible to take a new look at the structure of socio-economic systems at different levels, to rethink their structure and connections, to optimize the ways and forms of economic activity to enhance the benefits of synergy from the symbiotic interaction of various economic agents in the form of increased overall performance and efficiency due to the coordination of their interests, the achievement of common goals and the development of the economy (Tret'yakova, Freiman, 2022). The ecosystem approach creates synergy between economic, social and ecological interests by combining the efforts of various actors and ensures sustainable development of local territories, helping them to adapt to the challenges and shocks of the external environment.

The review has shown that currently the topic of ecosystems for the sustainable development of local territories is at the stage of conceptualization and is rarely found in the Russian scientific literature. Despite the fairly widespread studies of the sustainable development of municipalities, cities, rural areas, there is still no universally recognized definition of the concept of the "sustainable development of local territories". Based on the systematization and synthesis of scientific literature, the research framework of local sustainable development ecosystems was conceptualized, including operational definitions of the concepts "sustainable development of local territories" and "ecosystem for the sustainable development of local territories". We identified the key structural and functional elements of the ecosystems for the sustainable development of local territories: internal environment, microecosystems, actors, types of activity, opportunities for influence, and interactions.

Within the framework of the research project, we are planning to substantiate the conceptual scheme of functioning of the ecosystem for the sustainable development of local territories, to develop and approbation of complex tools, including quantitative and qualitative research methods, to assess the state of ecosystems for the sustainable development of local territories.

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Public Opinion Monitoring of the State of the Russian Society

As in the previous issues, we publish the results of the monitoring of public opinion concerning the state of the Russian society. The monitoring is conducted by VolRC RAS in the Vologda Region[1].

The following tables and graphs show the dynamics of several parameters of social well-being and socio-political sentiment of the region's population according to the results of the latest round of the monitoring (April 2025) and for the period from April 2024 to April 2025 (the last seven surveys, that is, almost a year).

We compare the results of the surveys with the average annual data for 2000 (the first year of Vladimir Putin's first presidential term), 2007 (the last year of Vladimir Putin's second presidential term, when the assessment of the President's work was the highest), 2012 (the first year of Vladimir Putin's third presidential term) and 2018 (the first year of Vladimir Putin's fourth presidential term).

The annual dynamics of the data are presented for 2000–2024[2].

[1] The surveys are held six times a year in the cities of Vologda and Cherepovets, in Babayevsky, Velikoustyugsky, Vozhegodsky, Gryazovetsky, Tarnogsky Kirillovsky, Nikolsky municipal okrugs, and in Sheksninsky Municipal District. The method of the survey is a questionnaire poll by place of residence of respondents. The volume of a sample population is 1,500 people 18 years of age and older. The sample is purposeful and quoted. The representativeness of the sample is ensured by the observance of the proportions between the urban and rural population, the proportions between the inhabitants of settlements of various types (rural communities, small and medium-sized cities), age and sex structure of the Region's adult population. Sampling error does not exceed 3%.

More information on the results of VolRC RAS surveys is available at http:// www.vscc.ac.ru/.

[2] In 2020, four rounds of the monitoring were conducted. Surveys in April and June 2020 were not conducted due to quarantine restrictions during the spread of COVID-19.

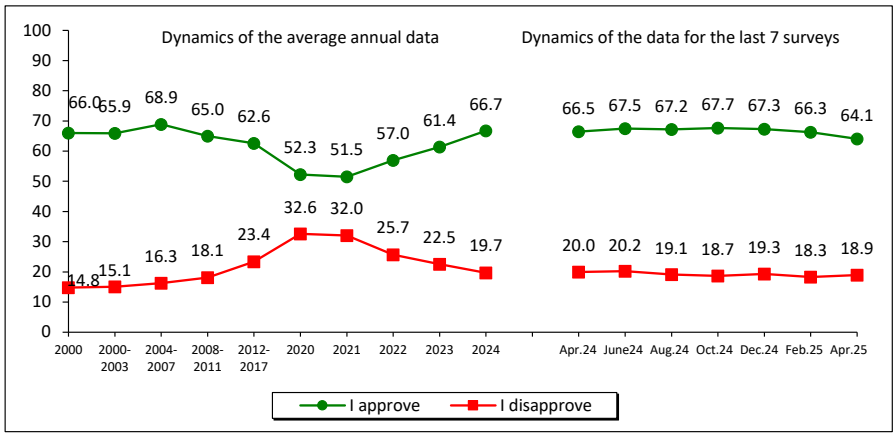
In February – April 2025 the President's approval rating remained unchanged and amounted to 64%. The proportion of negative assessments remains stable as well (18–19%)[3].

Over the last 12 months (from April 2024 to April 2025) the share of both positive and negative assessments of the head of state's work has not changed[4].

How would you assess the current work of…? (% of respondents)

Response	Dynamics of the average annual data									Dynamics of the data for the last 7 surveys							Dynamics (+/-), Apr. 2025 to	
	2000	2007	2012	2018	2020	2021	2022	2023	2024	Apr. 2024	June 2024	Aug. 2024	Oct. 2024	Dec. 2024	Feb. 2025	Apr. 2025	Apr. 2024	Feb. 2025
RF President																		
I approve	66.0	75.3	51.7	66.4	52.3	51.5	57.0	61.4	66.7	66.5	67.5	67.2	67.7	67.3	66.3	64.1	-2	-2
I disapprove	14.8	11.5	32.6	21.7	32.6	32.0	25.7	22.5	19.7	20.0	20.2	19.1	18.7	19.3	18.3	18.9	-1	+1
Chairman of the RF Government																		
I approve	-	-	49.6	48.0	38.7	39.9	45.4	50.1	54.1	53.7	53.5	55.3	53.7	55.6	54.7	53.9	0	-1
I disapprove	-	-	33.3	31.6	40.4	37.6	32.0	27.6	24.8	24.3	23.4	24.1	25.5	25.3	23.8	22.3	-2	-2
Vologda Region Governor																		
I approve	56.1	55.8	41.9	38.4	35.0	36.7	40.9	48.1	51.7	51.7	51.6	53.4	51.9	50.8	46.8	42.9	-9	-4
I disapprove	19.3	22.2	33.3	37.6	42.5	40.5	35.8	30.9	28.4	30.1	28.0	26.7	28.0	29.8	31.4	34.6	+5	+3
Wording of the question: "How would you assess the current work of ...?"																		

How would you assess the way that the RF President is handling his job?
(% of respondents, VolRC RAS data)*



Response	Dynamics (+/-), Apr. 2025 to	
	Apr. 2024	Feb. 2025
I approve	-2	-2
I disapprove	-1	+1

* Here and elsewhere, all graphs show the average annual data for 2000, 2020, 2021, 2022, 2023, 2024, as well as the average annual data for the periods 2000–2003, 2004–2007, 2008–2011, 2012–2017 that correspond to presidential terms.

[3] Here and elsewhere, in all tables and in the text, positive changes are highlighted in green, negative changes are highlighted in red, and no changes – in blue. Due to the fact that the changes of +/- 3 p.p. fall within the limits of sampling error, they are considered insignificant and are marked in blue.

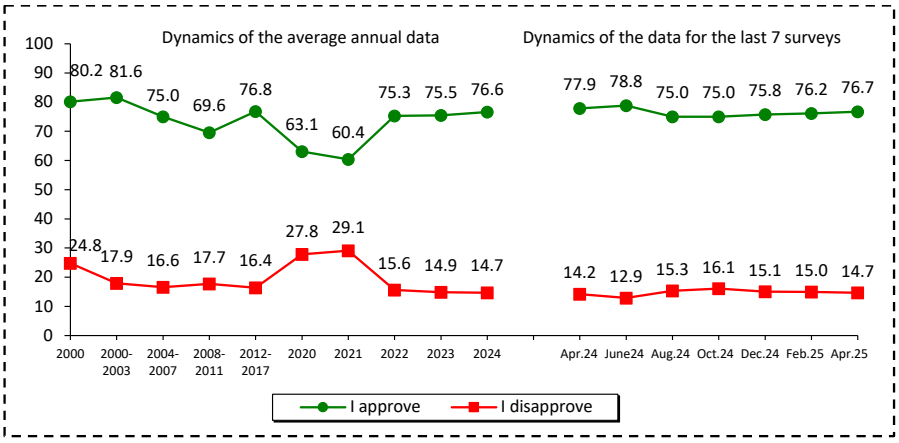
[4] Here and further in the text, the results of a comparative analysis of the data from the survey conducted in April 2025 with the results of the monitoring carried out in April 2024 are given in the frame.

For reference:

According to VCIOM, the President's approval rating in February – April 2025 was 77%, while the proportion of negative assessments – 15%.

The President's approval rating in April 2024 – April 2025 was 77–78%.

Do you approve or disapprove of the way that the RF President is handling his job?
(% of respondents; VCIOM data)



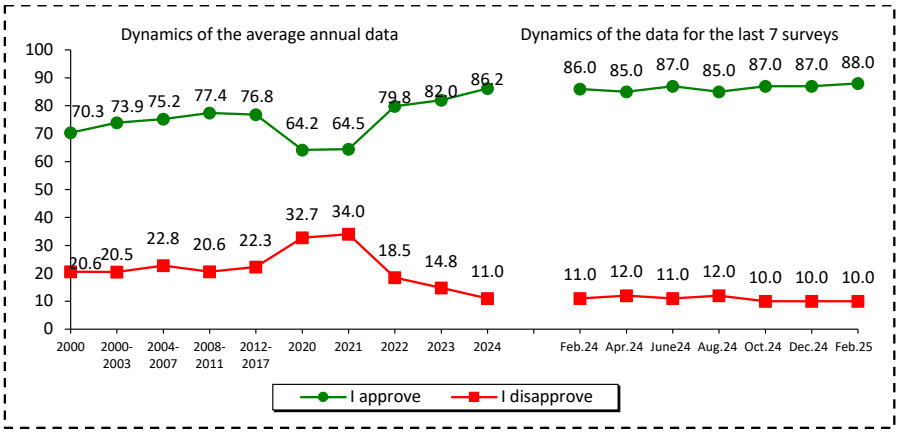
Response	Dynamics (+/-), Apr. 2025 to	
	Apr. 2024	Feb. 2025
I approve	-1	+1
I disapprove	+1	0

Wording of the question: "In general, do you approve or disapprove of the way that the Russian President is handling his job?"
Data as of April 2025 reflect an average for two surveys: as of April 6, 2025 and April 13, 2025.
Source: VCIOM. Available at: https://wciom.ru/

According to all-Russian surveys conducted by Levada-Center, over the last three months (December 2024 – February 2025) the share of positive assessments of the RF President's work is 86–88%, negative ones – 10–11%.*

The President's approval rating increased slightly in February 2024 – February 2025 (by 2 p.p., from 86 to 88%).

In general, do you approve or disapprove of the way that Vladimir Putin is handling his job as President of Russia? (% of respondents; Levada-Center* data)



Response	Dynamics (+/-), Feb. 2025 to	
	Feb. 2024	Dec. 2024
I approve	+2	+1
I disapprove	-1	0

Wording of the question: "In general, do you approve or disapprove of the way that Vladimir Putin is handling his job as President of Russia?"
Source: Levada-Center*. Available at: https://www.levada.ru/

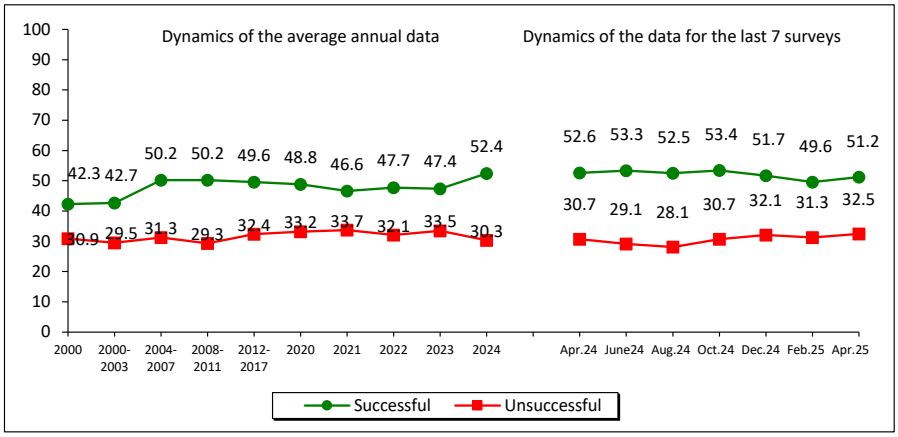
* Included in the register of foreign agents.

In your opinion, how successful is the RF President in handling challenging issues?
(% of respondents; VolRC RAS data)

Over the past two months, the share of Vologda Region residents who consider the actions of the head of state to strengthen Russia's international positions to be successful remained stable (51%). The share of those who hold the opposite point of view also did not change (33%).

The share of positive assessments of the head of state to strengthen the country's international positions in April 2025 remained at the level of April 2024 (52–53%).

Strengthening Russia's international position

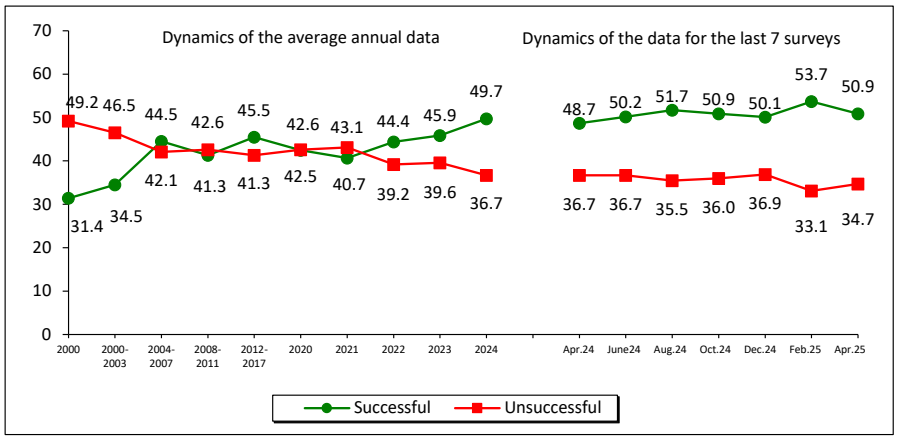


Response	Dynamics (+/-), Apr. 2025 to	
	Apr. 2024	Feb. 2025
Successful	-1	+2
Unsuccessful	+2	+1

From February to April 2025, the share of positive judgments of Vologda Region's population about the work of the President of the Russian Federation to restore order in the country slightly decreased (by 3 p.p.) and amounted to 51%. The share of negative judgments remained at the same level (35%).

Compared to April 2024, there is a slight change in the assessments of the RF President's work to restore order in the country: the share of positive assessments increased (by 2 p.p., from 49 to 51%), while the share of negative assessments decreased (by 2 p.p., from 37 to 35%).

Imposing order in the country

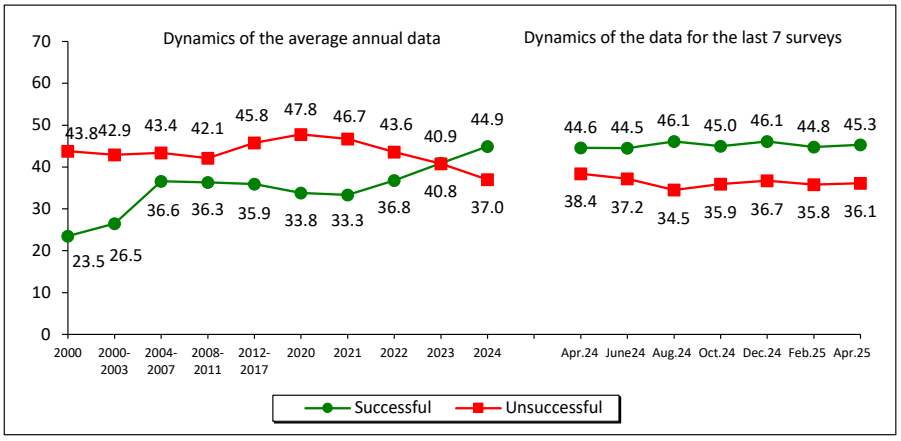


Response	Dynamics (+/-), Apr. 2025 to	
	Apr. 2024	Feb. 2025
Successful	+2	-3
Unsuccessful	-2	+2

The share of the population who consider the actions of the head of state to protect democracy and strengthen the freedoms of citizens as successful, in the period from February to April 2025 amounted to 45%. The share of those who hold the opposite viewpoint remains unchanged and amounts to 36%.

Over the last year, the share of both positive and negative assessments of the population regarding the activities of the RF President in protecting democracy and strengthening freedoms of citizens remained at the same level (45 and 36%, respectively).

Protecting democracy and strengthening citizens' freedoms

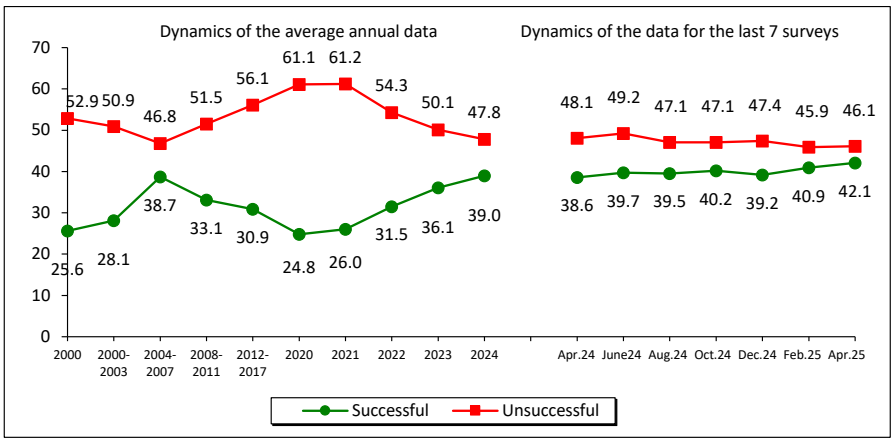


Response	Dynamics (+/-), Apr. 2025 to	
	Apr. 2024	Feb. 2025
Successful	+1	+1
Unsuccessful	-2	0

In February – April 2025, the assessment of the success of the RF President in solving the problem of economic recovery and growth of citizens' welfare remained at the same level: the share of positive judgments is 42%, negative – 46%.

In April 2024 to April 2025, we observe positive dynamics of public opinion in assessments of the RF President's work on economic recovery and growth of citizens' welfare. The share of positive judgments increased by 4 p.p. (from 38 to 42%). The share of negative assessments slightly decreased (from 48 to 46%).

Economic recovery, increase in citizens' welfare



Response	Dynamics (+/-), Apr. 2025 to	
	Apr. 2024	Feb. 2025
Successful	+4	+1
Unsuccessful	-2	0

The political preferences of Vologda Region residents in the period from February to April 2025 have not changed. The majority of the population notes that their interests are expressed by the United Russia party (41%). The share of the population supporting other parties also remained at the same level: CPRF – 9–8%, LDPR – 7%, Just Russia – 3%, New People – 2–3%.

Over the past year (from April 2024 to April 2025), the share of those whose interests are expressed by the United Russia party decreased by 4 p.p. (from 45 to 41%). The share of those who are not supporters of any party increased by 4 p.p. (from 24 to 28%).

Which party expresses your interests? (% of respondents; VolRC RAS data)

Party	Dynamics of the average annual data													Dynamics of the data for the last 7 surveys							Dynamics (+/-), Apr. 2025 to	
	2000	2011	Election to the RF State Duma 2011, fact	2012	2016	Election to the RF State Duma 2016, fact	2018	2020	Election to the RF State Duma 2020, fact	2021	2022	2023	2024	Apr. 2024	June 2024	Aug. 2024	Oct. 2024	Dec. 2024	Feb. 2025	Apr. 2025	Apr. 2024	Feb. 2025
United Russia	18.5	31.1	33.4	29.1	35.4	38.0	37.9	31.5	49.8	31.7	35.2	39.5	42.9	44.5	43.7	42.5	41.8	42.3	39.9	40.5	-4	+1
KPRF	11.5	10.3	16.8	10.6	8.3	14.2	9.2	8.4	18.9	9.3	10.1	9.6	8.9	8.5	8.2	9.7	8.7	9.1	8.8	8.0	-1	-1
LDPR	4.8	7.8	15.4	7.8	10.4	21.9	9.6	9.5	7.6	9.9	7.3	7.0	7.1	6.5	7.1	6.1	7.5	8.8	7.5	7.1	+1	0
New People*	–	–	–	–	–	–	–	–	5.3	2.3	1.5	1.9	2.0	1.9	2.3	1.6	2.3	2.3	2.3	3.0	+1	+1
Just Russia – Patriots for the Truth	-	5.6	27.2	6.6	4.2	10.8	2.9	4.7	7.5	4.7	4.9	4.4	3.5	2.8	2.7	3.5	4.2	4.4	3.1	2.9	0	0
Other	0.9	1.9	–	2.1	0.3	–	0.7	0.5	–	0.2	0.3	0.1	0.2	0.1	0.1	0.0	0.3	0.3	0.3	0.0	0	0
None	29.6	29.4	–	31.3	29.4	–	28.5	34.2	–	33.9	30.6	26.5	25.2	24.2	26.1	25.1	24.1	26.3	28.4	27.7	+4	-1
Difficult to answer	20.3	13.2	–	11.7	12.0	–	11.2	11.1	–	10.0	10.1	11.1	10.3	11.4	9.8	11.5	11.0	6.5	9.7	10.8	-1	+1

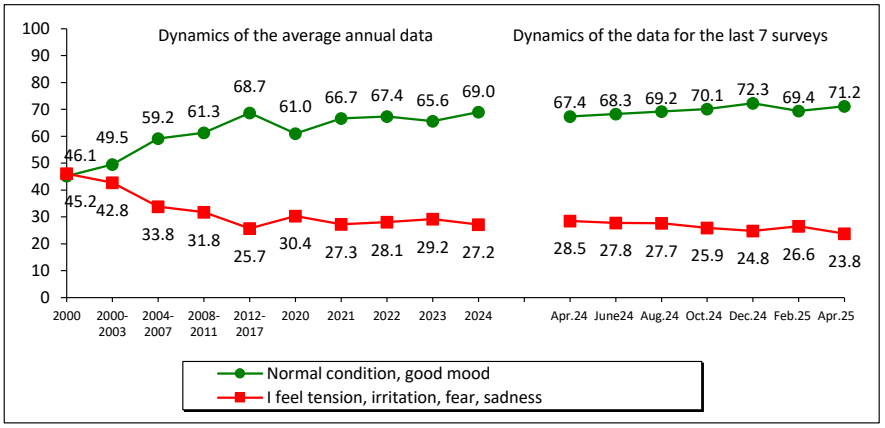
* The New People party was elected to the State Duma of the Russian Federation for the first time following the results of the election held on September 17–19, 2021.

Estimation of social condition
(% of respondents; VolRC RAS data)

Over the last two months the assessment of social mood of citizens remains consistently high: the share of positive assessments is 71%, negative ones – 24%.

In April 2025, as compared to April 2024, we observe positive dynamics in public opinion regarding people's mood. The share of positive judgments increased by 4 p.p. (from 67 to 71%). The share of negative judgments decreased by 5 p.p., from 29 to 24%.

Social mood

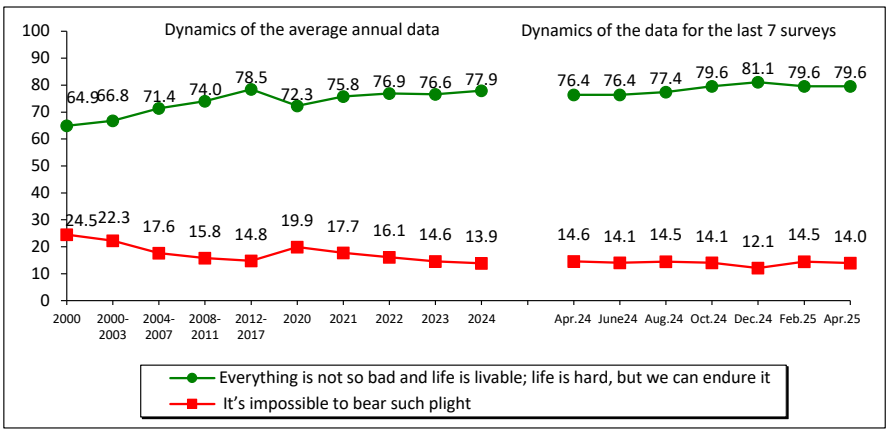


Response	Dynamics (+/-), Apr. 2025 to	
	Apr. 2024	Feb. 2025
Normal condition, good mood	+4	+2
I feel tension, irritation, fear, sadness	-5	-3

From February to April 2025, the indicators of stock of patience remain unchanged. A large proportion of people positively characterize their everyday emotional state (80%).

The stock of patience in the assessments of Vologda Region residents in the annual retrospective has slightly increased (by 3 p.p., from 77 to 80%). The level of negative assessments remains consistently low.

Stock of patience

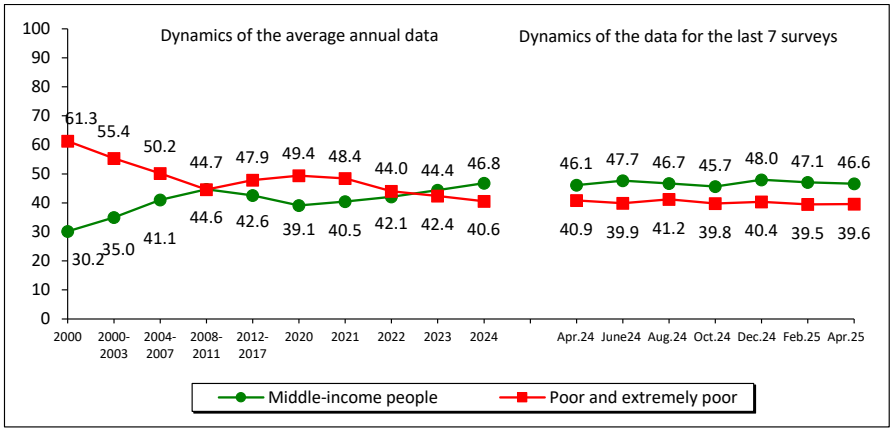


Response	Dynamics (+/-), Apr. 2025 to	
	Apr. 2024	Feb. 2025
Everything is not so bad and life is livable; life is hard, but we can endure it	+3	0
It's impossible to bear such plight	-1	-1

Over two months (February – April 2025) the share of Vologda Region residents subjectively classifying themselves as "middle-income" people remained at 47%. The proportion of the "poor and extremely poor" remained at the level of 39–40%.

Over 12 months (from April 2024 to April 2025), self-assessment of people's financial situation has not changed either.

Social self-identification*



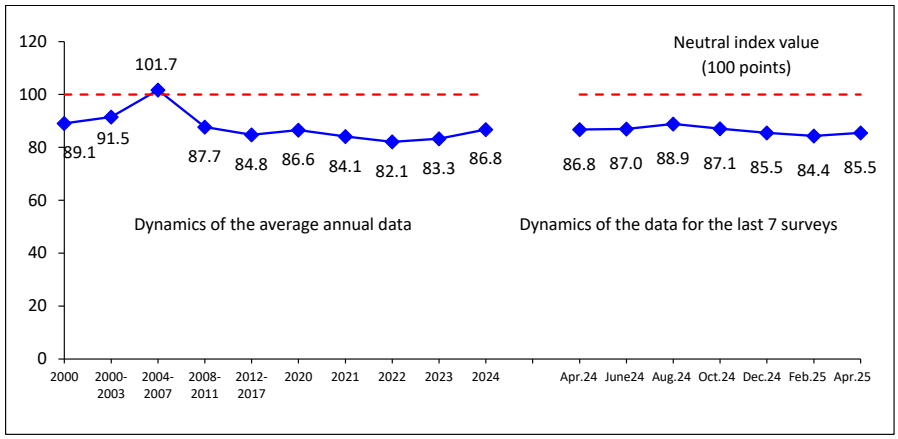
Response	Dynamics (+/-), Apr. 2025 to	
	Apr. 2024	Feb. 2025
Middle-income people	+1	-1
Poor and extremely poor	-1	0

Wording of the question: "What category do you belong to, in your opinion?"

In February – April 2025, the Consumer Sentiment Index remained unchanged at 85 points.

There has been no deterioration or improvement in the Consumer Sentiment Index over the past year.

Consumer Sentiment Index
(CSI, points; VolRC RAS data for the Vologda Region)



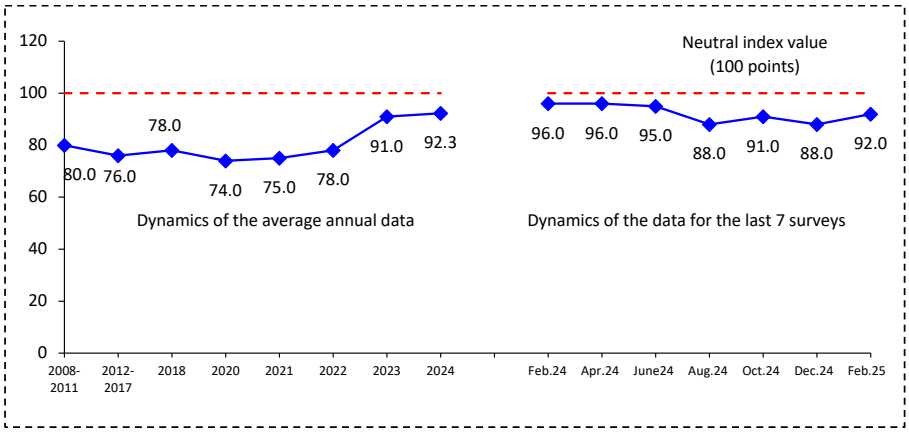
CSI	Dynamics (+/-), Apr. 2025 to	
	Apr. 2024	Feb. 2025
Index value, points	-1	+1

For reference:

According to Levada-Center, the Consumer Sentiment Index in Russia as a whole increased by 4 points (from 88 to 92 points) from December 2024 to February 2025.*

Over the past year, the indicator of the all-Russian Consumer Sentiment Index decreased by 4 points (from 96 to 92 points).

Consumer Sentiment Index (CSI, points; Levada-Center* data for Russia)



CSI	Dynamics (+/-), Feb. 2025 to	
	Feb. 2024	Dec. 2024
Index value, points	-4	+4

The index is calculated since 2008.
The latest data are as of February 2025.
Source: Levada-Center*. Available at: https://www.levada.ru/indikatory/sotsialno-ekonomicheskie-indikatory/

The social mood of Vologda Region residents remains stable over the two months of measurements and is characterized by emotional stability. At the same time, there is a positive shift in self-reported mood in women (from 69 to 73%) and people aged 30–55 (from 70 to 74%). No negative changes are recorded.

The annual dynamics (April 2025 to April 2024) showed the presence of predominantly positive trends in the assessment of Vologda Region residents' social mood. The most pronounced positive changes are registered in:

- ✓ women (increase in the share of positive judgments by 6 p.p., from 67 to 73%);
- ✓ people with secondary education (by 7 p.p., from 68 to 75%);
- ✓ residents aged over 55 (by 5 p.p., from 61 to 66%).

In the breakdown by income group, as well as by territory, insignificant positive changes (by 3–4 p.p.) are noted.

* Included in the register of foreign agents.

Social mood in different social groups (response: "Wonderful mood, normal, stable condition", % of respondents; VolRC RAS data)

Population group	Dynamics of the average annual data									Dynamics of the data for the last 7 surveys							Dynamics (+/-), Apr. 2025 to	
	2000	2007	2012	2018	2020	2021	2022	2023	2024	Apr. 2024	June 2024	Aug. 2024	Oct. 2024	Dec. 2024	Feb. 2025	Apr. 2025	Apr. 2024	Feb. 2025
Gender																		
Men	50.1	65.9	69.1	72.8	60.8	65.7	66.8	65.5	66.5	67.7	63.5	67.1	65.2	69.2	70.1	68.8	+1	-1
Women	43.3	61.7	65.8	69.8	61.2	67.4	67.9	65.7	70.9	67.1	72.1	70.9	74.0	74.7	68.8	73.1	+6	+4
Age																		
Under 30	59.1	71.3	72.3	79.9	67.6	73.5	77.6	75.0	76.6	77.5	71.8	76.1	78.0	81.3	79.9	76.7	-1	-3
30–55	44.2	64.8	67.9	72.6	61.8	69.5	69.4	68.8	71.3	70.0	71.8	72.8	69.8	73.2	70.2	74.1	+4	+4
Over 55	37.4	54.8	62.1	65.2	57.4	60.5	61.1	58.2	63.3	60.7	62.7	62.1	67.4	67.8	64.6	65.8	+5	+1
Education																		
Secondary and incomplete secondary	41.7	58.4	57.2	64.8	56.1	62.1	64.6	62.0	64.6	64.7	65.5	65.3	62.5	65.5	64.6	65.6	+1	+1
Secondary vocational	46.4	64.6	66.7	72.1	63.5	66.7	68.3	66.1	70.3	67.9	65.2	70.7	75.2	76.5	71.8	74.8	+7	+3
Higher and incomplete higher	53.3	68.6	77.0	76.7	63.3	71.5	69.5	68.8	72.3	69.8	76.0	72.1	72.3	74.2	71.4	73.4	+4	+2
Income group																		
Bottom 20%	28.4	51.6	51.5	57.2	43.4	54.6	57.0	50.1	53.5	53.0	51.3	53.7	54.8	55.7	55.9	56.9	+4	+1
Middle 60%	45.5	62.9	68.7	72.1	62.6	67.3	68.1	67.4	70.7	68.5	70.0	71.0	73.6	74.2	70.5	72.6	+4	+2
Top 20%	64.6	74.9	81.1	82.4	75.6	79.9	78.3	73.9	77.6	77.5	78.5	75.9	78.4	80.6	77.9	81.3	+4	+3
Territory																		
Vologda	49.2	63.1	73.6	71.0	60.9	60.3	59.8	59.6	66.0	64.2	65.2	66.4	67.9	69.6	66.7	68.6	+4	+2
Cherepovets	50.8	68.1	76.2	75.7	60.4	71.0	71.2	68.1	69.8	68.2	69.4	70.2	70.7	73.0	69.9	71.5	+3	+2
Districts	42.2	61.6	59.8	68.6	61.4	67.8	69.5	67.7	70.2	68.8	69.4	70.3	71.0	73.4	70.7	72.7	+4	+2
Region	46.2	63.6	67.3	71.2	61.0	66.6	67.4	65.6	69.0	67.4	68.3	69.2	70.1	72.3	69.4	71.2	+4	+2
Total number of groups: positive change / no change / negative change																	14: 10/4/0	14: 2/12/0

SUMMING UP

The latest round of public opinion monitoring took place in March – April 2025. As its results show, over the past two months there were no significant changes in the dynamics of public opinion assessments:

✓ **the President's approval rating (64%) and support for his decisions on key areas of the country's development remains consistently high;**

✓ **there are no significant changes in the dynamics of self-assessments of financial situation (the share of people who subjectively classify themselves as "poor and extremely poor" makes 40%; the Consumer Sentiment Index is 84–85 points);**

✓ **the share of those who positively characterize their everyday emotional state (69–71%) and have a high stock of patience (80%) has remained unchanged.**

From February to April 2025 the level of support for the activity of the head of the Vologda Region slightly decreased (by 4 p.p., from 47 to 43%), which was also noted by the experts of the Russian holding company Minchenko Consulting, who linked this fact to "the aggravation of the confrontation between the governor of the Vologda Region and Severstal and the head of the company Alexei Mordashov, as well as to the detention of the vice-governor of the region Denis Alekseev"[5].

More pronounced changes in the dynamics of public opinion are observed in the annual dimension (for the period from April 2024 to April 2025). In particular:

- ✓ **positive dynamics in assessments of the RF President's work on economic recovery and growth of citizens' welfare (the share of approving judgments increased by 4 p.p., from 38 to 42%);**
- ✓ **positive changes in self-assessments of social mood in most socio-demographic groups (especially in women, middle-aged and elderly people, and citizens with secondary and higher education);**
- ✓ **among the negative changes we should single out a slight decrease in support for the ruling party United Russia (from 45 to 41%), as well as an increase in the share of those who believe that none of the parties currently represented in the State Duma expresses their interests (from 24 to 28%).**

The preservation of a stable picture of public opinion on the key issues of the monitoring against the background of the ongoing special military operation, sanctions and other forms of pressure on Russia from the Western countries is an unconditional merit of public administration at all levels. However, we should note that the achieved stability may be very relative.

At present, it is largely associated with the beginning and quite active continuation[6] of the negotiation processes between Russia and the United States on the settlement of bilateral relations for the strategic perspective. In a sense, society is waiting for tangible results of potential agreements, the best of which would be "not a ceasefire", as the President of the Russian Federation noted in December 2024, "but peace – long-term, durable, and guaranteed for the Russian Federation and its citizens"[7].

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[5] Nineteenth rating of political stability of regional heads "State Council 2.0". Minchenko Consulting. March 2025. P. 9. Available at: https://minchenko.ru/news/news_247.html

For reference: February 26, 2025 "officers of the FSB and the Investigative Committee detained vice-governor of the Vologda Region D. Alekseev in Moscow on the charge of extortion of 100 million rubles. Head of the region's representative office in Moscow K. Bocharov was detained as well" (source: RBC. 26.02.2024. Available at: https://www.rbc.ru/politics/26/02/2025/67bebf9a9a794722e03df5f3?ysclid=m99nwl5ilh127840083

[6] February 12, 2025, a telephone conversation took place between President of the Russian Federation Vladimir Putin and President of the United States Donald Trump. As a result, the heads of state agreed to continue contacts.

February 18, Riyadh (Saudi Arabia) hosted the first (since the beginning of the SMO) meeting of representatives of Russia and the United States on the restoration of bilateral diplomatic relations. The delegation from Russia was represented by Foreign Minister S. Lavrov, Presidential Aide Yu. Ushakov and the head of the Russian Direct Investment Fund (RDIF) K. Dmitriev.

March 24, the second negotiations took place. The main topic was the Black Sea grain initiative. Russia was represented by G. Karasin, Head of the Federation Council Committee on International Affairs, and S. Beseda, Advisor to the FSB Director.

April 2–3 (for the first time since the beginning of the conflict), the Special Representative of the Russian President for Investment and Economic Cooperation with Foreign Countries, Head of the Russian Direct Investment Fund (RDIF) K. Dmitriev visited the USA. In the interview he noted that Russia and the USA made "three steps forward on a large number of issues", in particular, they started "active work on the restoration of direct air communication" (source: RBC. 04.04.2025. Available at: https://www.rbc.ru/rbcfreenews/67eef5039a79473cb4cd8c1f?from=article_body).

April 10 in Istanbul at the next round of negotiations the issue of the return of the seized diplomatic property and the resumption of direct air communication was discussed. The Russian Federation was represented by Russian Ambassador to the United States A. Darchiev, Washington – by Deputy Assistant Secretary of State for European and Eurasian Affairs S. Coulter.

[7] Results of the year with Vladimir Putin. December 19, 2024. Available at: http://www.kremlin.ru/events/president/news/75909

However, while always emphasizing the positive atmosphere in which the international consultations are taking place, the participants in the negotiation processes on the Russian side rightly draw attention to the fact that "the restoration of dialogue is not an easy and gradual process[8]; "not every negotiation necessarily ends in some large-scale documents and agreements. It is important to maintain contact and understand each other's point of view at all times"[9]. In other words, it is still quite unclear when and how the US – Russian negotiations will end, as well as how long this factor will have a positive impact on people's expectations and sentiments.

Under these conditions, it should be taken into account that stabilization and some positive shifts in the dynamics of public sentiments (first of all, it concerns the assessments of the social well-being of the population) are not a guarantee of the absence of potential risks and challenges. Therefore, there is still a need to further strengthen trust between the authorities and society, in an open dialog and transparency of decisions, taking into account the interests of various social groups. At the same time, it remains equally important to inform the population about the measures taken in order to enhance socio-economic development, as well as about the results of their implementation.

The results of the next round of the monitoring conducted by VolRC RAS will show in what direction the changes in the public opinion of Vologda Region residents will develop in the near future.

Prepared by K.E. Kosygina and I.M. Bakhvalova

[8] "Uncomplicated and gradual process": RDIF head Dmitriev reports on talks with Trump administration. Available at: https://russian.rt.com/world/article/1458511-kirill-dmitriev-ssha-peregovory?ysclid=m9r3828fo2374298612

[9] Senator Karasin on talks with the U.S. in Riyadh: The sides have mutual understanding. Available at: https://rg.ru/2025/03/24/senator-karasin-o-peregovorah-s-ssha-v-er-riiade-vzaimoponimanie-u-storon-est.html

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